Comparative Studies on Pharmacopoeial Definitions, Requirements and Information for Crude Drugs among FHH Member Countries in 2007

(Reorganized edition with explanatory notes of tables)

The Sub-Committee I of the Western Pacific Regional Forum for the Harmonization of Herbal Medicines (FHH)

April 2011

Preface

The Sub-Committee I meeting of the Western Pacific Regional Forum for the Harmonization of Herbal Medicines (FHH) on nomenclature and standardization was held at National Institute of Health Sciences, Tokyo, Japan, on 21-23 May. Representatives attended it from China, Hong Kong (China), Japan, Republic of Korea, Singapore and Vietnam.

In the meeting the all participants recognized the importance of comparison on descriptions for herbal medicines in member party's pharmacopoeias or monograph standards as first step for the harmonization of nomenclature and standardization, and agreed to set up five expert working groups (EWG) for specific tasks as follows:

1. Nomenclature (Head: Eiji Sakai): The task was to prepare a comparison table on names of medicinal plant materials in CP, JP, KP and VP.
2. Testing Method in Monographs (Head: Nobuo Kawahara): The task was to list out the testing methods in monographs. The priority should be given to those medicinal plant materials appeared in all related four pharmacopoeias.
3. List of Chemical Reference Standards (CRS) and Reference of Medicinal Plant Materials (RMPM). (Head: Hiroyuki Fuchino: The task was to prepare a list of CRS and RMPM available in member parties.
4. List of Analytically Validated Method (Head: Yukihiro Goda): The task was to prepare a list of analytically validated methods in CP, JP, KP and VP.
5. Information on General Test (Head: Keum-ryon Ze, Jim-Sook Kim): The task was to collect information on general testing methodology on contamination such as pesticides, insecticides, herbicides, toxic metals and de-colouring agent in all member parties and to draft a report on testing methodology on contamination of different types of contaminants.

Until August of 2007, the EWG members made a lot of efforts to fulfill the task described above. Almost all of the comparative tables or lists were available.

At the Standing Committee meetings in Tokyo (2005 and 2006), the Sub-Committee I reported the data collected and prepared by the EWGs. This publication was compiled one of the reported data with additional information.

The purpose of the publication entitled as "Comparative Studies on Pharmacopoeial Definitions, Requirements and Information for Crude Drugs among FHH Member Countries in

2007” is primary to promote harmonization in the use of herbal medicines. The fist step of the harmonization is the mutual understanding of regulating system among member parties and Pharmacopoeia is the basis of the drug regulation. Therefore, we strongly expect that the publication will help the FHH members to achieve common consensus on herbal medicines.

The convenor of the Sub-Committee I
Motoyoshi SATAKE (Chair)
Yukihiro GODA

Edited by
Nobuo KAWAHARA

Content

Introduction

ver. 1.0 14 April 2011

This project was completed by the Sub-Committee I of the Western Pacific Regional Forum for the Harmonization of Herbal Medicines (FHH) in Japan in August 2007, which aimed to compare the nomenclature and testing method of each monograph of crude drug recorded in Chinese Pharmacopoeia (CP), Japanese Pharmacopoeia (JP), Korean Pharmacopoeia (KP) and Vietnamese Pharmacopoeia (VP), to list reference information from CP, JP, KP and VP including Chemical Reference Standards (CRS) and Reference of Medicinal Plant Materials (RMPM), to provide other information relating to the crude drugs recorded in CP, JP, KP and VP such as analytically validated methods and general test methodology, and, therefore, to promote harmonization of crude drugs recorded in CP, JP, KP and VP.

Since this project was conducted in Japan, except for JP, of which Japanese version was used, the versions of the other three pharmacopoeias used are in English. The full name and version number of all these four pharmacopoeias are listed as follows:

CP: Pharmacopoeia of the People's Republic of China (2005 edition, English version);

JP: The Japanese Pharmacopoeia (15th edition, 2006, Japanese version);

KP: The Korean Pharmacopoeia (8th edition, 2003, English version);

VP: Vietnamese Pharmacopoeia (3rd edition, 2005, English version)

Apart from JP, Non-JP Crude Drug Standards (Non-JPS, the Japanese Herbal Medicine Codex, Japanese version) was also used as a reference for information presented in this document from Japan. Non-JPS is a notification of the director of Pharmaceuticals and Cosmetics division, Pharmaceutical Affairs Bureau, Ministry of Health and Welfare in 1989, while JP is a ministerial notification.

Five expert working groups (EWGs) were set up for this project, which are EWG I for Nomenclature, EWG II for Testing Method in Monographs, EWG III for lists of CRS and RMPM, EWG IV for Analytically Validated Methods, and EWG V for Information on General Test. In total, 16 comparative tables are published in this document.

In addition, FHH Sub-Committee I will continue working for the update of this document. The work for the renewal of the comparison tables presented this document will commence after the publishing of JP 16th edition and the English version of CP 2010 edition.

Comparison tables can be downloaded via FHH website (http://www.fhhm.net/) or Japan National Institute of Health Sciences (NIHS) website (http://www.nihs.go.jp/dpp/FHH/FHH.htm).

Section 1

Table 1-3 complied by EWG I for Nomenclature

Table 1 to 3 are comparative tables on nomenclature compiled by EWG I. Table 1 is the Comparative table on names of crude drugs in JP (the total number of crude drugs recorded in JP is 197), CP (551 crude drugs), KP (121 crude drugs) and VP (209 crude drugs). In total, 106 monographs are presented in Table 1, which are common crude drugs using the same plant source among more than three pharmacopoeias.

The first 57 monographs (serial number: SN 1-57 in Table 1) are crude drugs using the same plant source among *four* pharmacopoeias, and the next 49 (SN 58-106) are crude drugs using the same plant source among *any of the three* pharmacopoeias.

In addition, crude drugs in Table 1 (SN 1-57), using the same plant source in *four* pharmacopoeias, can be classified into three patterns according to the plant species defined by each pharmacopoeia. Three patterns are present as follows.

Pattern	Description	Example	Crude herbs
I	27 crude drugs use completely the same plant species among four pharmacopoeias	*Poria cocos* is the only botanical species name used for the crude drug Poria	Alismatis Rhizoma, Alpiniae Fructus, Alpiniae Fructus, Anemarrhenae Rhizoma, Atractylodis Lanceae Rhizoma, Carthami Flos, Corni Fructus, Curcumae Rhizoma, Eucommiae Cortex, Logan Arillus, Foeniculi Fructus, Fritillariae Bulbus, Gardeniae Fructus, Leonuri Herba, Myristicae Semen, Nelumbis Semen, Notpterygii Rhizoma, Moutan Cortex, Ginseng Radix, Platycodi Radix, Pogostemoni Herba, Polyporus, Poria, Persicae Semen, Scutelariae Radix, Strychni Semen, Zizyphi Fructus, Zizyphi Semen.
II	26 crude drugs use the same plant species as the original plant among four pharmacopoeias, while other additional species is defined in one, two or three pharmacopoeia(s)	*Glycyrrhiza uralensis* and *G. glabra* are the original plant species defined in four pharmacopoeias for Glycyrrhizae Radix, while *G. inflata* is defined in CP and VP only	Achyrantis Radix, Processi Aconii Radix, Angelicae Dahuricae Radix, Astragali Radix, Atractylodis Rhizoma, Bupleuri Radix, Cimicifugae Rhizoma, Cinnamoni Cortex, Cyperi Rhizoma, Ephedrae Herba, Ehimedii Herba, Evodiae Fructus, Forsythiae Fructus, Glycyrrhizae Radix, Lonicerae Flos, Magnoliae Cortex, Mori Cortex, Paeoniae Radix, Polygonathi Rhizoma, Armeniacae Semen, Rhei Rhizoma, Sshisandrae Fructus, Caryophylli Flos, Trichosanthis Radix, Trichosanthis Semen, Zingiberis Rhizoma
III	3 crude drugs use the same botanical name at the level of species name among four pharmacopoeias, while sub-species name is defined in one, two or three pharmacopoeia(s)	*Coix lacryma-jobi var. ma-yuen* is defined in JP, CP and KP for Coicis Semen, while *C. lacryma-jobi* is defined in VP only	Coicis Semen, Imperata Rhizoma, Prunellae Spica

Note: Menthae Herba (SN 32) could not be classified into any of the above patterns, as the existence of hybrid makes it difficult to distinguish two species (i.e. *Mentha arvensis* var. *piperascens* and *M. haplocalyx*) described in four pharmacopoeias.

Crude drugs (SN 58-106) using the same plant source included in *any of the three* pharmacopoeias can be categorised into five groups as follows.

Group	Description	Crude herbs
I	25 crude drugs use the same botanical name and are recorded in JP, CP and VP	Aloe, Alpiniae Officinari Rhizoma, Angelicae Pubescentis, Arctii Fructus, Arecae Pericarpium, Asteris Radix, Sappan Lignum, Chrysanthemi Flos, Aurantii Fructus Immaturus, Clematidis Radix, Cnidii Monnieris Fructus, Kaki Calys, Eriobotrayae Folium, Houttuyniae Herba, Linderae Radix, Lycii Cortex, Perilae Fructus, Peucedani Radix, Mume Fructus, Rehmanniae Radix, Saussureae Radix, Smilacis Rhizoma, Chebulae Fructus, Tribuli Fructus, Viticis Fructus
II	16 crude drugs use the same botanical name and are recorded in JP, CP and KP	Akebiae Caulis, Arecae Semen, Sennae Folium, Crataegi Fructus, Crocus, Dioscoreae Rhizoma, Gentianae Scabrae Radix, Pharbitidis Semen, Phellodendri Cortex, Plantaginis Semen, Polygalae Radix, Puerariae Radix, Saposhnikoviae Radix, Schizonepetae Spica, Sphorae Radix, Sophorae Flos
III	2 crude drugs use the same botanical name and are recorded in CP, KP and VP	Piperis Nigri Fructus, Slavae Miltiorrhizae Radix
IV	2 crude drugs use the same botanical name and are recorded JP, KP and VP	Zedoariae Rhizoma, Geranii Herba
V	4 crude drugs are recorded in all four pharmacopoeias, but the same plant sources are only defined in three pharmacopoeia (see the following note)	Arisaematis Tuber, Cassiae Semen, Lycii Fryctus, Scrophulariae Radix

Note: Examples of Group V: for crude herb Cassiae Semen, *Cassia obtusifolia* is defined in JP CP and KP, while *C. tora* is defined in JP CP and VP; for crude herb Scrophulariae Radix, *Scrophularia buergeriana* is defined in JP, KP and VP, while *S. ningpoensis* is defined in JP, CP and VP.

Table 2 is the Comparative table on description of crude drugs in JP, CP, KP and VP, which includes 30 crude drugs. All these 30 crude drugs are recorded in *four* pharmacopoeias (i.e. as part of crude drugs SN 1-57 in Table 1) and with available information on the description of crude drugs provided by all of the four pharmacopoeias. The information on description includes names of crude herbs in original language of each country (e.g. Poria as ブクリョウ in JP, 茯苓 in CP, 복령 in KP and Phục linh/Bạch linh in VP), Latin title, size of crude drug (i.e. length, diameter, width and thickness), and whether or not the data of magnifying glass and microscope are specified for each drug.

Table 3 is the Comparative table on English titles and part of use of crude drugs in JP, CP, KP and VP, which is a continuous table of Table 2. Additional descriptions of 30 drugs included in Table 2 are presented. The information on description includes English title and plant part used.

Table 1

Comparative table on names of crude drugs in JP, CP, KP and VP

Comparative table on names of crude drugs in JP, CP, KP and VP

	JP15	CP2005	KP8	VP3
1	**ACHYRANTHIS RADIX**	**RADIX ACHYRANTHIS BIDENTATAE**	**ACHYRANTHIS RADIX**	**RADIX ACHYRANTHIS BIDENTATAE**
	Achyranthes fauriei Leveille et Vaniot	*Achyranthes bidentata* Bl.	*Achyranthes fauriei* Leveille et	*Achyranthes bidentata* Blume
	Achyranthes bidentata Blume		*Achyranthes bidentata* Blume	
2	**PROCESSI ACONII RADIX**	**RADIX ACONITI LATERALIS PREPARATA**	**ACONITI LATERALIS RADIX PREPARATA**	**RADIX ACONITI LATERALIS PRAEPARATA**
	Aconitum carmichaeli Debeaux	*Aconitum carmichaeli* Debx.	*Aconitum carmichaeli* Debeaux	*Aconitum carmichaeli* Debx.
	Aconitum japonicum Thunberg			
3	**ALISMATIS RHIZOMA**	**RHIZOMA ALISMATIS**	**ALISMATIS RHIZOMA**	**RHIZOMA ALISMATIS**
	Alisma orientale Juzepczuk	*Alisma orientalis* (Sam.) Juzep.	*Alisma orientale* Juzepczuk	*Alisma Plantago-aquatica* L. var. *orientale* (Sammuels) Juzep.
4	**ALPINIAE FRUCTUS**	**FRUCTUS ALPINIAE**	**ALPINIAE FRUCTUS**	**FRUCTUS ALPINAE**
	Alpinia oxyphylla Miquel	*Alpinia oxyphyll* a Miq.	*Alpinia oxyphylla* Miquel	*Alpinia oxyphylla* Miq.
5	**ANEMARRHENAE RHIZOMA**	**RHIZOMA ANEMARRHENAE**	**ANEMARRHENAE RHIZOMA**	**RHIZOMA ANEMARRHENAE**
	Anemarrhena asphodeloides Bunge	*Anemarrhena asphodeloides* Bge.	*Anemarrhena asphodeloides* Bunge	*Anemarrhena asphodeloides* Bge.
6	**ANGELICAE DAHURICAE RADIX**	**RADIX ANGELICA DAHURICAE**	**ANGELICAE DAHURICAE RADIX**	**RADIX ANGELICAE DAHURICAE**
	Angelica dahurica Bentham et Hooker	*Angelica dahurica* (Fisch. ex Hoffm.) Benth. et Hook. f.	*Angelica dahurica* Bentham et Hooker	*Angelica dahurica* (Fisch. ex Hoffm.) Benth. et Hook. f.
		Angelica dahurica (Fisch. ex Hoffm.) Benth. et Hook. f. var. *formosana* (Boiss.) Shan et Yuan		*Angelica dahurica* (Fisch. ex Hoffm.) Benth. et Hook. f. var. *formosana* (Boiss) Shan et Yuan
7	**ASTRAGALI RADIX**	**RADIX ASTRAGALI**	**ASTRAGALI RADIX**	**RADIX ASTRAGALI MEMBRANACI**
	Astragalus membranaceus Bunge	*Astragalus membranaceus* (Fisch.) Bge. var. *mongholicus* (Bge.) Hsiao	*Astragalus membranaceus* Bunge	*Astragalus membranaceus* (Fisch.) Bge. var. *mongholicus* (Bge) Hsiao
	Astragalus mongholicus Bunge	*Astragalus membranaceus* (Fisch.) Bge.		*Astragalus membranaceus* (Fisch.)

Comparative table on names of crude drugs in JP, CP, KP and VP

	JP15	CP2005	KP8	VP3
8	**ATRACTYLODIS RHIZOMA**	**RHIZOMA ATRACTYLODIS MCROCEPHALAE**	**ATRACTYLODIS RHIZOMA ALBA**	**RHIZOMA ATRACTYLODES MACROCEPHALAE**
	Atractylodes japonica Koidzumi ex Kitamura	*Atractylodes macrocephala* Koidz.	*Atractylodes japonic* a Koidzumi ex Kitamura	*Atractylodes macrocephala* Koidz.
	Atractylodes ovata De Candolle		*Atractylodes ovata* De Candole	
9	**ATRACTYLODIS LANCEAE RHIZOMA**	**RHIZOMA ATRACTILODIS**	**ATRACTYLODIS RHIZOMA**	**RHIZOMA ATRACTYLODIS**
	Atractylodes lance a De Candolle	*Atractylodes lancea* (Thunb.) DC.	*Atractylodes lancea* De Candolle	*Atractylodes lancea* Thunb.
	Atractylodes chinensis Koidzumi	*Atractylodes chinensis* (DC.) Koidz.	*Atractylodes chinensis* Koidzumi	*Atractylodes chinensis* (DC.) Koidz
10	**BUPLEURI RADIX**	**RADIX BUPLEURI**	**BUPLEURI RADIX**	**RADIX BUPLEURI**
	Bupleurum falcatum Linne	*Bupleurum chinense* DC.	*Bupleurum falcatum* Linne	*Bupleurum chinense* DC.
		Bupleurum scorzonerifolium Willd.	or varieties	*Bupleurum scorzonerifolium* Willd.
11	**CARTHAMI FLOS**	**FLOS CARTHAMI**	**CARTHAMI FLOS**	**FLOS CARTHMI TINCTORII**
	Carthamus tinctorius Linne	*Carthamus tinctorius* L.	*Carthamus tinctorius* Linne	*Carthamus tinctorius* L.
12	**CIMICIFUGAE RHIZOMA**	**RHIZOMA CIMICIFUGAE**	**CIMICIFUGAE RHIZOMA**	**RHIZOMA CIMICIFUGAE**
	Cimicifuga simplex Wormskjord	*Cimicifuga heracleifolia* Kom.	*Cimicifuga heracleifolia* Komarov	*Cimicifuga heracleifolia* Kom.
	Cimicifuga dahurica（Turcz.）	*Cimicifuga dahurica* (Turcz.) Maxim.	other	*Cimicifuga dahurica* (Turcz.) Maxim.
	Cimicifuga foetida Linne	*Cimicifuga foetida* L.		*Cimicifuga foetida* L.
	Cimicifuga heracleifolia Komarov			
13	**CINNAMOMI CORTEX**	**CORTEX CINNAMOMI**	**CINNAMOMI CORTEX**	**CORTEX CINNAMOMI**
	Cinnamomum cassia Blume	*Cinnamomum cassia* Presl	*Cinnamomum cassia* Blume	*Cinnamomum cassia* Presl.
			other	Cinnamomum spp.
14	**COICIS SEMEN**	**SEMEN COICIS**	**COICIS SEMEN**	**SEMEN COICIS**
	Coix lacryma-jobi Linne var. *ma-yuen* Stapf	*Coix lacryma-jobi* L. var. *ma-yuen* (Roman.) Stapf	*Coix lachryma-jobi* Linne var. *ma-yuen* Stapf	*Coix lachryma-Job* i L.

Comparative table on names of crude drugs in JP, CP, KP and VP

	JP15	CP2005	KP8	VP3
15	**CORNI FRUCTUS**	**FRUCTUS CORNI**	**CORNI FRUCTUS**	**FRUCTUS CORNI**
	Cornus offcinalis Siebold et Zuccarini	*Cornus officinalis* Sieb. et Zucc.	*Cornus officinalis* Siebold et	*Cornus officinalis* Sieb. et Zucc.
16	**CURCUMAE RHIZOMA**	**RHIZOMA CURUCUMAE LONGAE**	**CURCUMAE LONGAE RADIX**	**RHIZOMA CURCUMAE LONGAE**
	Curcuma longa Linne	*Curcuma longa* L.	*Curcuma longa* Linne	*Curcuma longa* L.
17	**CYPERI RHIZOMA**	**RHIZOMA CYPERI**	**CYPERI RHIZOMA**	**RHIZOMA CYPERI**
	Cyperus rotundus Linne	*Cyperus rotundus* L.	*Cyperus rotundus* Linne	*Cyperus rotundus* L.
				Cyperus stoloniferus Retz.
18	**EPHEDRAE HERBA**	**HERBA EPHEDRAE**	**EPHEDRAE HERBA**	**HERBA EPHEDRAE**
	Ephedra sinica Stapf	*Ephedra sinica* Stapf	*Ephedra sinica* Stapf	*Ephedra sinica* Staff.
	Ephedra intermedia Schrenk et C. A.	*Ephedra intermedia* Schrenk et C. A.	other	*Ephedra equisetina* Bunge.
	Ephedra equisetina Bunge	*Ephedra equisetina* Bge.		*Ephedra intermedia* Schrenk. et C. A. Meyer
19	**EPIMEDII HERBA**	**HERBA EPIMEDII**	**EPIMEDII HERBA**	**HERBA EPIMEDII**
	Epimedium pubescens Maximowicz	*Epimedium brevicornum* Maxim.	*Epimedium koreanum* Nakai	*Epimedium brevicornum* Maxim.
	Epimedium brevicornum Maximowicz	*Epimedium sagittatum* (Sieb. et Zucc.) Maxim.	other	*Epimedium sagittatum* (Sieb. et Zucc.) Maxim
	Epimedium wushanense T. S. Ying	*Epimedium pubescens* Maxim.		*Epimedium pubescens* Maxim.
	Epimedium sagittatum Maximowicz	*Epimedium wushanense* T. S. Ying		*Epimedium koreanum* Nakai
	Epimedium koreanum Nakai	*Epimedium koreanum* Nakai		*Epimedium wushanense* T.S. Ying
	Epimedium grandiflorum Morren ver. *thunbergianum* Nakai			
20	**EUCOMMIAE CORTEX**	**CORTEX EUCOMMIAE**	**EUCOMMIAE CORTEX**	**CORTEX EUCOMMIAE**
	Eucommia ulmoides Oliver	*Eucommia ulmoides* Oliv.	*Eucommia ulmoides* Oliver	*Eucommia ulmoides* Oliv.
21	**LONGAN ARILLUS**	**ARILLUS LONGAN**	**LONGANAE ARILLUS**	**ARILLUS LONGAN**
	Euphoria longana Lamarck	*Dimocarpus longan* Lour.	*Dimorcapus longan* Lour.	*Dimocarpus longan* Lour.

Comparative table on names of crude drugs in JP, CP, KP and VP

	JP15	CP2005	KP8	VP3
22	**EVODIAE FRUCTUS**	**FRUCTUS EVODIAE**	**EVODIAE FRUCTUS**	**FRUCTUS EUODIAE RUTAECARPAE**
	Evodia rutaecarpa Bentham	*Evodia rutaecarpa* (Juss.) Benth.	*Evodia rutaecarpa* Bentham	*Euodia rutaecarpa* Hemsl. et Thoms.
	Evodia officinalis Dode	*Evodia rutaecarpa* (Juss.) Benth. var. *officinalis* (Dode) Huang	*Evodia officinalis* Dode	
	Evodia bodinieri Dode	*Evodia rutaecarpa* (Juss.) Benth. var. *bodinieri* (Dode) Huang		
23	**FOENICULI FRUCTUS**	**FRUCTUS FOENICULI**	**FOENICULI FRUCTUS**	**FRUCTUS FOENICULI**
	Foeniculum vulgare Miller	*Foeniculum vulgare* Mill.	*Foeniculum vulgare* Miller	*Foeniculum vulgare* Mill.
24	**FORSYTHIAE FRUCTUS**	**FRUCTUS FORSYTHIAE**	**FORSYTHIAE FRUCTUS**	**FRUCTUS FORSYTHIAE**
	Forsythia suspensa Vahl	*Forsythia suspensa* (Thunb.) Vahl	*Forsythia suspensa* Vahl	*Forsythia suspensa* Vahl.
	Forsythia viridissima Lindley		*Forsythia koreana* Nakai	
			Forsythia viridissima Lindley	
25	**FRITILLARIAE BULBUS**	**BULBUS FRITILLAIAE THUNBERGII**	**FRITILLARIAE THUNBERGII BULBUS**	**BULBUS FRITILLARIAE THUNBERGII**
	Fritillaria verticillata Willdenow var. *thunbergii* Baker	*Fritillaria thunbergii* Miq.	*Fritillaria thunbergii* Miquel	*Fritillaria thunbergii* Miq.
			other	
26	**GARDENIAE FRUCTUS**	**FRUCTUS GARENIAE**	**GARDENIAE FRUCTUS**	**FRUCTUS GARDENIAE**
	Gardenia jasminoides Ellis	*Gardenia jasminoides* Ellis	*Gardenia jasminoides* Ellis	*Gardenia jasminoides* Ellis
27	**GLYCYRRHIZAE RADIX**	**RADIX GLYCYRRHIZAE**	**GLYCYRRHIZAE RADIX**	**RADIX GLYCYRRHIZAE**
	Glycyrrhiza uralensis Fisher	*Glycyrrhiza uralensis* Fisch.	*Glycyrrhiza uralensis* Fischer	*Glycyrrhiza uralensis* Fisch.
	*Glycyrrhiza glabr*a Linne	*Glycyrrhiza inflata* Bat.	*Glycyrrhiza glabra* Linne	*Glycyrrhiza inflata* Bat.
		Glycyrrhiza glabra L.		*Glycyrrhiza glabra* L.

Comparative table on names of crude drugs in JP, CP, KP and VP

	JP15	CP2005	KP8	VP3
28	**IMPERATA RHIZOMA**	**RHIZOMA IMPERATAE**	**IMPERATAE RHIZOMA**	**RHIZOMA IMPERATAE CYLINDRICAE**
	Imperata cylindrica Beauvois	*Imperata cylindrica* Beauv. var. *major* (Nees) C. E. Hubb.	*Imperata cylindrica* Beauvois	*Imperata cylindrica* P. Beauv
29	**LEONURI HERBA**	**HERBA LEONURI**	**LEONURI HERBA**	**HERBA LEONURI JAPONICI**
	Leonurus sibiricus Linne(*Leonurs japonicus* Houttuyn)	*Leonurus japonicus* Houtt.	*Leonurus sibiricus* Linne	*Leonurus japonicus* Houtt.
30	**LONICERAE FLOS**	**FLOS LONICERAE JAPONICA**	**LONICERAE FLOS**	**FLOS LONICERAE**
	Lonicera japonica Thunberg	*Lonicera japonica* Thunb.	*Lonicera japonica* Thunberg	*Lonicera japonica* Thunb.
				Lonicera dasystyla Rehd.
				Lonicara confusa DC.
				Lonicera cambodiana Pierre
31	**MAGNOLIAE CORTEX**	**CORTEX MAGNOLIAE OFFICINALIS**	**MAGNOLIAE CORTEX**	**CORTEX MAGNOLIAE OFFICINALIS**
	Magnolia obovata Thunberg	*Magnolia officinalis* Rehd. et Wils.	*Magnolia ovobata* Thunberg	*Magnolia officinalis* Rehd. et Wils. var. *biloba* Rehd. et Wils.
	Magnolia officinalis Rehder et Wilson	*Magnolia officinalis* Rehd. et Wils. var. *biloba* Rehd. et Wils.	*Magnolia officinalis* Rehder et Wilson	
	Magnolia officinalis Rehder et Wilson var. *biloba* Rehder et Wilson		*Magnolia officinalis* Rehder et Wilson var. *biloba* Rehder et Wilson	
32	**MENTHAE HERBA**	**HERBA MENTHAE**	**MENTHAE HERBA**	**HERBA MENTHAE ARVENSIS**
	Mentha arvensis Linne var. *piperascens* Malinvaud	*Mentha haplocalyx* Briq.	*Mentna arvensis* Linne var. *piperascens* Malinvaud	*Mentha arvensis* L.
33	**MORI CORTEX**	**CORTEX MORI**	**MORI CORTEX RADICIS**	**CORTEX MORI ALBAE RADICIS**
	Morus alba Linne	*Morus alba* L.	*Morus alba* Linne	*Morus alba* L.
			other	

Comparative table on names of crude drugs in JP, CP, KP and VP

	JP15	CP2005	KP8	VP3
34	**MYRISTICAE SEMEN**	**SEMEN MYRISTICAE**	**MYRISTICAE SEMEN**	**SEMEN MYRISTICAE**
	Myristica fragrans Houttuyn	*Myristica fragrans* Houtt.	*Myristica fragrans* Houttuyn	*Myristica fragrans* Houtt.
35	**NELUMBIS SEMEN**	**SEMEN NELUMBINIS**	**NELUMBINIS SEMEN**	**SEMEN NELUMBINIS**
	Nelumbo nucifera Gaertner	*Nelumbo nucifera* Gaertn.	*Nelumbo nucifera* Gaertner	*Nelumbo nucifera* Gaertn.
36	**NOTOPTERYGII RHIZOMA**	**RHIZOMA ET RADIX NOTOPTERYGII**		**RHIZOMA SEU RADIX NOTOPTERYGII**
	Notopterygium incisum Ting ex H. T. Chang	*Notopterygium incisum* Ting ex H. T. Chang	*Notopterygium incisum* Ting ex H. T. Chang	*Notopterygium incisum* Ting ex H. T. Chang
	Notopterygium forbesii Boissieu	*Notopterygium forbesii* Boiss.	*Notopterygium forbesii* Boissieu	*Notopterygium forbesii* Boiss.
37	**PAEONIAE RADIX**	**RADIX PAEONIAE ALBA**	**PAEONIAE RADIX**	**RADIX PAEONIAE**
	Paeonia lactiflora Pallas	*Paeonia lactiflora* Pall.	*Paeonia lactiflora* Pallas	*Paeonia lactiflora* Pall.
				Paeonia veitchii Lynch
38	**MOUTAN CORTEX**	**CORTEX MOUTAN**	**MOUTAN CORTEX RADICIS**	**CORTEX PAEONIA SUFFURUTICOSAE**
	Paeonia suffruticosa Andrews (*Paeonia moutan* Sims)	*Paeonia suffruticosa* Andr.	*Paeonia suffruticosa* Andrews （Paeonia moutan Sims）	*Paeonia suffruticosa* Andr.
39	**GINSENG RADIX**	**RADIX GINSENG**	**GINSENG RADIX ALBA**	**RADIX GINSENG**
	Panax ginseng C. A. Meyer *(Panax schinseng* Nees)	*Panax ginseng* C. A. Mey.	*Panax ginseng* C. A. Meyer	*Panax ginseng* C.A. Mey
40	**PLATYCODI RADIX**	**RADIX PLATYCODI**	**PLATYCODI RADIX**	**RADIX PLATYCODI GRANDIFLORIA**
	Platycodon grandiflorum A. De Candolle	*Platycodon grandiflorum* (Jacq.) A. DC.	*Platycodon grandiflorum* A. De Candolle	*Platycodon grandiflorum* (Jack.) A.DC.
41	**POGOSTEMONI HERBA**	**HERBA POGOSTEMONIS**	**POGOSTEMONIS HERBA**	**HERBA POGOSTEMONIS**
	Pogostemon cablin Bentham	*Pogostemon cablin* (Blanco) Benth.	*Pogostemon cablin* Bentham	*Pogostemon cablin* (Blanco) Benth.

Comparative table on names of crude drugs in JP, CP, KP and VP

	JP15	CP2005	KP8	VP3
42	**POLYGONATI RHIZOMA**	**RHIZOMA POLYGONATI**	**POLYGONATI RHIZOMA**	**RHIZOMA POLYGONATI**
	Polygonatum falcatum A. Gray	*Polygonatum kingianum* Coll. et Hemsl.	*Polygonatum sibiricum* Redoute	*Polygonatum kingianum* Coll. et
	Polygonatum sibiricum Redoute	*Polygonatum sibiricum* Red.	*Polygonatum falcatum* A. Gray	*Polygonatum sibiricum* Red.
	Polygonatum kingiamum Collett et	*Polygonatum cyrtonema* Hua	*Polygonatum kingianum* Coll. et	*Polygonatum cyrtonema* Hua.
	Polygonatum cyrtonema Hua			
43	**POLYPORUS**	**POLYPORUS**	**POLYPORUS**	**POLYPORUS**
	Polyporus umbellatus Fries	*Polyporus umbellatus* (Pers.) Fries	*Polyporus umbellatus* Fries	*Polyporus umbellatus* (Pers.) Fries
44	**PORIA**	**PORIA**	**HOELEN**	**PORIA**
	Poria cocos Wolf	*Poria cocos* (Schw.) Wolf	*Poria cocos* Wolf	*Poria cocos* (Schw.) Wolf
45	**PRUNELLAE SPICA**	**SPICA PRUNELLAE**	**PRUNELLAE SPICA**	**SPICA PRUNELLAE**
	Prunella vulgaris Linne var. *lilacina* Nakai	*Prunella vulgaris* L.	*Prunella vulgaris* Linne var. *lilacina* Nakai	*Prunella vulgaris* L.
46	**ARMENIACAE SEMEN**	**SEMEN ARMENIACAE AMARUM**	**ARMENIACAE SEMEN**	**SEMEN ARMENIACAE AMARUM**
	Prunus armeniaca Linne	*Prunus armeniaca* L. var. *ansu* Maxim.	*Prunus armeniaca* Linne	*Prunus armeniaca* L. var. *ansu* Maxim.
	Prunus armeniaca Linne var. *ansu* Maximowicz	*Prunus sibirica* L.	*Prunus armeniaca* Linne var. *ansu* Maximowicz	Prunus sibirica L.
		Prunus mandshurica (Maxim.) Koehne		*Prunus mandshurica* (Maxim.) Koehne
		Prunus armeniaca L.		*Prunus armeniaca* L.
47	**PERSICAE SEMEN**	**SEMEN PERSICAE**	**PERSICAE SEMEN**	**SEMEN PRUNI**
	Prunus persica Batsch	Prunus persica (L.) Batsch	Prunus persica Batsch	*Prunus persica* (L.) Batsch
	Prunus persica Batsch var. *davidiana* Maximowicz	Prunus davidiana (Carr.) Franch.	Prunus persica Batsch var. davidiana Maximowicz	*Prunus davidian* a (Carr.) Franch.

Comparative table on names of crude drugs in JP, CP, KP and VP

	JP15	CP2005	KP8	VP3
48	**RHEI RHIZOMA**	**RADIX ET RHIZOMA RHEI**	**RHEI RHIZOMA**	**RHIZOMA RHEI**
	Rheum palmatum Linne	Rheum palmatum L.	Rheum palmatum Linne	Rheum palmatum L.
	Rheum tanguticum Maximowicz	Rheum tanguticum Maxim. ex Balf.	Rheum coreanum Nakai	Rheum officinale Baillon
	Rheum officinale Baillon	Rheum officinale Baill.	Rheum tangticum Maximowicz	
	Rheum coreanum Nakai			
	their interspecific hybrids			
49	**SCHISANDRAE FRUCTUS**	**FRUCTUS SCHISANDRAE CHINENSIS**	**SCHIZANDRAE FRUCTUS**	**FRUCTUS SCHISANDRAE**
	Schisandra chinensis Baillon	*Schisandra chinensis* (Turcz.) Baill.	*Schizandra chinensis* baillon	*Schisandra chinensis* (Turcz.)Baill.
				Schisandra sphenanthera Rehd. et
50	**SCUTELLARIAE RADIX**	**RADIX SCUTELLARIAE**	**SCUTELLARIAE RADIX**	**RADIX SCUTELLARIAE**
	Scutellaria baicalensis Georgi	*Scutellaria baicalensis* Georgi	*Scutellaria baicalensis* Georgi	*Scutellaria baicalensis* Georgi
51	**STRYCHNI SEMEN**	**SEMEN STRYCHNI**	**STRYCHNI SEMEN**	**SEMEN STRYCHNI**
	Strychnos nux-vomica Linne	*Strychnos nux-vomica* L.	*Strychnos nux-vomica* Linne	*Strychnos nux-vomica* L.
52	**CARYOPHYLLI FLOS**	**FLOS CARYOPHYLLI**	**CARYOPHYLLI FLOS**	**FLOS SYZYGII AROMATICI**
	Syzygium aromaticum Merrill et Perry	*Eugenia caryophyllata* Thunb.	*Syzygium aromaticum* Merrill et Perry	*Eugenia caryophyllus* (C. Spreng.) Bull. et Harr.
	(*Eugenia caryophyllata* Thunberg)		(= *Eugenia caryophyllata* Thunberg)	Syn. *Syzygium aromaticum* (L.) Merill et L.M. Perry
53	**TRICHOSANTHIS RADIX**	**RADIX TRICHOSANTHIS**	**TRICHOSANTHIS RADIX**	**RADIX TRICHOSANTHIS**
	Trichosanthes kirilowii Maximowicz	*Trichosanthes kirilowii* Maxim.	*Trichosanthes kirilowii*	*Trichosanthes kirilowii* Maxim.
	Trichosanthes kirilowii Maximowicz var. *japonicum* Kitamura	*Trichosanthes rosthornii* Harms	*Trichosanthes kirilowii* Maximowicz var. *japonica* Kitamura	*Trichosanthes japponica* Regel
	Trichosanthes bracteata Voigt			

Comparative table on names of crude drugs in JP, CP, KP and VP

	JP15	CP2005	KP8	VP3
54	**TRICHOSANTHIS SEMEN**	**SEMEN TRICHOSANTHIS**	**TRICHOSANTHIS SEMEN**	**SEMEN TRICHOSANTHIS**
	Trichosanthes kirilowii Maximowicz	Trichosanthes kirilowii Maxim.	*Trichosanthes kirilowii*	*Trichosanthes kirilowii* Maxim.
	Trichosanthes kirilowii Maximowicz var. *japonica* Kitamura	*Trichosanthes rosthornii* Harms	other	*Trichosanthes rosthornii* Harm.
	Trichosanthes bracteata Voigt			
55	**ZINGIBERIS RHIZOMA**	**RHIZOMA ZINGIBERIS RECENS**	**ZINGIBERIS RHIZOMA**	**RHIZOMA ZINGIBERIS**
	Zingiber officinale Roscoe	*Zingiber officinale* Rosc.	*Zingiber officinale* Roscoe	*Zingiber officinale* Rosc.
56	**ZIZYPHI FRUCTUS**	**FRUCTUS JUJUBAE**	**ZIZYPHI FRUCTUS**	**FRUCTUS ZIZIPHI JUJUBAE**
	Zizyphus jujuba Miller var. *inermis* Rehder	*Ziziphus jujuba* Mill.	*Zizyphus jujuba* Miller var. *inermis* Rehder	*Ziziphus jujuba* Mill. var. *inermis* (Bge) Rehd.
57	**ZIZYPHI SEMEN**	**SEMEN ZIZIPHI SPINOSAE**	**ZIZYPHI SEMEN**	**SEMEN ZIZYPHI MAURITIANAE**
	Zizyphus jujuba Miller var. *spinosa* (Bunge) Hu ex H. F. Chou	*Ziziphus jujuba* Mill. var. *soinosa* (Bunge) Hu ex H. F. Chou	*Zizyphus jujuba* Miller	*Zizyphus mauritiana* Lamk.
			(= *Zizyphus vulgaris* Lamarck var. *spinosus* Bunge)	
58		**FRUCTUS PIPERIS**	**PIPERIS NIGRI FRUCTUS**	**FRUCTUS PIPERIS NIGRI**
		Piper nigrum L.	*Piper nigrum* Linne	*Piper nigrum* L.
59		**RADIX SALVIAE MILTIORRHIZAE**	**SALVIAE MILTIORRHIZAE RADIX**	**RADIX SALVIAE MILTIORRHIZAE**
		Salvia miltiorrhiza Bge.	*Salvia miltiorrhiza* Bunge	*Salvia miltiorrhiza* Bunge
60	**AKEBIAE CAULIS**	**CAULIS AKEBIAE**	**AKEBIAE CAULIS**	
	Akebia quinata Decaisne	*Akebia quinata* (Thunb.) Decne	*Akebia quinata* Decaisne	
	Akebia trifoliata Koidzumi	*Akebia trifoliata* (Thunb.) Koidz.	other	
		Akebia trifoliata (Thunb.) Koidz. var. *australis* (diels) Rehd,		

Comparative table on names of crude drugs in JP, CP, KP and VP

	JP15	CP2005	KP8	VP3
61	**ALOE**	**ALOE**		**ALOE**
	Aloe ferox Miller	*Aloe barbadensis* Miller		*Aloe vera* L.
	hybrids of *Aloe africana* Miller	*Aloe ferox* Miller		*Aloe ferox* Mill.
	hybrids of *Aloe spicata* Baker			
62	**ALPINIAE OFFICINARI RHIZOMA**	**RHIZOMA ALPINAE OFFICINARUM**		**RHIZOMA ALPINIAE OFICINARUM**
	Alpinia officinarum Hance	*Alpinia officinarum* Hance		*Alpnia officinarum* Hance
63	**ANGELICAE PUBESCENTIS**	**RADIX ANGELICAE PUBESCENTIS**		**RADIX ANGELICA**
	Angelica pubescens Maximowicz	*Angelica pubescens* Maxim. f. *biserrata* Shan et Yuan		*Angelica pubescense* Maxim.
	other			
64	**ARCTII FRUCTUS**	**FRUCTUS ARCTII**		**FRUCTUS ARCTII**
	Arctium lappa Linne	*Arctium lappa* L.		*Arctium lappa* L.
65	**ARECAE SEMEN**	**SEMEN ARECAE**	**ARECAE SEMEN**	
	Areca catechu Linne	*Areca catechu* L.	*Areca catechu* Linne	
66	**ARECAE PERICARPIUM**	**PERICARPIUM ARECAE**		**PERICARPIUM ARECAE**
	Areca catechu Linne	*Areca catechu* L.		*Areca catechu* L.
	other			
67	**ARISAEMATIS TUBER**	**RHIZOMA ARISAEMATIS**	**ARISAEMATIS RHIZOMA**	**RHIZOMA ARISAEMATIS**
	Arisaema heterophyllum Blume	*Arisaema erubescens* (Wall.) Schott	*Arisaema amurense* Maximowicz	*Arisaema erubescens* (Wall.) Schott.
	Arisaema erubescens Schott	*Arisaema heterophyllum* Bl.	other	*Arisaema heterophyllum* Bl.
	other	*Arisaema amurense* Maxim.		*Arisaema amurense* Maxim.
68	**ASTERIS RADIX**	**RADIX ASTERIS**		**RADIX ASTERIS**
	Aster tataricus Lnne fil.	*Aster tataricus* L. f.		*Aster tartaricus* L. f.

Comparative table on names of crude drugs in JP, CP, KP and VP

	JP15	CP2005	KP8	VP3
69	**SAPPAN LIGNUM**	**LIGNUM SAPPAN**		**LIGNUM SAPPAN**
	Caesalpinia sappan Linne	*Caesalpinia sappan* L.		*Caesalpinia sappan* L.
70	**SENNAE FOLIUM**	**FOLIUM SENNAE**	**SENNAE FOLIUM**	
	Cassia angustifolia Vahl	*Cassia angustifolia* Vahl	*Cassia angustifolia* Vahl	
	Cassia acutifolia Delile	*Cassia acutifolia* Delile	*Cassia acutifolia* Delile	
71	**CASSIAE SEMEN**	**SEMEN CASSIAE**	**CASSIAE SEMEN**	**SEMEN CASSIAE TORAE**
	Cassia obtusifolia Linne	*Cassia obtusifolia* L.	*Cassia obtusifolia* Linne	*Cassia tora* L.
	Cassia tora Linne	*Cassia tora* L.		
72	**CHRYSANTHEMI FLOS**	**FLOS CHRYSANTHEMI INDICI**		**FLOS CHRYSANTHEMI INDICI**
	Chrysanthemum morifolium Ramatulle	*Chrysanthemum indicum* L.		*Chrysanthemum indicum* L.
	Chrysanthemum indicum Linne			
73	**AURANTII FRUCUTUS IMMATURUS**	**FRUCTUS AURANRII IMMATURUS**		**FRUCTUS AURANTII IMMATURUS**
	Citrus aurantium Linne var. *daidai*	*Citrus aurantium* L.		*Citrus aurantium* L.
	Citrus aurantium Linne	cultivars		*Citrus sinensis* Osbeck.
	Citrus natsudaidai Hayata	*Citrus sinensis* Osbeck		
74	**CLEMATIDIS RADIX**	**RADIX CLEMATIDIS**		**RADIX CLEMATIDIS**
	Clematis chinensis Osbeck	*Clematis chinensis* Osbeck		*Clematis chinensis* Osbeck.
	Clematis manshurica Ruprecht	*Clematis hexapetala* Pall.		*Clematis haxapetala* Pall.
	Clematis hexapetala Pallas	*Clematis manshurica* Rupr.		*Clematis manshurica* Rupr.
75	**CNIDII MONNIERIS FRUCTUS**	**FRUCTUS CNIDII**		**FRUCTUS CNIDII**
	Cnidium monnieri Cusson	*Cnidium monnieri* (L.) Cuss.		*Cnidium monnieri* (L.) Cuss.

Comparative table on names of crude drugs in JP, CP, KP and VP

	JP15	CP2005	KP8	VP3
76	**CRATAEGI FRUCTUS**	**FRUCTUS CRATAEGI**	**CRATAEGI FRUCTUS**	
	Crataegus cuneata Siebold et Zuccarini	*Crataegus pinnatifida* Bge. var. *major* N. E. Br.	*Crataegus pinnatifida* Bunge var. *typica* Schneider	
	Crataegus pinnatifida Bunge var. *major* N. E. Brown	*Crataegus pinnatifida* Bge.	other	
77	**CROCUS**	**STIGMA CROCI**	**CROCUS**	
	Crocus sativus Linne	*Crocus sativus* L.	*Crocus sativus* Linne	
78	**ZEDOARIAE RHIZOMA**		**ZEDOARIAE RHIZOMA**	**RHIZOMA CURUCUMAE ZEDOARIAE**
	Curcuma zedoaria Roscoe		*Curcuma zedoaria* Roscoe	*Curcuma zedoaria* (Berg.) Roscoe
79	**DIOSCOREAE RHIZOMA**	**RHIZOMA DIOSCOREAE**	**DIOSCOREAE RHIZOMA**	
	Dioscorea japonica Thunberg	*Dioscorea opposita* Thunb.	*Dioscorea japonica* Thunberg	
	Dioscorea batatas Decaisne		*Dioscorea batatas* Decaisne	
80	**KAKI CALYX**	**CALYX KAKI**		**CALYX KAKI**
	Diospyros kaki Thunberg	*Diospyros kaki* Thunb.		*Diospyros kaki* L. f.
81	**ERIOBOTRYAE FOLIUM**	**FOLIUM ERIOBOTRYAE**		**FOLIUM ERIOBOTRYAE JAPONICAE**
	Eriobotrya japonica Lindley	*Eriobotrya japonica* (Thunb.) Lindl.		*Eriobotrya japonica* (Thunb.) Lindl.
82	**GENTIANAE SCABRAE RADIX**	**RADIX GENTIANAE**	**GENTIANAE SCABRAE RADIX**	**RADIX GENTIANAE MACROPHYLLAE**
	Gentiana scabra Bunge	*Gentiana manshurica* Kitag.	*Gentiana scabra* Buge	*Gentiana macrophylla* Pall.
	Gentiana manshurica Kitagawa	*Gentiana scabra* Bge.	other	*Gentiana crassicaulis* Duthie ex Burk.
	Gentiana triflora Pallas	*Gentiana triflora* pall.		*Gentiana straminea* Maxim.
		Gentiana rigescens Franch.		*Gentiana dahurica* Fisch.

Comparative table on names of crude drugs in JP, CP, KP and VP

	JP15	CP2005	KP8	VP3
83	**GERANII HERBA**		**GERANII HERBA**	**HERBA GERANII THUNBERGII**
	Geranium thunbergii Siboid et Zuccarini		*Geranium thunbergii* Siebold et Zuccarini	*Geranium thunbergii* Siebold et Zucc.
84	**HOUTTUYNIAE HERBA**	**HERBA HOUTTUYNIAE**		**HERBA HOUTTUYNIAE CORDATAE**
	Houttuynia cordata Thunberg	*Houttuynia cordata* Thunb.		*Houttuynia cordata* Thunb.
85	**LINDERAE RADIX**	**RADIX LINDERAE**		**RADIX LINDERAE**
	Lindera strychnifolia Fernandez- Villars	*Lindera aggregata* (Sims) Kosterm.		*Lindera aggregata* (Sims) Kosterm.
86	**LYCII FRUCTUS**	**FRUCTUS LYCII**	**LYCII FRUCTUS**	**FRUCTUS LYCII**
	Lycium chinense Miller	*Lycium barbarum* L.	*Lycium chinense* Miller	*Lycium chinense* Mill.
	Lycium barbarum Linne			*Lycium barbarum* L.
87	**LYCII CORTEX**	**CORTEX LYCII**		**CORTEX LYCII**
	Lycium chinense Miller	*Lycium chinense* Mill.		*Lycium chinense* Mill.
	Lycium barbarum Linne	*Lycium barbarum* L.		*Lycium barbarum* L.
88	**PERILLAE FRUCTUS**	**FRUCTUS PERILLAE**		**FRUCTUS PERILLA**
	Perilla frutescens Britton var. *acuta*	*Perilla frutescens* (L.) Britt.		*Perilla frutescens* (L.) Britt.
	other			
89	**PEUCEDANI RADIX**	**RADIX PEUCEDANI**		**RADIX PEUCEDANI**
	Peucedanum praeruptorum Dunn	*Peucedanum praeruptorum* Dunn		*Peucedanum praeruptorum* Dunn.
	Angelica decursiva Franchet et Savatier			*Peucedanum decursivum* Maxim.
90	**PHARBITIDIS SEMEN**	**SEMEN PHARBITIDIS**	**PHARBITIDIS SEMEN**	
	Pharbitis nil Choisy	*Pharbitis nil* (L.) Choisy	*Pharbitis nil* Choisy	
		Pharbitis purpurea (L.) Voigt		

Comparative table on names of crude drugs in JP, CP, KP and VP

	JP15	CP2005	KP8	VP3
91	**PHELLODENDRI CORTEX**	**CORTEX PHELLODENDRI AMURENSIS**	**PHELLODENDRI CORTEX**	**CORTEX PHELLODENDRI**
	Phellodendron amurense Ruprecht	*Phellodendron amurense* Rupr.	*Phellodendron amurense* Ruprecht	*Phellodendron chinense* Schneid.
	Phellodendron chinense Schneider		other	
92	**PLANTAGINIS SEMEN**	**SEMEN PLANTAGINIS**	**PLANTAGINIS SEMEN**	**SEMEN PLANTAGINIS**
	Plantago asiatica Linne	*Plantago asiatica* L.	*Plantago asiatica* Linne	*Plantago major* L.
		Plantago depressa Willd.		
93	**POLYGALAE RADIX**	**RADIX POLYGALAE**	**POLYGALAE RADIX**	**RADIX POLYGALAE**
	Polygala tenuifolia Willdenow	*Polygala tenuifolia* Willd.	*Polygala tenuifolia* Willdenow	*Polygola sibrica* L.
		Polygala sibirica L.		
94	**MUME FRUCTUS**	**FRUCTUS MUME**		**FRUCTUS MUME PRAEPARATUS**
	Prunus mume Siebold et Zuccarini	*Prunus mume* (Sieb.) Sieb. et Zucc.		*Prunus mume* Sieb. et Zucc.
95	**PUERARIAE RADIX**	**RADIX PUERARIAE**	**PUERARIAE RADIX**	**RADIX PUERARIAE**
	Pueraria lobata Ohwi	*Pueraria lobata* (Willd.) Ohwi	*Pueraria lobata* Ohwi	*Pueraria thomsonii* Benth.
96	**REHMANNIAE RADIX**	**RADIX REHMANNIAE**	**REHMANNIAE RADIX PREPARATA**	**RADIX REHMANNIAE GLUTINOSAE**
	Rehmannia glutinosa Liboschitz var. *purpurea* Makino	*Rehmannia glutinosa* Libosch.	*Rehmannia glutinosa* Libschitz var. *purpurea* Makino	*Rehmannia glutinosa* (Gaertn.) Libosch.
	Rehmannia glutinosa Liboschitz		other	
97	**SAPOSHNIKOVIAE RADIX**	**RADIX SAPOSHNIKOVIAE**	**SAPOSHNIKOVIAE RADIX**	
	Saposhnikovia divaricata Schischkin	*Saposhnikovia divaricata* (Turcz.)	*Saposhnikovia divaricata* Schiskin	
98	**SAUSSUREAE RADIX**	**RADIX AUCKLANDIAE**		**RADIX SAUSSUREAE LAPPAE**
	Saussurea lappa Clarke	*Aucklandia lappa* Decne.		*Saussurea lappa* Clarke
99	**SCHIZONEPETAE SPICA**	**SPICA SCHIZONEPETAE**	**SCHIZONEPETAE SPICA**	
	Schizonepeta tenuifolia Briquet	*Schizonepeta tenuifolia* Briq.	*Schizomepeta tenuifolia* Briquet	

Comparative table on names of crude drugs in JP, CP, KP and VP

	JP15	CP2005	KP8	VP3
100	**SCROPHULARIAE RADIX**	**RADIX SCROPHULARIAE**	**SCROPHULARIAE RADIX**	**RADIX SCROPHULARIAE**
	Scrophularia ningpoensis Hemsley	*Scrophularia ningpoensis* Hemsl.	*Scrophularia buergeriana* Miquel	*Scrophularia buergeriana* Miq.
	Scrophularia buergeriana Miquel			*Scrophularia ningpoensis* Hemsl.
101	**SMILACIS RHIZOMA**	**RHIZOMA SMILACIS GLABRAE**		**RHIZOMA SMILACIS GLABRAE**
	Smilax glabra Roxburgh	*Smilax glabra* Roxb.		*Smilax glabra* Roxb.
102	**SOPHORAE RADIX**	**RADIX SOPHORAE FLAVESCENTIS**	**SOPHORAE RADIX**	
	Sophora flavescens Ation	*Sophora flavescens* Ait.	*Sophora flavescens* Aiton	
103	**SOPHORAE FLOS**	**FLOS SOPHORAE**	**SOPHORAE FLOS**	
	Sophora japonica Linne	*Sophora japonica* L.	*Sophora japonica* Linne	
104	**CHEBULAE FRUCTUS**	**FRUCTUS CHEBULAE**		**FRUCTUS TERMINALIAE CHEBULAE**
	Terminalia chebula Retzius	*Terminalia chebula* Retz.		*Terminalia chebula* Retz.
		Terminalia chebula Retz. var. *tomentella* Kurt.		*Terminalia chebula* Retz. var. *tomentella* Kurt.
105	**TRIBULI FRUCTUS**	**FRUCTUS TRIBULI**		**FRUCTUS TRIBULI TERRESTRIS**
	Tribulus terrestris Linne	*Tribulus terrestris* L.		*Tribulus terrestris* L.
106	**VITICIS FRUCTUS**	**FRUCTUS VITICIS**		**FRUCTUS VITICIS TRIFOLIAE**
	Vitex rotundifolia Linne fil.	*Vitex trifolia* L. var. *simplicifolia* Cham.		*Vitex trifolia* L.
	Vitex trifolia Linne	*Vitex trifolia* L.		*Vitex trifolia* L. var. *simplicifolia*

Table 2

Comparative table on description of crude drugs in JP, CP, KP and VP

Comparative table on description of crude drugs in JP, CP, KP and VP

No.	Title		Latin title	length	diameter	width	thickness	magnifying glass	microscope	
									powder	transverse section
1	**Alisma orientale Juzepczuk**									
	JP	タクシャ	ALISMATIS RHIZOMA	3-8cm	3-5cm				●	
	CP	澤瀉	RHIZOMA ALISMATIS	2-7cm	2-6cm				●	
	KP	택사	ALISMATIS RHIZOMA	3-8cm	3-5cm				●	
	VP	Thiên nam tinh (Thân rễ)	RHIZOMA ALISMATIS	1-2cm	1.5-6.5cm				●	
2	**Alpinia oxyphylla Miquel**									
	JP	ヤクチ	ALPINIAE FRUCTUS	1-2cm	0.7-1cm					
	CP	益智	FRUCTUS ALPINIAE OXYPHYLLAE	1.2-2cm	1-1.3cm				●	●
	KP	익지	ALPINIAE FRUCTUS	1-2cm	0.7-1cm					
	VP	Ích trí (Quả)	FRUCTUS ALPINIAE OXYPHYLLAE	1.2-2cm	1-1.3cm				●	●
3	**Anemarrhena asphodeloides Bunge**									
	JP	チモ	ANEMARRHENAE RHIZOMA	3-15cm	0.5-1.5cm			●		
	CP	知母	RHIZOMA ANEMARRHENAE	3-15cm	0.8-1.5cm					
	KP	지모	ANEMARRHENAE RHIZOMA	3-15cm	0.5-1.5cm			●		
	VP	Tri mẫu (Thân rễ)	RHIZOMA ANEMARRHENAE	3-15cm	0.8-1.5cm					
4	**Carthamus tinctorius Linne**									
	JP	コウカ	CARTHAMI FLOS	1cm						
	CP	紅花	FLOS CARTHAMI	1-2cm					●	
	KP	홍화	CARTHAMI FLOS	1cm						
	VP	Hồng hoa	FLOS CARTHAMI TINCTORII	1-2cm					●	
5	**Coix lacryma-jobi Linne var. ma-yuen Stapf**									
	JP	ヨクイニン	COICIS SEMEN	6mm		5mm		●	●	
	CP	薏苡仁	SEMEN COICIS	4-8mm		3-6mm			●	
	KP	산수유	COICIS SEMEN	6mm		5mm			●	
	VP	Ý dĩ (Hạt)	SEMEN COICIS	0.5-0.8cm	0.2-0.5cm				●	●
6	**Cornus offcinalis Siebold et Zuccarini**									
	JP	サンシュユ	CORNI FRUCTUS	1.5-2cm		1cm				
	CP	山茱萸	FRUCTUS CORNI	1-1.5cm	0.5-1cm				●	
	KP	산수유	CORNI FRUCTUS	1.5-2cm		1cm				
	VP	Sơn thù Quả sơn thù du	FRUCTUS CORNI OFFICINALIS	1-1.5cm		0.5-1cm			●	

Comparative table on description of crude drugs in JP, CP, KP and VP

No.	Title		Latin title	length	diameter	width	thickness	magnifying glass	microscope	
									powder	transverse section
7	**Curcuma longa Linne**									
	JP	ウコン	CURCUMAE RHIZOMA	4cm	3cm					●
	CP	姜黄	RHIZOMA CURUCUMAE LONGAE	2-5cm	1-3cm					●
	KP	강황	CURCUMAE LONGAE RADIX	4cm	3cm					
	VP	Nghệ (Thân rễ)	RHIZOMA CURUCUMAE LONGAE	2-5cm	1-3cm				●	●
8	**Dimorcapus longan Lour.**									
	JP	リュウガンニク	LONGAN ARILLUS	1-2cm		1cm				
	CP	竜眼肉	ARILLUS LONGAN	1.5cm		2-4cm				●
	KP	용안육	LONGANAE ARILLUS	2-4cm		1-2cm	2-4mm			
	VP	Long nhãn	ARILLUS LONGAN	1.5cm		2-4cm	0.1cm			
9	**Eucommia ulmoides Oliver**									
	JP	トチュウ	EUCOMMIAE CORTEX				2-6mm			●
	CP	杜仲	CORTEX EUCOMMIAE				3-7mm		●	
	KP	두충	EUCOMMIAE CORTEX				3-7mm			
	VP	Đỗ trọng (Vỏ thân)	CORTEX EUCOMMIAE				0.2-0.5cm		●	●
10	**Foeniculum vulgare Miller**									
	JP	ウイキョウ	FOENICULI FRUCTUS	3.5-8mm		1-2.5mm			●	●
	CP	小茴香	FRUCTUS FOENICULI	4-8mm	1.5-2.5mm					●
	KP	회향	FOENICULI FRUCTUS	3-8mm		1-3mm				●
	VP	Tiểu hồi (Quả)	FRUCTUS FOENICULI	8mm	1.5-2.5nn				●	●
11	**Fritillaria thunbergii Miq.**									
	JP	バイモ	FRITILLARIAE BULBUS	1-2cm	2-3cm					●
	CP	浙貝母	BULBUS FRITILLAIAE THUNBERGII	1-2cm	2-3.5cm				●	
*	KP	패모	FRITILLARIAE THUNBERGII BULBUS	1-2cm	2-3.5cm					
	VP	Triết bối mẫu	BULBUS FRITILARIAE THUNBERGII	1-2cm	2-3.5cm				●	
12	**Gardenia jasminoides Ellis**									
	JP	サンシシ	GARDENIAE FRUCTUS	1-5cm		1-1.5cm			●	
	CP	梔子	FRUCTUS GARDENIAE	1.5-3.5cm	1-1.5cm				●	
	KP	치자	GARDENIAE FRUCTUS	1-5cm		1-1.5cm			●	
	VP	Dành dành (Quả), Chi tử	FRUCTUS GARDENIAE	2-4.5cm	1-2cm				●	●

Comparative table on description of crude drugs in JP, CP, KP and VP

No.	Title		Latin title	length	diameter	width	thickness	magnifying glass	microscope	
									powder	transverse section
13	**Imperata cylindrica Beauvois**									
	JP	ボウコン	IMPERATA RHIZOMA		0.3-0.5cm			●		
	CP	白茅根	RHIZOMA IMPERATAE	30-60cm	2-4mm					
	KP	모근	IMPERATAE RHIZOMA		0.3-0.5cm			●		
	VP	Cỏ tranh (Thân rễ), Bạch mao căn	RHIZOMA IMPERATAE CYLINDRICAE	30-40cm	0.2-0.4cm				●	●
14	**Leonurus japonicus Houtt.**									
	JP	ヤクモソウ	LEONURI HERBA	30-60cm	1-5mm					
	CP	益母草	HERBA LEONURI	30-60cm	0.5mm					●
	KP	익모초	LEONURI HERBA	30-60cm	1-5mm					
	VP	Ích mẫu	HERBA LEONURI JAPONICI	40cm	0.2-0.8cm				●	●
15	**Mentha arvensis Linne var. piperascens Malinvaud**									
	JP	ハッカ	MENTHAE HERBA	2-8cm		1-1.5cm		●		
	CP	薄荷	HERBA MENTHAE	2-7cm		1-3cm				
	KP	박하	MENTHAE HERBA	2-8cm		1-2.5cm		●		
	VP	Bạc hà	HERBA MENTHAE ARVENSIS	3-7cm		1.5-3.0cm			●	●
16	**Morus alba Linne**									
	JP	ソウハクヒ	MORI CORTEX				1-6mm			●
	CP	桑白皮	CORTEX MORI				1-4mm			●
*	KP	상백피	MORI CORTEX RADICIS				1-6mm			
	VP	Dâu (Vỏ rễ), Tang bạch bì	CORTEX MORI ALBAE RADICIS	2-50cm		1-4cm	3-6mm		●	●
17	**Myristica fragrans Houttuyn**									
	JP	ニクズク	MYRISTICAE SEMEN	2.0-3.5cm	1.5-2.5cm					
	CP	肉豆蔻	SEMEN MYRISTICAE	2-3cm	1.5-2.5cm					●
	KP	육두구	MYRISTICAE SEMEN	2-3cm	2cm			●	●	●
	VP	Nhục đậu khấu (Hạt)	SEMEN MYRISTICAE	2-3cm	1.5-2.5cm				●	●
18	**Nelumbo nucifera Gaertner**									
	JP	レンニク	NELUMBIS SEMEN	1.0-1.7cm	0.5-1.2cm					
	CP	蓮子	SEMEN NELUMBINIS	1.2-1.8cm	0.8-1.4cm				●	
	KP	연자육	NELUMBINIS SEMEN	1.2-1.8cm	0.8-1.4cm					
	VP	Sen (Hạt), Liên nhục	SEMEN NELUMBINIS	1.1-1.3cm	0.9-1.1cm					

Comparative table on description of crude drugs in JP, CP, KP and VP

No.	Title		Latin title	length	diameter	width	thickness	magnifying glass	microscope	
									powder	transverse section
19	**Paeonia suffruticosa Andrews**									
	JP	ボタンピ	MOUTAN CORTEX	5-8cm	0.8-1.5cm		0.5cm		●	
	CP	牡丹皮	CORTEX MOUTAN	5-20cm	5-12mm		1-4mm		●	
	KP	목단피	MOUTAN CORTEX RADICIS	5-8cm	0.8-1.5cm		0.5cm			
	VP	Mẫu đơn bì	CORTEX PAEONIAE SUFFRUTICOSAE	5-20cm	0.5-1.2cm		0.1-0.4cm		●	
20	**Panax ginseng C. A. Meyer**									
	JP	ニンジン	GINSENG RADIX	5-20cm	0.5-3cm				●	
	CP	人参	RADIX GINSENG	3-15cm	1-2cm					●
	KP	인삼	GINSENG RADIX ALBA	12-20cm	1-3cm				●	
	VP	Nhân sâm	RADIX GINSENG	3-15cm	1-2cm				●	●
21	**Platycodon grandiflorum A. De Candolle**									
	JP	キキョウ	PLATYCODI RADIX	10-15cm	1-3cm			●	●	
	CP	桔梗	RADIX PLATYCODI	7-20cm	0.7-2cm					●
	KP	길경	PLATYCODI RADIX	10-15cm	1-3cm			●	●	
	VP	Cát cánh (Rễ)	RADIX PLATYCODI GRANDIFLORI	5-15cm	0.7-2cm				●	●
22	**Pogostemon cablin Bentham**									
	JP	カッコウ	POGOSTEMONI HERBA	2.5-10cm		2.5-7cm				●
	CP	広藿香	HERBA POGOSTEMONIS	4-9cm		3-7cm			●	
	KP	광곽향	POGOSTEMONIS HERBA	4-9cm		3-7cm				
	VP	Hoắc hương	HERBA POGOSTEMONIS	4-9cm		3-7cm			●	●
23	**Polyporus umbellatus Fries**									
	JP	チョレイ	POLYPORUS	5-15cm					●	
	CP	猪苓	POLYPORUS	5-25cm	2-6cm					●
	KP	저령	POLYPORUS	5-15cm						
	VP	Trư linh	POLYPORUS	5-25cm	2-6cm					●
24	**Poria cocos Wolf**									
	JP	ブクリョウ	PORIA		10-30cm				●	
	CP	茯苓	PORIA						●	
	KP	복령	HOELEN		10-30cm				●	
	VP	Phục linh, Bạch linh	PORIA						●	

Comparative table on description of crude drugs in JP, CP, KP and VP

No.	Title		Latin title	length	diameter	width	thickness	magnifying glass	microscope	
									powder	transverse section
25	**Prunella vulgaris Linne var. lilacina Nakai**									
	JP	カゴソウ	PRUNELLAE SPICA	3-6cm	1-1.5cm					
	CP	夏枯草	SPICA PRUNELLAE	1.5-8cm	0.8-1.5cm					
	KP	하고초	PRUNELLAE SPICA	3-6cm	1-1.5cm					
	VP	Hạ khô thảo (Cụm quả)	SPICA PRUNELLAE	1.5-8cm	0.8-1.5cm					
26	**Scutellaria baicalensis Georgi**									
	JP	オウゴン	SCUTELLARIAE RADIX	5-20cm	0.5-3cm				●	
	CP	黄芩	RADIX SCUTELLARIAE	8-25cm	1-3cm				●	
	KP	황련	SCUTELLARIAE RADIX	5-20cm	0.5-3cm				●	
	VP	Hoàng cầm (Rễ)	RADIX SCUTELLARIAE	8-25cm	1-3cm				●	
27	**Strychnos nux-vomica Linne**									
	JP	ホミカ	STRYCHNI SEMEN		1-3cm		0.3-0.5cm			
	CP	馬銭子	SEMEN STRYCHNI		1.5-3cm		0.3-0.6cm		●	
	KP	호미카	STRYCHNI SEMEN		1-3cm		0.3-0.5cm			
	VP	Mã tiền (Hạt)	SEMEN STRYCHNI		1.2-2.5cm		0.4-0.6cm		●	●
28	**Zingiber officinale Roscoe**									
	JP	ショウキョウ	ZINGIBERIS RHIZOMA	2-4cm	1-2cm				●	
	CP	生姜	RHIZOMA ZINGIBERIS RECENS	4-18cm			1-3cm			
	KP	생강	ZINGIBERIS RHIZOMA	2-4cm	1-2cm			●	●	
	VP	Gừng (Thân rễ)	RHIZOMA ZINGIBERIS	3-7cm			0.5-1.5cm		●	●
29	**Zizyphus jujuba Miller var. spinosa (Bunge) Hu ex H. F. Chou**									
	JP	サンソウニン	ZIZYPHI SEMEN	5-9mm		4-6mm	2-3mm			●
	CP	酸棗仁	SEMEN ZIZIPHI SPINOSAE	5-9mm		5-7mm	3mm		●	
	KP	산조인	ZIZYPHI SEMEN	6-9mm		4-6mm	2-3mm			
	VP	Táo (Hạt), Táo nhân, Toan táo nhân	SEMEN ZIZIPHI MAURITIANAE	5-8mm		4-6mm	1-2mm		●	●
30	**Zizyphus jujuba Miller var. inermis Rehder**									
	JP	タイソウ	ZIZYPHI FRUCTUS	2-3cm	1-2cm					
	CP	大棗	FRUCTUS JUJUBAE	2-3.5cm	1.5-2.5cm					
	KP	대추	ZIZYPHI FRUCTUS	2-3cm	1-2cm					
	VP	Đại táo	FRUCTUS ZIZYPHY JUJUBAE	2-3.5cm	1.5-2.5cm					

*:KP is including other plants

Table 3

Comparative table on English titles and part of use of crude drugs in JP, CP, KP and VP

Comparative table on English titles and part of use of crude drugs in JP, CP, KP and VP

No.		Title	Latin title	English title	Use part	Removed
1	**Alisma orientale Juzepczuk**					
	JP	タクシャ	ALISMATIS RHIZOMA	Alisma Rhizome	tuber	periderm
	CP	澤瀉	RHIZOMA ALISMATIS	Orientale Waterplantain Rhizome	tuber	fibrous root and coarse outer tissue
	KP	택사	ALISMATIS RHIZOMA	Alisma Rhizome	tuber	periderm
	VP	Thiên nam tinh (Thân rễ)	RHIZOMA ALISMATIS		rhizome	outer coat
2	**Alpinia oxyphylla Miquel**					
	JP	ヤクチ	ALPINIAE FRUCTUS	Bitter Cardamon	fruit	
	CP	益智	FRUCTUS ALPINIAE OXYPHYLLAE	Sharpleaf Glangal Fruit	ripe fruit	
	KP	익지	ALPINIAE FRUCTUS	Bitter Cardamon	fruit	
	VP	Ích trí (Quả)	FRUCTUS ALPINIAE OXYPHYLLAE		ripe fruit	
3	**Anemarrhena asphodeloides Bunge**					
	JP	チモ	ANEMARRHENAE RHIZOMA	Anemarrhena Rizome	rhizome	
	CP	知母	RHIZOMA ANEMARRHENAE	Common Anemarrhena Rhizome	rhizome	fibrous root and soil
	KP	지모	ANEMARRHENAE RHIZOMA	Anemarrhena Rizome	rhizome	
	VP	Tri mẫu (Thân rễ)	RHIZOMA ANEMARRHENAE		rhizome	
4	**Carthamus tinctorius Linne**					
	JP	コウカ	CARTHAMI FLOS	Safflower	tubulous flower	
	CP	紅花	FLOS CARTHAMI	Safflower	flower	
	KP	홍화	CARTHAMI FLOS	Safflower	tubulous flower	
	VP	Hồng hoa	FLOS CARTHAMI TINCTORII		flower	
5	**Coix lacryma-jobi Linne var. ma-yuen Stapf**					
	JP	ヨクイニン	COICIS SEMEN	Coix Seed	seed	seed coat
	CP	薏苡仁	SEMEN COICIS	Coix Seed	ripe kernel	shell and yellowish-brown coat
	KP	산수유	COICIS SEMEN	Coix Seed	seed	seed coat
	VP	Ý dĩ (Hạt)	SEMEN COICIS		seed	
6	**Cornus offcinalis Siebold et Zuccarini**					
	JP	サンシュユ	CORNI FRUCTUS	Cornus Fruit	sarcocarp of the pseudocarp	
	CP	山茱萸	FRUCTUS CORNI	Asiatic Cornelian Cherry Fruit	ripe sarcocarpa	kern
	KP	산수유	CORNI FRUCTUS	Cornus Fruit	sarcocarp of the pseudocarp	
	VP	Sơn thù Quả sơn thù du	FRUCTUS CORNI OFFICINALIS		ripe fruit	seed

Comparative table on English titles and part of use of crude drugs in JP, CP, KP and VP

No.		Title	Latin title	English title	Use part	Removed
7	**Curcuma longa Linne**					
	JP	ウコン	CURCUMAE RHIZOMA	Turmeric	Rhizoma	
	CP	姜黄	RHIZOMA CURUCUMAE LONGAE	Turmeric	Rhizoma	
	KP	강황	CURCUMAE LONGAE RADIX	Curcuma Root	Radix	
	VP	Nghệ (Thân rễ)	RHIZOMA CURUCUMAE LONGAE		Rhizoma	
8	**Dimorcapus longan Lour.**					
	JP	リュウガンニク	LONGAN ARILLUS	Longan Pulp	aril	
	CP	竜眼肉	ARILLUS LONGAN	Longan Aril	aril	shell and nutlet
	KP	용안육	LONGANAE ARILLUS	Longan Arillus	arill	
	VP	Long nhãn	ARILLUS LONGAN		aril	
9	**Eucommia ulmoides Oliver**					
	JP	トチュウ	EUCOMMIAE CORTEX	Eucommia Bark	bark	
	CP	杜仲	CORTEX EUCOMMIAE	Eucommia Bark	stem bark	coarse outer layer
	KP	두충	EUCOMMIAE CORTEX	Eucommia Bark	stem bark	
	VP	Đỗ trọng (Vỏ thân)	CORTEX EUCOMMIAE		stem bark	
10	**Foeniculum vulgare Miller**					
	JP	ウイキョウ	FOENICULI FRUCTUS	Fennel	fruit	
	CP	小茴香	FRUCTUS FOENICULI	Fennel	ripe fruit	
	KP	회향	FOENICULI FRUCTUS	Fennel	fruit	
	VP	Tiểu hồi (Quả)	FRUCTUS FOENICULI		ripe fruit	
11	**Fritillaria thunbergii Miq.**					
	JP	バイモ	FRITILLARIAE BULBUS	Fritillaria Bulb	Bulbus	
	CP	浙貝母	BULBUS FRITILLAIAE THUNBERGII	Thunberg Fritillary Bulb	Bulbus	
*	KP	패모	FRITILLARIAE THUNBERGII BULBU	Fritillaria Thunbergii Bulb	Bubl	
	VP	Triết bối mẫu	BULBUS FRITILARIAE THUNBERGII		Bulbs	
12	**Gardenia jasminoides Ellis**					
	JP	サンシシ	GARDENIAE FRUCTUS	Gardeni Fruit	fruit	
	CP	栀子	FRUCTUS GARDENIAE	Cape Jasmine Fruit	ripe fruit	fruit stalk
	KP	치자	GARDENIAE FRUCTUS	Gardeni Fruit	fruit	
	VP	Dành dành (Quả), Chi tử	FRUCTUS GARDENIAE		ripe fruit	

Comparative table on English titles and part of use of crude drugs in JP, CP, KP and VP

No.		Title	Latin title	English title	Use part	Removed
13	**Imperata cylindrica Beauvois**					
	JP	ボウコン	IMPERATA RHIZOMA	Imperata Rhizome	rhizome	rootlets and scale
	CP	白茅根	RHIZOMA IMPERATAE	Lalang Grass Rhizome	rhizome	fibrous root and membranous leaf sheath and tied up in small bundele
	KP	모근	IMPERATAE RHIZOMA	Imperata Rhizome	rhizome	rootlets and scale
	VP	Cỏ tranh (Thân rễ), Bạch mao căn	RHIZOMA IMPERATAE CYLINDRICAE		rhizome	
14	**Leonurus japonicus Houtt.**					
	JP	ヤクモソウ	LEONURI HERBA	Leonurun Herba	terrestrial part	
	CP	益母草	HERBA LEONURI	Motherwort Herba	aerial part	
	KP	익모초	LEONURI HERBA	Leonurun Herba	aerial part	
	VP	Ích mẫu	HERBA LEONURI JAPONICI		stem and leaf	
15	**Mentha arvensis Linne var. piperascens Malinvaud**					
	JP	ハッカ	MENTHAE HERBA	Menta Herb	terrestrial part	
	CP	薄荷	HERBA MENTHAE	Peppermint	aerial part	
	KP	박하	MENTHAE HERBA	Menta Herb	terrestrial part	
	VP	Bạc hà	HERBA MENTHAE ARVENSIS		aerial part	
16	**Morus alba Linne**					
	JP	ソウハクヒ	MORI CORTEX	Mulberry Bark	root bark	
	CP	桑白皮	CORTEX MORI	White Mulberry Root-Bark	root bark	yellowish-brown cork
*	KP	상백피	MORI CORTEX RADICIS	Mulberry Root Bark	root bark	
	VP	Dâu (Vỏ rễ), Tang bạch bì	CORTEX MORI ALBAE RADICIS		root bark	yellowish-brown cork
17	**Myristica fragrans Houttuyn**					
	JP	ニクズク	MYRISTICAE SEMEN	Nutmeg	seed	seed coat
	CP	肉豆蔻	SEMEN MYRISTICAE	Nutmeg	kernel	
	KP	육두구	MYRISTICAE SEMEN	Nutmeg	seed	aril and seed coat
	VP	Nhục đậu khấu (Hạt)	SEMEN MYRISTICAE		seed	

Comparative table on English titles and part of use of crude drugs in JP, CP, KP and VP

No.		Title	Latin title	English title	Use part	Removed
18	**Nelumbo nucifera Gaertner**					
	JP	レンニク	NELUMBIS SEMEN	Lotus Seed	seed	
	CP	蓮子	SEMEN NELUMBINIS	Lotus Seed	ripe seed	pericarp
	KP	연자육	NELUMBINIS SEMEN	Nelumbo Seed	seed	seed coat
	VP	Sen (Hạt), Liên nhục	SEMEN NELUMBINIS		ripe seed	
19	**Paeonia suffruticosa Andrews**					
	JP	ボタンピ	MOUTAN CORTEX	Moutan Bark	root bark	
	CP	牡丹皮	CORTEX MOUTAN	Tree Peony Bark	root bark	rootlets
	KP	목단피	MOUTAN CORTEX RADICIS	Moutan Root Bark	root	
	VP	Mẫu đơn bì	CORTEX PAEONIAE SUFFRUTICOSAE		root bark	
20	**Panax ginseng C. A. Meyer**					
	JP	ニンジン	GINSENG RADIX	Ginseng	root	rootlets
	CP	人参	RADIX GINSENG	Ginseng	root	
	KP	인삼	GINSENG RADIX ALBA	White Ginseng	root	rootlets and cork
	VP	Nhân sâm	RADIX GINSENG		root	
21	**Platycodon grandiflorum A. De Candolle**					
	JP	キキョウ	PLATYCODI RADIX	Platycodon Root	root	
	CP	桔梗	RADIX PLATYCODI	Platycodon Root	root	rootlets
	KP	길경	PLATYCODI RADIX	Platycodon Root	root	periderm
	VP	Cát cánh (Rễ)	RADIX PLATYCODI GRANDIFLORI		root	peeled
22	**Pogostemon cablin Bentham**					
	JP	カッコウ	POGOSTEMONI HERBA	Patchouly	terrestrial part	
	CP	広藿香	HERBA POGOSTEMONIS	Cablin Patchouli Herb	aerial part	
	KP	광곽향	POGOSTEMONIS HERBA	Pogostemon Herb	aerial part	
	VP	Hoắc hương	HERBA POGOSTEMONIS		aerial part	
23	**Polyporus umbellatus Fries**					
	JP	チョレイ	POLYPORUS	Polyporus Sclerotium	sclerotium	
	CP	猪苓	POLYPORUS	Chuling	sclerotium	soil
	KP	저령	POLYPORUS	Chuling	sclerotium	
	VP	Trư linh	POLYPORUS		sclerotium	

Comparative table on English titles and part of use of crude drugs in JP, CP, KP and VP

No.		Title	Latin title	English title	Use part	Removed
24	**Poria cocos Wolf**					
	JP	ブクリョウ	PORIA	Poria Sclerotium	sclerotium	
	CP	茯苓	PORIA	Indian Bread	sclerotium	
	KP	복령	HOELEN	Hoelen	sclerotium	external layer
	VP	Phục linh, Bạch linh	PORIA		sclerotium	
25	**Prunella vulgaris Linne var. lilacina Nakai**					
	JP	カゴソウ	PRUNELLAE SPICA	Prunella Spike	spike	
	CP	夏枯草	SPICA PRUNELLAE	Common Selfheal Fruit-Spil	fruit-spike	
	KP	하고초	PRUNELLAE SPICA	Prunella Spike	spike	
	VP	Hạ khô thảo (Cụm quả)	SPICA PRUNELLAE		fruit-spike	
26	**Scutellaria baicalensis Georgi**					
	JP	オウゴン	SCUTELLARIAE RADIX	Scutellaria Root	root	periderm
	CP	黄芩	RADIX SCUTELLARIAE	Baical Skullcap Root	root	rootlets and soil
	KP	황련	SCUTELLARIAE RADIX	Scutellaria Root	root	periderm
	VP	Hoàng cầm (Rễ)	RADIX SCUTELLARIAE		root	peeled
27	**Strychnos nux-vomica Linne**					
	JP	ホミカ	STRYCHNI SEMEN	Nux Vomica	seed	
	CP	馬銭子	SEMEN STRYCHNI	Nux Vomica	ripe seed	
	KP	호미카	STRYCHNI SEMEN	Nux Vomica	seed	
	VP	Mã tiền (Hạt)	SEMEN STRYCHNI		seed	
28	**Zingiber officinale Roscoe**					
	JP	ショウキョウ	ZINGIBERIS RHIZOMA	Ginger	rhizome	
	CP	生姜	RHIZOMA ZINGIBERIS RECENS	Fresh Ginger	fresh rhizome	fibrous root and soil
	KP	생강	ZINGIBERIS RHIZOMA	Ginger	rhizome	
	VP	Gừng (Thân rễ)	RHIZOMA ZINGIBERIS		rhizome	
29	**Zizyphus jujuba Miller var. spinosa (Bunge) Hu ex H. F. Chou**					
	JP	サンソウニン	ZIZYPHI SEMEN	Jujube Seed	seed	
	CP	酸棗仁	SEMEN ZIZIPHI SPINOSAE	Spine Date Seed	ripe seed	pulp and shell
	KP	산조인	ZIZYPHI SEMEN	Zizyphus Seed	ripe seed	
	VP	Táo (Hạt), Táo nhân, Toan táo nhân	SEMEN ZIZIPHI MAURITIANAE		ripe seed	

Comparative table on English titles and part of use of crude drugs in JP, CP, KP and VP

No.		Title	Latin title	English title	Use part	Removed
30	**Zizyphus jujuba Miller var. inermis Rehder**					
	JP	タイソウ	ZIZYPHI FRUCTUS	Jujube	fruit	
	CP	大棗	FRUCTUS JUJUBAE	Chinese Date	ripe fruit	
	KP	대추	ZIZYPHI FRUCTUS	Jujube	fruit	
	VP	Đại táo	FRUCTUS ZIZYPHY JUJUBAE		ripe fruit	

*:KP is including other plants

Section 2

Table 4-6 complied by EWG II for Testing Method in Monographs

Table 4 to 6 are comparative tables on testing methods used in each monograph compiled by EWG II.

Table 4 is the Comparative table on testing methods and specification values for crude drugs in CP, JP, KP and VP, which includes 106 crude drugs. All these 106 crude drugs are the same as that included in Table 1 (i.e. crude drug SN 1-106). This table provides a summary of testing methods and specification values described in each monograph from each pharmacopoeia. Summarized information includes identification test, purification test, data on loss on drying, total ash and acid insoluble ash, extract content, and data on assay including essential oil content.

Table 5 is the Comparative table on thin-layer chromatography (TLC) condition of identification for crude drugs in CP, JP, KP and VP, which includes 89 crude drugs. Only monographs that provide TLC test information are included in this table (i.e. as part of 106 crude drugs included in Table 4). TLC condition includes developing solvent, detection way, colour tone on TLC and marker compounds.

Table 6 is the Comparative table on assay conditions for crude drugs in CP, JP, KP and VP, which includes 69 crude drugs. Only monographs that provide assay information (e.g. high performance liquid chromatography: HPLC, titration, absorption) are included in this table (i.e. as part of 106 crude drugs included in Table 4). Assay condition includes type of assay, method, developing solvent and detection way.

Table 4

Comparative table on testing methods and specification values for crude drugs in CP, JP, KP and VP

Comparative Table on Testing Methods and Specification Values for Crude Drugs in CP, JP, KP and VP

No.	Latin name	Identification	Purification	Loss on drying	Total ash	Acid insoluble ash	Extract content	Assay (Essential oil content)
		(O: Established, X: Not established, ↓ : Not more than, ↑ : Not less than)						
1	*Achyranthes bidentata* Blume							
	CP RADIX ACHYRANTHIS BIDENTATAE	O (TLC)	X	O (↓ 15.0%, Water)	O (↓ 9.0%)	O (↓ 1.0%)	↑ 6.5% (1-Butanol-soluble extract)	X
	JP ACHYRANTHIS RADIX	O	O (Stem, Foreign matter)	O (↓ 17.0%)	O (↓ 10.0%)	O (↓ 1.5%)	X	X
	KP ACHYRANTHIS RADIX	O (TLC)	O (Stem, Foreign matter)	O (↓ 17.0%)	O (↓ 10.0%)	O (↓ 1.5%)	X	X
	VP RADIX ACHYRANTHIS BIDENTATAE	O (TLC)	O (Stem, Foreign matter)	O (↓ 15.0%)	O (↓ 9.0%)	X	X	X
2	*Alisma orientale* Juzepczuk							
	CP RHIZOMA ALISMATIS	O	X	X	O (↓ 5.0%)	O (↓ 0.5%)	X	X
	JP ALISMATIS RHIZOMA	X	X	X	O (↓ 5.0%)	O (↓ 0.5%)	X	X
	KP ALISMATIS RHIZOMA	X	X	X	O (↓ 5.0%)	O (↓ 0.5%)	X	X
	VP RHIZOMA ALISMATIS	O (Powder)	X	O (↓ 12.0%)	O (↓ 5.0%)	X	X	X
3	*Alpinia oxyphylla* Miquel							
	CP FRUCTUS ALPINIAE OXYPHYLLAE	O (TLC)	X	X	X	X	X	↑ 1.0% (Essential oil content)
	JP ALPINIAE FRUCTUS	X	X	X	O (↓ 10.0%)	O (↓ 2.5%)	X	↑ 0.4 mL/50g (Essential oil content)
	KP ALPINIAE FRUCTUS	X	X	X	O (↓ 10.0%)	O (↓ 2.5%)	X	↑ 0.4 mL/50g (Essential oil content)
	VP FRUCTUS ALPINIAE OXYPHYLLAE	O (TLC)	O (Foreign matter)	O (↓ 11.0%, Water)	X	X	X	↑ 1.0% (Essential oil content)
4	*Anemarrhena asphodeloides* Bunge							
	CP RHIZOMA ANEMARRHENAE	O (TLC)	X	O (↓ 12.0%, Water)	O (↓ 8.5%)	O (↓ 4.0%)	X	Diosgenin ↑ 1.0% (TLC)
	JP ANEMARRHENAE RHIZOMA	O	O (Foreign matter)	X	O (↓ 7.0%)	O (↓ 2.5%)	X	X
	KP ANEMARRHENAE RHIZOMA	O (TLC)	O (Foreign matter)	X	O (↓ 7.0%)	O (↓ 2.5%)	X	X
	VP RHIZOMA ANEMARRHENAE	O (TLC)	O (Foreign matter)	O (↓ 12.0%)	O (↓ 8.5%)	X	X	X
5	*Angelica dahurica* Bentham et Hooker fil							
	CP RADIX ANGELICA DAHURICAE	O (TLC)	X	O (↓14.0%, Water)	O (↓ 6.0%)	O (↓ 1.5%)	↑ 15.0% (Dilute ethanol-soluble extract)	Imperatorin ↑ 0.080% (HPLC)
	JP ANGELICAE DAHURICAE RADIX	O	O (Leaf sheath, Foreign matter)	X	O (↓ 7.0%)	O (↓ 2.0%)	↑ 25.0% (Dilute ethanol-soluble extract)	X
	KP ANGELICAE DAHURICAE RADIX	O	O (Leaf sheath, Foreign matter)	X	O (↓ 7.0%)	O (↓ 2.0%)	↑ 25.0% (Dilute ethanol-soluble extract)	X
	VP RADIX ANGELICA DAHURICAE	O (TLC)	O (Foreign matter)	O (↓13.0%, Water)	O (↓ 6.0%)	O (↓ 2.0%)	X	X
6	*Astragalus membranaceus* Bunge							
	CP RADIX ASTRAGALI	O (TLC)	O (Heavy metals, Arsenic, Total BHC, DDT, PCNB)	X	O (↓ 5.0%)	O (↓ 1.0%)	↑ 17.0% (Water-soluble extract)	Astrogaroside ↑ 0.04% (TLC)
	JP ASTRAGALI RADIX	X	O (Root of Hedysarum species and others)	O (↓ 13.0%)	O (↓ 5.0%)	O (↓ 1.0%)	X	X
	KP ASTRAGALI RADIX	X	O (Root of Hedysarum species and others)	O (↓ 13.0%)	O (↓ 5.0%)	O (↓ 1.0%)	X	X
	VP RADIX ASTRAGALI MEMBRANACI	O (TLC)	X	O (↓ 12.0%)	O (↓ 5.0%)	X	X	X
7	*Atractylodes lancea* De Candolle, *A. chinensis* Koidzumi							
	CP RHIZOMA ATRACTILODIS	O (TLC)	X	X	O (↓ 7.0%)	X	X	X
	JP ATRACTYLODIS LANCEAE RHIZOMA	X	O (Atractylodis rhizome)	X	O (↓ 7.0%)	O (↓ 1.5%)	X	↑ 0.7 mL/50g (Essential oil content)
	KP ATRACTYLODIS RHIZOMA	X	O (Atractylodis rhizome)	X	O (↓ 7.0%)	O (↓ 1.5%)	X	↑ 0.7 mL/50g (Essential oil content)
	VP RHIZOMA ATRACTILODIS	O (TLC)	X	X	O (↓ 7.0%)	X	X	X
8	*Atractylodes ovata* De Candolle							
	CP RHIZOMA ATRACTYLODIS MACROCEPHALAE	O (TLC)	O (Degree of colouration)	X	O (↓ 5.0%)	O (↓ 1.0%)	X	X
	JP ATRACTYLODIS RHIZOMA	O	O (Atractylodis lancea rhizome)	X	O (↓ 7.0%)	O (↓ 1.0%)	X	↑ 0.5 mL/50g (Essential oil content)
	KP ATRACTYLODIS RHIZOMA ALBA	O	O (Atractylodis lancea rhizome)	X	O (↓ 7.0%)	O (↓ 1.0%)	X	↑ 0.7 mL/50g (Essential oil content)
	VP RHIZOMA ATRACTYLODIS MACROCEPHALAE	O (TLC)	O (Foreign matter)	O(↓14.0%)	O (↓ 5.0%)	X	X	X
9	*Bupleurum falcatum* Linne							
	CP RADIX BUPLEURI	O (TLC)	X	X	O (↓ 8.0%)	X	↑ 11.0% (Dilute ethanol-soluble extract)	X
	JP BUPLEURI RADIX	O (TLC)	O (Stem and leaf, Foreign matter)	X	O (↓ 6.5%)	O (↓ 2.0%)	↑ 11.0% (Dilute ethanol-soluble extract)	X
	KP BUPLEURI RADIX	O (TLC)	O (Stem and leaf, Foreign matter)	X	O (↓ 6.5%)	O (↓ 2.0%)	X	Saikosaponin a ↑ 0.3% (HPLC)
	VP RADIX BUPLEURI	O (TLC)	O (Stem and leaf, Foreign matter)	O (↓12.0%)	O (↓ 8.0%)	X	↑ 11.0% (Dilute ethanol-soluble extract)	X
10	*Carthamus tinctorius* Linne							
	CP FLOS CARTHAMI	O (TLC)	O (Foreign matter)	O (↓13.0%, Water)	O (↓15.0%)	O (↓ 5.0%)	↑ 30.0% (Water-soluble extract)	Hydroxysafflor A ↑ 1.0% (HPLC), Kaempferide ↑ 0.05% (HPLC)
	JP CARTHAMI FLOS	O	O (Foreign matter)	X	O (↓18.0%)	X	X	X
	KP CARTHAMI FLOS	O	O (Foreign matter)	X	O (↓18.0%)	X	X	X
	VP FLOS CARTHAMI TINCTORII	O (TLC)	O (Change of colouration, Foreign matter)	O (↓13.0%, Water)	O (↓15.0%)	X	X	X
11	*Cimicifuga heracleifolia* Komarov							
	CP RHIZOMA CIMICIFUGAE	O (TLC)	O (Foreign matter)	O (↓13.0%, Water)	O (↓ 8.0%)	O (↓ 4.0%)	↑ 17.0% (Dilute ethanol-soluble extract)	Ferulic acid ↑ 0.1% (HPLC)
	JP CIMICIFUGAE RHIZOMA	X	O (Rhizome of Astilbe thunbergii Miquel)	X	O (↓ 9.0%)	O (↓ 1.5%)	↑ 18.0% (Dilute ethanol-soluble extract)	X
	KP CIMICIFUGAE RHIZOMA	X	O (Rhizome of Astilbe thunbergii Miquel)	X	O (↓ 9.0%)	O (↓ 1.5%)	↑ 18.0% (Dilute ethanol-soluble extract)	X
	VP RHIZOMA CIMICIFUGAE	X	X	O (↓12.0%)	O (↓ 8.0%)	X	X	X
12	*Cinnamomum cassia* Blume							
	CP CORTEX CINNAMOMI	O (TLC)	X	O (↓ 15.0%, Water)	O (↓ 6.0%)	X	X	↑ 1.2% (Essential oil content), Cinnamic acid ↑ 1.5% (HPLC)
	JP CINNAMOMI CORTEX	O (TLC)	X	O (↓ 15.5%)	O (↓ 5.0%)	X	X	↑ 0.5 mL/50g (Essential oil content)
	KP CINNAMOMI CORTEX	O (TLC)	X	O (↓ 15.5%)	O (↓ 5.0%)	X	X	Cinnamic acid ↑ 0.03% (HPLC)
	VP CORTEX CINNAMOMI	O (TLC)	O (Foreign matter)	O (↓14.0%, Water)	O (↓ 5.0%)	X	X	↑ 1.0% (Essential oil content)
13	*Cornus officinalis* Siebold et Zuccarini							
	CP FRUCTUS CORNI	O (TLC)	O (Foreign matter)	O (↓ 16.0%, Water)	O (↓ 6.0%)	O (↓ 0.5%)	↑ 50.0% (Water-soluble extract)	Loganin ↑ 0.60% (HPLC)
	JP CORNI FRUCTUS	O (TLC)	O (Foreign matter)	X	O (↓ 5.0%)	X	↑ 35.0% (Dilute ethanol-soluble extract)	X
	KP CORNI FRUCTUS	O (TLC)	O (Foreign matter)	X	O (↓ 5.0%)	X	X	Loganin ↑ 0.5% (HPLC)
	VP FRUCTUS CORNI OFFICINALIS	O (TLC)	O (Seed and stem, Foreign matter)	O (↓12.0%, Water)	X	X	X	X

No.		Latin name	Identification	Purification	Loss on drying	Total ash	Acid insoluble ash	Extract content	Assay (Essential oil content)
			(O: Established, X: Not established, ↓ : Not more than, ↑ : Not less than)						
14		*Cyperus rotundus* Linne							
	CP	RHIZOMA CYPERI	O (TLC)	X	X	O (↓ 4.0%)	X	X	X
	JP	CYPERI RHIZOMA	X	X	X	O (↓ 3.0%)	X	X	↑ 0.3 mL/50g (Essential oil content)
	KP	CYPERI RHIZOMA	X	X	X	O (↓ 3.0%)	O (↓ 1.5%)	X	↑ 0.3 mL/50g (Essential oil content)
	VP	RHIZOMA CYPERI	O	O (Stem, Black burned, Foreign matter)	O (↓ 13.0%, Water)	X	X	X	↑ 0.35% (Essential oil content)
15		*Euphoria longana* Lamarck.							
	CP	ARILLUS LONGAN	O	X	O (↓ 15.0%, Water)	O (↓ 4.0%)	X	↑ 70.0% (Water-soluble extract)	X
*	JP	LONGAN ARILLUS	O	X	O (↓ 15.0%)	O (↓ 5.0%)	X	X	X
	KP	LONGANAE ARILLUS	O	X	O (↓ 15.0%)	O (↓ 5.0%)	X	X	X
	VP	ARILLUS LONGAN	X	O (Dark brown)	O (↓ 18.0%, Water)	X	X	X	X
16		*Ephedra sinica* Stapf							
	CP	HERBA EPHEDRAE	O (TLC)	O (Foreign matter)	O (↓ 9.0%, Water)	O (↓ 10.0%)	X	X	Ephedorine hydrochloride ↑ 1.0% (HPLC)
	JP	EPHEDRAE HERBA	O (TLC)	O (Woody stem, Foreign matter)	X	O (↓ 11.0%)	O (↓ 2.0%)	X	Total alkaroids ↑ 0.7% (HPLC)
	KP	EPHEDRAE HERBA	O (TLC)	O (Woody stem, Foreign matter)	X	O (↓ 11.0%)	O (↓ 2.0%)	X	Total alkaroids (Ephedrine+ Psheudoephedrine) ↑ 0.7% (HPLC)
	VP	HERBA EPHEDRAE	O (TLC)	O (Foreign matter)	O (↓ 10.0%)	O (↓ 10.0%)	O (↓ 2.0%)	X	Total alkaroids ↑ 0.8% (Titration)
17		*Eucommia ulmoides* Oliver							
	CP	CORTEX EUCOMMIAE	O	X	X	X	X	↑ 11.0% (Dilute ethanol-soluble extract)	Pinoresinol-di-glucopyranoside ↑ 0.10% (HPLC)
	JP	EUCOMMIAE CORTEX	O	X	O (↓ 12.0%)	O (↓ 8.0%)	O (↓ 5.0%)	↑ 7.0% (Dilute ethanol-soluble extract)	X
	KP	EUCOMMIAE CORTEX	X	X	O (↓ 10.0%)	O (↓ 8.0%)	O (↓ 6.0%)	↑ 9.0% (Dilute ethanol-soluble extract)	X
	VP	CORTEX EUCOMMIAE	O	O (Foreign matter)	O (↓ 10.0%)	X	X	↑ 11.0% (Dilute ethanol-soluble extract)	X
18		*Evodia rutaecarpa* Bentham							
	CP	FRUCTUS EVODIAE	O (TLC)	O (Foreign matter)	O (↓ 15.0%, Water)	O (↓ 10.0%)	O (↓ 1.0%)	↑ 30.0% (Dilute ethanol-soluble extract)	Evodiamine+Rutaecarpine ↑ 0.15% (HPLC)
	JP	EVODIAE FRUCTUS	O	O (Peduncle, Foreign matter)	X	O (↓ 8.0%)	X	X	X
	KP	EVODIAE FRUCTUS	O (TLC)	O (Peduncle, Foreign matter)	X	O (↓ 8.0%)	X	X	X
	VP	FRUCTUS EVODIAE RUTAECARPAE	O	O (Peduncle, Foreign matter)	O (↓ 5.0%, Water)	X	X	X	↑ 0.25% (Essential oil content)
19		*Foeniculum vulgare* Miller							
	CP	FRUCTUS FOENICULI	O (TLC)	O (Foreign matter)	X	O (↓ 10.0%)	X	X	↑ 1.5% (Essential oil content)
	JP	FOENICULI FRUCTUS	O (TLC)	O (Peduncle, Foreign matter)	X	O (↓ 10.0%)	O (↓ 1.5%)	X	↑ 0.7 mL/50g (Essential oil content)
	KP	FOENICULI FRUCTUS	O (TLC)	O (Peduncle, Foreign matter)	X	O (↓ 10.0%)	O (↓ 1.5%)	X	↑ 0.7 mL/50g (Essential oil content)
	VP	FRUCTUS FOENICULI	O	O (Foreign matter)	O (↓ 13.0%, Water)	O (↓ 10.0%)	X	X	↑ 1.5% (Essential oil content)
20		*Forsythia suspensa* Vahl							
	CP	FRUCTUS FORSYTHIAE	O (TLC)	O (Foreign matter)	O (↓ 10.0%, Water)	O (↓ 4.0%)	X	↑ 16.0% (Dilute ethanol-soluble extract)	Forsythiaside ↑ 0.15% (HPLC)
	JP	FORSYTHIAE FRUCTUS	O	O (Blanchlet, Foreign matter)	X	O (↓ 5.0%)	X	↑ 10.0% (Dilute ethanol-soluble extract)	X
	KP	FORSYTHIAE FRUCTUS	O	O (Blanchlet, Foreign matter)	X	O (↓ 5.0%)	X	↑ 10.0% (Dilute ethanol-soluble extract)	X
	VP	FRUCTUS FORSYTHIAE	O (TLC)	O (Foreign matter)	O (↓ 10.0%)	O (↓ 4.0%)	X	↑ 16.0% (Dilute ethanol-soluble extract)	X
21		*Fritillaria verticillata* Willdenow var. *thunbergii* Baker							
	CP	BULBUS FRITILLAIAE THUNBERGII	O (TLC)	X	O (↓ 18.0%, Water)	O (↓ 6.0%)	O (↓ 1.0%)	↑ 8.0% (Dilute ethanol-soluble extract)	Peimine+Peiminine ↑ 0.080% (HPLC)
	JP	FRITILLARIAE BULBUS	O (TLC)	X	O (↓ 16.0%)	O (↓ 6.5%)	O (↓ 1.0%)	↑ 8.0% (Dilute ethanol-soluble extract)	X
	KP	FRITILLARIAE THUNBERGII BULBUS	O	X	O (↓ 15.0%)	O (↓ 5.0%)	X	↑ 9.0% (Dilute ethanol-soluble extract)	X
	VP	BULBUS FRITILLAIAE THUNBERGII	O (TLC)	O (Foreign matter)	O (↓ 12.0%)	X	X	X	X
22		*Gardenia jasminoides* Ellis							
	CP	FRUCTUS GARDENIAE	O (TLC)	X	O (↓ 8.5%, Water)	O (↓ 6.0%)	X	X	Geniposide ↑ 1.8% (HPLC)
	JP	GARDENIAE FRUCTUS	O (TLC)	X	O (↓ 13.0%)	O (↓ 6.0%)	X	X	Geniposide ↑ 3.0% (HPLC)
	KP	GARDENIAE FRUCTUS	O (TLC)	X	X	O (↓ 6.0%)	X	X	X
	VP	FRUCTUS GARDENIAE	O (TLC)	O (Young, broken, black, Foreign matter)	O (↓ 13.0%, Water)	O (↓ 6.0%)	X	X	X
23		*Glycyrrhiza uralensis* Fisher, *G. glabra* Linne							
	CP	RADIX ET RHIZOMA GLYCYRRHIZAE	O (TLC)	O (Heavy metals, Arsenic, Total BHC, DDT, PCNB)	O (↓ 12.0%, Water)	O (↓ 7.0%)	O (↓ 2.0%)	X	Glycyrrhizinic acid ↑ 2.0% (HPLC)
	JP	GLYCYRRHIZAE RADIX	O (TLC)	X	O (↓ 12.0%)	O (↓ 7.0%)	O (↓ 2.0%)	↑ 25.0% (Dilute ethanol-soluble extract)	Glycyrrhizinic acid ↑ 2.5% (HPLC)
	KP	GLYCYRRHIZAE RADIX	O (TLC)	X	O (↓ 12.0%)	O (↓ 7.0%)	O (↓ 2.0%)	X	Glycyrrhizinic acid ↑ 2.5% (HPLC)
	VP	RADIX GLYCYRRHIZAE	O (TLC)	O (Foreign matter)	O (↓ 12.0%)	O (↓ 10.0%)	O (↓ 2.5%)	X	Glycyrrhizinic acid ↑ 6.0% (Weight)
24		*Leonurus sibiricus* Linne.							
	CP	HERBA LEONURI	O (TLC)	X	O (↓ 13.0%, Water)	O (↓ 11.0%)	O (↓ 1.0%)	↑ 15.0% (Water-soluble extract)	Stachydrine ↑ 0.50% (TLC)
*	JP	LEONURI HERBA	O	X	O (↓ 13.0%)	O (↓ 10.0%)	O (↓ 2.0%)	↑ 8.0% (Dilute ethanol-soluble extract)	X
	KP	LEONURI HERBA	O	X	O (↓ 13.0%)	O (↓ 10.0%)	O (↓ 2.0%)	↑ 8.0% (Dilute ethanol-soluble extract)	X
	VP	HERBA LEONURI JAPONICI	O (PC)	O (Herba > 40cm, Foreign matter)	O (↓ 13.0%, Water)	O (↓ 10.0%)	X	↑ 20.0% (Water-soluble extract)	X
25		*Lonicera japonica* Thunberg							
	CP	FLOS LONICERAE JAPONICAE	O (TLC)	O (Heavy metals, Arsenic)	O (↓ 12.0%, Water)	O (↓ 10.0%)	O (↓ 3.0%)	X	Chlorogenic acid ↑ 1.5% (HPLC)
*	JP	LONICERAE FLOS	O	O (Stems and leaves)	O (↓ 15.0%)	O (↓ 9.0%)	X	↑ 32.0% (Dilute ethanol-soluble extract)	X
	KP	LONICERAE FLOS	O	O (Stems and leaves)	O (↓ 15.0%)	O (↓ 9.0%)	X	↑ 16.0% (Dilute ethanol-soluble extract)	X
	VP	FLOS LONICERAE	O	O (Stems and leaves, Foreign matter)	O (↓ 12.0%)	O (↓ 9.0%)	O (↓ 1.5%)	X	X
26		*Magnolia officinalis* Rehder et Wilson var. *biloba* Rehder et Wilson							
	CP	CORTEX MAGNOLIAE OFFICINALIS	O (TLC)	X	X	X	X	X	Magnolol+Honokiol ↑ 2.0% (HPLC)
	JP	MAGNOLIAE CORTEX	O (TLC)	X	X	O (↓ 6.0%)	X	↑ 11.0% (Dilute ethanol-soluble extract)	Magnolol ↑ 0.8% (HPLC)
	KP	MAGNOLIAE CORTEX	O (TLC)	X	X	O (↓ 6.0%)	X	X	Magnolol ↑ 0.8% (HPLC)
	VP	CORTEX MAGNOLIAE OFFICINALIS	O (TLC)	O (Cork bark, Foreign matter)	O (↓ 15.0%, Water)	O (↓ 6.0%)	X	X	X
27		*Morus alba* Linne							
	CP	CORTEX MORI	O (TLC)	X	X	X	X	X	X
	JP	MORI CORTEX	O	O (Foreign matter)	X	O (↓ 11.0%)	O (↓ 1.0%)	X	X
	KP	MORI CORTEX	O	O (Foreign matter)	X	O (↓ 11.0%)	O (↓ 1.0%)	X	X
	VP	CORTEX MORI ALBAE	O	O (Foreign matter)	O (↓ 12.0%)	O (↓ 9.0%)	X	X	X

No.		Latin name	Identification	Purification	Loss on drying	Total ash	Acid insoluble ash	Extract content	Assay (Essential oil content)
			(O: Established, X: Not established, ↓ : Not more than, ↑ : Not less than)						
28		*Myristica fragrans* Houttuyn							
	CP	SEMEN MYRISTICAE	O (TLC)	X	O (↓ 10.0%, Water)	X	X	X	↑ 6.0% (Essential oil content)
*	JP	MYRISTICAE SEMEN	O	X	X	O (↓ 3.0%)	X	X	↑ 0.5 mL/50g (Essential oil content)
	KP	MYRISTICAE SEMEN	O (TLC)	X	X	O (↓ 3.0%)	O (↓ 0.5%)	X	↑ 0.5 mL/50g (Essential oil content)
	VP	SEMEN MYRISTICAE	O (TLC)	X	O (↓ 12.0%, Water)	X	X	X	↑ 6.0% (Essential oil content)
29		*Nelumbo nucifera* Gaertner							
	CP	SEMEN NELUMBINIS	O (TLC)	X	O (↓ 14.0%, Water)	X	X	X	X
	JP	NELUMBIS SEMEN	O	X	X	O (↓ 5.5%)	X	↑ 12.0% (Dilute ethanol-soluble extract)	X
	KP	NELUMBINIS SEMEN	O	X	X	O (↓ 5.5%)	X	↑ 12.0% (Dilute ethanol-soluble extract)	X
	VP	SEMEN NELUMBINIS	O	O (Foreign matter)	O (↓ 11.0%)	O (↓ 5.0%)	X	X	X
30		*Paeonia lactiflora* Pallas							
	CP	RADIX PAEONIAE ALBA	O (TLC)	O (Heavy metals, Arsenic)	X	X	X	X	Paeoniflorin ↑ 1.6% (HPLC)
	JP	PAEONIAE RADIX	O (TLC)	X	O (↓ 14.0%)	O (↓ 6.5%)	O (↓ 0.5%)	X	Paeoniflorin ↑ 2.0% (HPLC)
	KP	PAEONIAE RADIX	O (TLC)	X	X	O (↓ 6.5%)	O (↓ 0.5%)	X	Paeoniflorin ↑ 2.0% (HPLC)
	VP	RADIX PAEONIAE	O (TLC)	X	X	X	X	X	X
31		*Paeonia suffruticosa* Andrews							
	CP	CORTEX MOUTAN	O (TLC)	X	O (↓ 13.0%, Water)	O (↓ 5.0%)	O (↓ 1.0%)	↑ 15.0% (Ethanol-soluble extract)	Paeonol ↑ 1.2% (HPLC)
	JP	MOUTAN CORTEX	O (TLC)	O (Xylem, Foreign matter)	X	O (↓ 6.0%)	O (↓ 1.0%)	X	Paeonol ↑ 1.0% (HPLC)
	KP	MOUTAN CORTEX RADICIS	O (TLC)	O (Xylem, Foreign matter)	X	O (↓ 6.0%)	O (↓ 1.0%)	X	Paeonol ↑ 1.0% (HPLC)
	VP	CORTEX PAEONIA SUFFURUTICOSAE	O (TLC)	O (Wood, Foreign matter)	O (↓ 13.0%)	O (↓ 5.0%)	X	X	Paeonol ↑ 1.2% (Absorption)
32		*Panax ginseng* C. A. Meyer							
	CP	RADIX ET RHIZOMA GINSENG	O (TLC)	X	O (↓ 12.0%, Water)	O (↓ 5.0%)	O (↓ 1.0%)	X	Ginsenoside Rg,+Re ↑ 0.30% , Ginsenoside Rb, ↑ 0.20% (HPLC)
	JP	GINSENG RADIX	O (TLC)	O (Foreign matter, Heavy metals, Arsenic, Total BHC, Total DDT)	X	O (↓ 4.2%)	X	↑ 14.0% (Dilute ethanol-soluble extract)	X
	KP	GINSENG RADIX ALBA	O (TLC)	O (Foreign matter)	X	O (↓ 4.2%)	X	↑ 14.0% (Dilute ethanol-soluble extract)	X
	VP	RADIX GINSENG	O (TLC)	X	X	X	X	X	X
33		*Platycodon grandiflorum* A. De Candolle							
	CP	RADIX PLATYCODONIS	O (TLC)	X	X	X	X	X	Total saponin ↑ 6.0% (Dry weight)
	JP	PLATYCODI RADIX	O	X	X	O (↓ 4.0%)	X	↑ 25.0% (Dilute ethanol-soluble extract)	X
	KP	PLATYCODI RADIX	O	X	X	O (↓ 4.0%)	X	↑ 25.0% (Dilute ethanol-soluble extract)	X
	VP	RADIX PLATYCODI GRANDIFLORI	O	O (Foreign matter)	O (↓ 9.0%)	O (↓ 4.0%)	O (↓ 1.0%)	X	Total saponin ↑ 5.0%
34		*Pogostemon cablin* Bentham							
	CP	HERBA POGOSTEMONIS	O (TLC)	O (Foreign matter, Leaves)	O (↓ 14.0%, Water)	O (↓ 11.0%)	O (↓ 4.0%)	↑ 2.5% (Ethanol-soluble extract)	Patchouli alcohol ↑ 0.10% (GC)
*	JP	POGOSTEMONI HERBA	O	X	O (↓ 13.0%)	O (↓ 13.0%)	O (↓ 3.0%)	X	↑ 0.3 mL/50g (Essential oil content)
	KP	POGOSTEMONIS HERBA	O	X	O (↓ 13.0%)	O (↓ 3.0%)	X	X	↑ 0.3 mL/50g (Essential oil content)
	VP	HERBA POGOSTEMONIS	O (TLC)	O (Foreign matter)	O (↓ 12.0%, Water)	X	X	X	↑ 3% (Essential oil content)
35		*Polygonatum sibiricum* Redoute							
	CP	RHIZOMA POLYGONATI	O	X	O (↓ 18.0%, Water)	O (↓ 4.0%)	O (↓ 1.0%)	↑ 45.0% (Dilute ethanol-soluble extract)	Glucose ↑ 7.0% (Absorption)
	JP	POLYGONATI RHIZOMA	X	X	X	O (↓ 5.0%)	O (↓ 1.0%)	X	X
	KP	POLYGONATI RHIZOMA	X	X	O (↓ 15.0%)	O (↓ 3.0%)	X	↑ 14.0% (Dilute ethanol-soluble extract)	X
	VP	RHIZOMA POLYGONATI	X	O (Stems and rhizomes, other foreign matter)	O (↓ 14.0%, Water)	X	X	X	X
36		*Polyporus umbellatus* Fries							
	CP	POLYPORUS	O	X	X	O (↓ 12.0%)	X	X	X
	JP	POLYPORUS	O	X	X	O (↓ 16.0%)	O (↓ 4.0%)	X	X
	KP	POLYPORUS	O	X	X	O (↓ 16.0%)	O (↓ 4.0%)	X	X
	VP	POLYPORUS	O	X	O (↓ 13.0%)	O (↓ 12.0%)	X	X	X
37		*Poria cocos* Wolf							
	CP	PORIA	O	X	O (↓ 15.0%, Water)	O (↓ 4.0%)	O (↓ 2.0%)	X	X
	JP	PORIA	O	X	X	O (↓ 1.0%)	X	X	X
	KP	HOELEN	O	X	X	O (↓ 1.0%)	X	X	X
	VP	PORIA	O	O (Foreign matter)	O (↓ 12.0%)	X	X	X	X
38		*Prunus armeniaca* Linne, *P. armeniaca* Linne var. *ansu* Maximowicz							
	CP	SEMEN ARMENIACAE AMARUM	O (TLC)	O (Rancidity)	X	X	X	X	Amygdalin ↑ 3.0% (Titration)
	JP	ARMENIACAE SEMEN	O (TLC)	O (Rancidity, Foreign matter)	X	X	X	X	X
	KP	ARMENIACAE SEMEN	O (TLC)	O (Rancidity, Foreign matter)	X	X	X	X	Amygdalin ↑ 3.0% (HPLC)
	VP	SEMEN ARMENIACAE AMARUM	O (TLC)	O (Foreign matter, Inner pericarp)	O (↓ 7.0%, Water)	X	X	X	Amygdalin ↑ 3.0% (Titration)
39		*Prunus persica* Batsch, *P. persica* Batsch var *davidiana* Maximowicz							
	CP	SEMEN PERSICAE	O	O (Rancidity)	X	X	X	X	X
	JP	PERSICAE SEMEN	O (TLC)	O (Rancidity, Foreign matter)	X	X	X	X	X
	KP	PERSICAE SEMEN	O (TLC)	O (Rancidity, Foreign matter)	X	X	X	X	Amygdalin ↑ 0.5% (HPLC)
	VP	SEMEN PRUNI	X	O (Foreign matter)	O (↓ 7.0%, Water)	X	X	X	X
40		*Rheum palmatum* Linne							
	CP	RADIX ET RHIZOMA RHEI	O (TLC)	O (Raponticin)	O (↓ 15.0%)	O (↓ 10.0%)	O (↓ 0.8%)	↑ 25.0% (Water-soluble extract)	Aloeemodin+Rhein+Emodin+Chrysophanol+Physcion ↑ 1.5% (HPLC)
	JP	RHEI RHIZOMA	O (TLC)	O (Raponticin)	O (↓ 13.0%)	O (↓ 13.0%)	X	↑ 30.0% (Dilute ethanol-soluble extract)	Sennoside A ↑ 0.25% (HPLC)
	KP	RHEI RHIZOMA	O (TLC)	O (Raponticin)	O (↓ 13.0%)	O (↓ 13.0%)	O (↓ 2.0%)	X	Sennoside A ↑ 0.25% (HPLC)
	VP	RHIZOMA RHEI	O (TLC)	O	O (↓ 12.0%)	O (↓ 13.0%)	O (↓ 2.0%)	X	Hydroxy anthracen ↑ 2.2% (Absorption)
41		*Schisandra chinensis* Baillon							
	CP	FRUCTUS SCHISANDRAE CHINENSIS	O (TLC)	O (Foreign matter)	X	X	X	X	Schizandrin ↑ 0.40% (HPLC)
	JP	SCHISANDRAE FRUCTUS	O (TLC)	O (Foreign matter)	X	O (↓ 5.0%)	X	X	X
	KP	SCHIZANDRAE FRUCTUS	O (TLC)	O (Foreign matter)	X	O (↓ 5.0%)	X	X	X
	VP	FRUCTUS SCHISANDRAE	O (TLC)	O (Foreign matter)	O (↓ 13.0%, Water)	X	X	X	X

No.		Latin name	Identification	Purification	Loss on drying	Total ash	Acid insoluble ash	Extract content	Assay (Essential oil content)
			(O: Established, X: Not established, ↓ : Not more than, ↑ : Not less than)						
42		*Scutellaria baicalensis* Georgi							
	CP	RADIX SCUTELLARIAE	O (TLC)	X	O (↓ 12.0%, Water)	O (↓ 6.0%)	X	↑ 40.0% (Dilute ethanol-soluble extract)	Baicalin ↑ 9.0% (HPLC)
	JP	SCUTELLARIAE RADIX	O (TLC)	X	O (↓ 12.0%)	O (↓ 6.0%)	X	X	Baicalin ↑ 10.0% (HPLC)
	KP	SCUTELLARIAE RADIX	O (TLC)	X	O (↓ 15.0%)	O (↓ 6.0%)	O (↓ 1.0%)	X	Baicalin ↑ 10.0% (HPLC)
	VP	RADIX SCUTELLARIAE	O	X	O (↓ 12.0%)	O (↓ 6.0%)	X	X	Flavonoid calculated as Baicalin ↑ 4.0% (Absorption)
43		*Strychnos nux-vomica* Linne							
	CP	SEMEN STRYCHNI	O (TLC)	X	O (↓ 13.0%, Water)	O (↓ 2.0%)	X	X	Strychnine 1.20-2.20%, Brucine ↑ 0.80% (HPLC)
	JP	STRYCHNI SEMEN	O	X	X	O (↓ 3.0%)	X	X	Strychnine ↑ 1.07% (HPLC)
	KP	STRYCHNI SEMEN	O	X	X	O (↓ 3.0%)	X	X	Strychnine ↑ 1.05% (HPLC)
	VP	SEMEN STRYCHNI	O (TLC)	O (Flat and black seed, Foreign matter)	O (↓ 12.0%)	O (↓ 3.5%)	O (↓ 0.6%)	X	Strychnine ↑ 1.2% (Absorption)
44		*Trichosanthes kirilowii* Maximowicz							
	CP	RADIX TRICHOSANTHIS	O (TLC)	X	X	X	X	X	X
	JP	TRICHOSANTHIS RADIX	X	X	X	O (↓ 4.0%)	X	X	X
	KP	TRICHOSANTHIS RADIX	X	X	X	O (↓ 4.0%)	X	X	X
	VP	RADIX TRICHOSANTHIS	O (TLC)	O (Foreign matter)	O (↓ 11.0%)	X	X	X	X
45		*Trichosanthes kirilowii* Maximowicz							
	CP	SEMEN TRICHOSANTHIS	X	X	O (↓ 10.0%, Water)	O (↓ 3.0%)	X	↑ 4.0% (Petoleum ether-soluble extract)	X
*	JP	TRICHOSANTHIS SEMEN	O	X	X	O (↓ 4.0%)	X	X	X
	KP	TRICHOSANTHIS SEMEN	O	O (Unriped seed)	O (↓ 6.0%)	O (↓ 3.0%)	X	↑ 6.0% (Water-soluble extract)	X
	VP	SEMEN TRICHOSANTHIS	X	O (Rotten and thin seeds)	O (↓ 10.0%, Water)	X	X	X	X
46		*Zingiber officinale* Roscoe							
	CP	RHIZOMA ZINGIBERIS RECENS	X	X	X	X	X	X	X
	JP	ZINGIBERIS RHIZOMA	O (TLC)	X	X	O (↓ 8.0%)	X	X	X
	KP	ZINGIBERIS RHIZOMA	O (TLC)	X	X	O (↓ 8.0%)	X	X	6-Gingerol ↑ 0.4% (HPLC)
	VP	RHIZOMA ZINGIBERIS	O	O (Young, Foreign matter)	O (↓ 13.0%, Water)	O (↓ 6.0%)	O (↓ 3.0%)	↑ 10.0% (Water-soluble extract)	↑ 1.5% (Essential oil content)
47		*Zizyphus jujuba* Miller var. *spinosa* (Bunge) Hu ex H. F. Chou							
	CP	SEMEN ZIZIPHI SPINOSAE	O (TLC)	O (Foreign matter)	X	X	X	X	X
	JP	ZIZYPHI SEMEN	O (TLC)	O (Foreign matter)	O (↓ 11.0%)	O (↓ 5.0%)	X	↑ 9.0% (Dilute ethanol-soluble extract)	X
	KP	ZIZYPHI SEMEN	O	O (Foreign matter)	X	O (↓ 7.0%)	X	X	X
	VP	SEMEN ZIZIPHI MAURITIANAE	O (TLC)	O (Broken seed)	O (↓ 8.0%, Water)	X	X	X	X
48		*Coix lacryma-jobi* Linne var. *ma-yuen* Stapf							
	CP	SEMEN COICIS	O	X	O (↓ 15.0%, Water)	O (↓ 3.0%)	X	↑ 5.5% (1-Butanol-soluble extract)	Glycerin trioleate ↑ 0.50% (HPLC)
	JP	COICIS SEMEN	O	X	O (↓ 14.0%)	O (↓ 3.0%)	X	X	X
	KP	COICIS SEMEN	O	X	O (↓ 14.0%)	O (↓ 3.0%)	X	X	X
	VP	SEMEN COICIS	O (Powder)	O (Foreign matter)	O (↓ 12.0%)	O (↓ 2.0%)	X	X	X
49		*Imperata cylindrica* Beauvois							
	CP	RHIZOMA IMPERATAE	O	X	X	O (↓ 5.0%)	X	X	X
	JP	IMPERATAE RHIZOMA	O	O (Rootlet and scaly leaf, Foreign matter)	X	O (↓ 5.0%)	O (↓ 1.5%)	X	X
	KP	IMPERATAE RHIZOMA	O	O (Rootlet and scaly leaf, Foreign matter)	X	O (↓ 5.0%)	O (↓ 1.5%)	X	X
	VP	RHIZOMA IMPERATAE CYLINDRICAE	O	X	O (↓ 12.0%)	O (↓ 6.0%)	O (↓ 3.0%)	X	X
50		*Mentha arvensis* Linne var. *piperascens* Malinvaud							
	CP	HERBA MENTHAE	O (TLC)	O (Leaves)	X	X	X	X	↑ 0.8 0 % (Essential oil content)
	JP	MENTHAE HERBA	O	O (Foreign matter)	O (↓ 15.0%)	O (↓ 11.0%)	O (↓ 2.5%)	X	↑ 0.4 mL/50g (Essential oil content)
	KP	MENTHAE HERBA	O	O (Foreign matter)	O (↓ 15.0%)	O (↓ 11.0%)	O (↓ 2.5%)	X	↑ 0.4 mL/50g (Essential oil content)
	VP	HERBA MENTHAE ARVENSIS	O (TLC)	O (Inorganic, Organic foreign matter, Stem)	O (↓ 13.0%, Water)	O (↓ 13.0%)	X	X	↑ 0.5% (Essential oil content)
51		*Prunella vulgaris* Linne var. *lilacina* Nakai							
	CP	SPICA PRUNELLAE	O (TLC)	X	O (↓ 14.0%, Water)	O (↓ 12.0%)	O (↓ 4.0%)	↑ 10.0% (Water-soluble extract)	Ursoric acid ↑ 0.12% (HPLC)
	JP	PRUNELLAE SPICA	X	O (Stem, Foreign matter)	X	O (↓ 13.0%)	O (↓ 5.0%)	X	X
	KP	PRUNELLAE SPICA	X	O (Stem, Foreign matter)	X	O (↓ 13.0%)	O (↓ 5.0%)	X	X
	VP	SPICA PRUNELLAE	O (TLC)	O (Stem, Foreign matter)	O (↓ 12.0%)	O (↓ 10.0%)	X	X	X
52		*Zizyphus jujuba* Miller var. *inermis* Rehder							
	CP	FRUCTUS JUJUBAE	O (TLC)	X	X	O (↓ 2.0%)	X	X	X
	JP	ZIZYPHI FRUCTUS	X	O (Rancidity)	X	O (↓ 3.0%)	X	X	X
	KP	ZIZYPHI FRUCTUS	X	O (Rancidity)	X	O (↓ 3.0%)	X	X	X
	VP	FRUCTUS ZIZIPHI JUJUBAE	X	X	O (↓ 13.0%, Water)	O (↓ 2.0%)	X	X	X
53		*Aconitum carmichaeli* Debeaux							
	CP	RADIX ACONITI LATERALIS PREPARATA	O	O (Limit test for acontine)	X	X	X	X	X
	JP	PROCESSI ACONITI RADIX	O (TLC)	O (Limit test for acontine, jesaconitine, hypaconitine, mesaconitine)	O (↓ 15.0%)	O (Type 1 ↓ 4.0%, Type 2 ↓ 12.0%, Type 3 ↓ 19.0%)	O (↓ 0. 9 %)	X	Total alkaroid Type 1: 0.7-1.5%, Type 2: 0.1-0.6%, Type 3: 0.5-0.9% (Titration)
	KP	ACONITI LATERALIS RADIX PREPARATA	O	O (Acontine)	X	X	X	X	X
	VP	RADIX ACONITI LATERALIS PREPARATA	O	O (Limit test for acontine)	X	X	X	X	X
54		*Epimedium koreanum* Nakai							
	CP	HERBA EPIMEDII	O (TLC)	O (Foreign matter)	O (↓ 12.0%, Water)	O (↓ 8.0%)	O (↓ 1.0%)	↑ 15.0% (Dilute ethanol-soluble extract)	Icariin ↑ 0.50% (HPLC)
	JP	EPIMEDII HERBA	O (TLC)	X	O (↓ 12.5%)	O (↓ 8.5%)	O (↓ 2.0%)	↑ 17.0% (Dilute ethanol-soluble extract)	X
	KP	EPIMEDII HERBA	O (TLC)	X	O (↓ 13.0%)	O (↓ 8.0%)	O (↓ 0.9%)	↑ 17.0% (Dilute ethanol-soluble extract)	X
	VP	HERBA EPIMEDII	O (TLC)	X	O (↓ 13.0%)	X	X	X	X

No.		Latin name	Identification	Purification	Loss on drying	Total ash	Acid insoluble ash	Extract content	Assay (Essential oil content)
			(O: Established, X: Not established, ↓ : Not more than, ↑ : Not less than)						
55		*Curcuma longa* Linne							
	CP	RHIZOMA CURUCUMAE LONGAE	O (TLC)	X	O (↓ 16.0%, Water)	O (↓ 7.0%)	O (↓ 1.0%)	↑ 12.0% (Dilute ethanol-soluble extract)	↑ 7.0% (Essential oil content), Curcumin ↑ 1.0% (HPLC)
	JP	CURCUMAE RHIZOMA	O (TLC)	X	O (↓ 17.0%)	O (↓ 7.5%)	O (↓ 1.0%)	↑ 9.0% (Dilute ethanol-soluble extract)	X
	KP	CURCUMAE LONGAE RHIZOMA	O (TLC)	O (Artificial coloring)	O (↓ 16.0%)	O (↓ 9.0%)	X	X	X
	VP	RHIZOMA CURUCUMAE LONGAE	O (TLC)	O (Foreign matter)	O (↓ 12.0%, Water)	O (↓ 8.0%)	X	↑ 8.0% (Ethanol-soluble extract)	X
56		*Notopterygium incisum* Ting ex H. T. Chang, *N. forbesii* Boissieu							
	CP	RHIZOMA ET RADIX NOTOPTERYGII	X	X	X	X	X	↑ 15.0% (Ethanol-soluble extract)	↑ 2.8% (Essential oil content)
	JP	NOTOPTERYGII RHIZOMA	O (TLC)	X	O (↓ 13.0%)	O (↓ 6.5%)	O (↓ 1.5%)	↑ 20.0% (Dilute ethanol-soluble extract)	X
	KP	OSTERICI RADIX	O	O (Foreign matter)	O (↓ 12.0%)	O (↓ 10.0%)	O (↓ 2.0%)	↑ 20.0% (Dilute ethanol-soluble extract)	↑ 0.2 mL/50g (Essential oil content)
	VP	RHIZOMA SEU RADIX NOTOPTERYGII	O (Powder)	O (Foreign matter)	O (↓ 15.0%, Water)	X	X	X	X
57		*Syzygium aromaticum* Merrill et Perry							
	CP	FLOS CARYOPHYLLI	O (TLC)	O (Foreign matter)	O (↓ 12.0%, Water)	X	X	X	Eugenol ↑ 11.0% (GC)
	JP	CARYOPHYLLI FLOS	O	O (Stem, Foreign matter)	X	O (↓ 7.0%)	O (↓ 0.5%)	X	↑ 1.6 mL/10g (Essential oil content)
	KP	SYZYGII FLOS	O	O (Stem, Foreign matter)	X	O (↓ 7.0%)	O (↓ 0.5%)	X	↑ 1.6 mL/10g (Essential oil content)
	VP	FLOS SYZYGII AROMATICI	O (Powder)	O (Foreign matter)	O (↓ 13.0%, Water)	O (↓ 7.0%)	X	X	↑ 15.0% (Essential oil content)
58		*Arisaema erubescens* Schott, *A. heterophyllum* Blume							
	CP	RHIZOMA ARISAEMATIS	O	X	X	X	X	X	X
*	JP	ARISAEMATIS TUBER	O	X	O (↓ 13.0%)	O (↓ 5.0%)	X	X	X
	KP	ARISAEMATIS RHIZOMA	O	X	O (↓ 15.0%)	O (↓ 5.0%)	O (↓ 1.0%)	X	X
	VP	RHIZOMA ARISAEMATIS	O (Powder)	O (Foreign matter)	O (↓ 14.0%)	X	X	X	X
59		*Cassia obtusifolia* Linne, *C. tora* Linne							
	CP	SEMEN CASSIAE	O (TLC)	X	X	O (↓ 5.0%)	X	X	Crysophanol ↑ 0.080% (HPLC)
	JP	CASSIAE SEMEN	O	O (Foreign matter)	X	O (↓ 5.0%)	X	X	X
	KP	CASSIAE SEMEN	O	O (Foreign matter)	X	O (↓ 5.0%)	X	X	X
	VP	SEMEN CASSIAE TORAE	O	O (Thin seeds, Foreign matter)	O (↓ 12.0%, Water)	O (↓ 7.0%)	X	X	X
60		*Gentiana scabra* Bunge							
	CP	RADIX ET RHIZOMA GENTIANAE	O (TLC)	X	X	O (↓ 7.0%)	X	X	Gentiopicrin ↑ 1.0% (HPLC)
	JP	GENTIANAE SCABRAE RADIX	O (TLC)	X	X	O (↓ 6.0%)	O (↓ 3.0%)	X	X
	KP	GENTIANAE SCABRAE RADIX	O (TLC)	X	X	O (↓ 7.0%)	O (↓ 3.0%)	X	X
	VP	RADIX GENTIANAE	O	O (Seeds, Foreign matter)	O (↓ 12.0%, Water)	X	X	X	X
61		*Lycium barbarum* Linne, *L. chinense* Miller							
	CP	FRUCTUS LYCII	O (TLC)	X	O (↓ 13.0%, Water)	O (↓ 5.0%)	X	↑ 55.0% (Water-soluble extract)	Glucose ↑ 1.8% (Absorption), Betaine ↑ 0.30% (HPLC)
	JP	LYCII FRUCTUS	O (TLC)	O (Foreign matter)	X	O (↓ 8.0%)	O (↓ 1.0%)	↑ 35.0% (Dilute ethanol-soluble extract)	X
	KP	LYCII FRUCTUS	O	O (Foreign matter)	X	O (↓ 6.0%)	X	X	Betaine ↑ 0.5% (HPLC)
	VP	FRUCTUS LYCII	O (Powder)	O (Foreign matter)	O (↓ 15.0%, Water)	X	X	X	X
62		*Phellodendron amurense* Ruprecht, P. *chinense* Schneider							
	CP	CORTEX PHELLODENDRI AMURENSIS	O (TLC)	X	O (↓ 12.0%, Water)	O (↓ 8.5%)	X	X	Berberine ↑ 0.6% (HPLC)
		CORTEX PHELLODENDRI CHINENSIS	O (TLC)	X	O (↓ 12.0%, Water)	O (↓ 8.0%)	X	↑ 14.0% (Dilute ethanol-soluble extract)	Berberine ↑ 3.0% (HPLC)
	JP	PHELLODENDRI CORTEX	O (TLC)	X	O (↓ 9.0%)	O (↓ 7.5%)	O (↓ 0.5%)	X	Berberine ↑ 1.2% (HPLC)
	KP	PHELLODENDRI CORTEX	O (TLC)	X	O (↓ 9.0%)	O (↓ 7.5%)	X	X	Berberine ↑ 0.6% (HPLC)
	VP	CORTEX PHELLODENDRI	O	O (Foreign matter)	O (↓ 13.0%)	X	X	X	Berberine ↑ 2.5% (Absorption)
63		*Plantago asiatica* Linne							
	CP	SEMEN PLANTAGINIS	O	O (Swelling capacity)	O (↓ 12.0%, Water)	O (↓ 6.0%)	O (↓ 2.0%)	X	X
	JP	PLANTAGINIS SEMEN	O	O (Foreign matter)	X	O (↓ 5.5%)	O (↓ 2.0%)	X	X
	KP	PLANTAGINIS SEMEN	O	O (Foreign matter)	X	O (↓ 5.5%)	O (↓ 2.0%)	X	X
	VP	SEMEN PLANTAGINIS	O (Powder)	O (Flat seeds, Swelling capacity)	O (↓ 10.0%, Water)	X	X	X	X
64		*Polygala tenuifolia* Willdenow							
	CP	RADIX POLYGALAE	O (TLC)	X	O (↓ 12.0%, Water)	O (↓ 6.0%)	O (↓ 1.5%)	↑ 20.0% (70% ethanol-soluble extract)	Polygalic acid ↑ 0.70% (HPLC)
	JP	POLYGALAE RADIX	O	O (Stem, Foreign matter)	X	O (↓ 6.0%)	X	X	X
	KP	POLYGALAE RADIX	O	O (Stem, Foreign matter)	X	O (↓ 6.0%)	X	X	X
	VP	RADIX POLYGALAE	O	O (Core-wood, Stem, Foreign matter)	O (↓ 14.0%, Water)	O (↓ 6.0%)	X	X	X
65		*Pueraria lobata* Ohwi							
	CP	RADIX PUERARIAE LOBATAE	O (TLC)	X	O (↓ 14.0%, Water)	O (↓ 7.0%)	X	X	Puerarin ↑ 2.4% (HPLC)
	JP	PUERARIAE RADIX	O (TLC)	X	O (↓ 13.0%)	O (↓ 6.0%)	X	X	Puerarin ↑ 2.0% (HPLC)
	KP	PUERARIAE RADIX	O (TLC)	X	O (↓ 13.0%)	O (↓ 6.0%)	X	X	Puerarin ↑ 2.0% (HPLC)
	VP	RADIX PUERARIAE	O (Powder)	O (Foreign matter)	O (↓ 12.0%)	O (↓ 5.0%)	X	X	X
66		*Rehmannia glutinosa* Liboschitz							
	CP	RADIX REHMANNIAE	O (TLC)	X	O (↓ 15.0%, Water)	O (↓ 6.0%)	O (↓ 2.0%)	↑ 65.0% (Water-soluble extract)	Catalnol ↑ 0.20%
	JP	REHMANNIAE RADIX	X	X	X	O (↓ 6.0%)	O (↓ 2.5%)	X	X
	KP	REHMANNIAE RADIX	X	O (Foreign matter)	X	O (↓ 6.0%)	O (↓ 2.0%)	X	X
	VP	RADIX REHMANNIAE GLUTINOSAE	O (TLC)	O (Foreign matter)	O (↓ 18.0%, Water)	O (↓ 5.0%)	X	X	X
67		*Scrophularia ningpoensis* Hemsley, *S. buergeriana* Miquel							
	CP	RADIX SCROPHULARIAE	O (TLC)	X	O (↓ 12.0%, Water)	O (↓ 5.0%)	O (↓ 1.8%)	↑ 60.0% (Water-soluble extract)	Harpagoside ↑ 0.050% (HPLC)
*	JP	SCROPHULARIAE RADIX	O	X	O (↓ 17.0%)	O (↓ 6.0%)	O (↓ 2.0%)	X	X
	KP	SCROPHULARIAE RADIX	O	X	O (↓ 17.0%)	O (↓ 6.0%)	O (↓ 2.0%)	↑ 24.0% (Dilute ethanol-soluble extract)	X
	VP	RADIX SCROPHULARIAE	O	X	O (↓ 14.0%)	O (↓ 4.0%)	X	X	X
68		*Geranium thunbergii* Siboid et Zuccarini							
	CP								
	JP	GERANII HERBA	O	O (Foreign matter)	X	O (↓ 10.0%)	O (↓ 1.5%)	↑ 15.0% (Dilute ethanol-soluble extract)	X
	KP	GERANII HERBA	O	O (Foreign matter)	X	O (↓ 10.0%)	O (↓ 1.5%)	↑ 15.0% (Dilute ethanol-soluble extract)	X
	VP	HERBA GERANII THUNBERGII	O	O (Root, Foreign matter)	O (↓ 12.0%)	O (↓ 10.0%)	O (↓ 6.0%)	X	↑ 13.0% (tannin)

No.		Latin name	Identification	Purification	Loss on drying	Total ash	Acid insoluble ash	Extract content	Assay (Essential oil content)
			(O: Established, X: Not established, ↓ : Not more than, ↑ : Not less than)						
69		*Curcuma zedoaria* Roscoe							
	CP								
	JP	ZEDOARIAE RHIZOMA	X	X	X	O (↓ 7.0%)	X	X	↑ 0.5 mL/50g (Essential oil content)
	KP	ZEDOARIAE RHIZOMA	X	X	X	O (↓ 7.0%)	X	X	↑ 0.5 mL/50g (Essential oil content)
	VP	RHIZOMA CURUCUMAE ZEDOARIAE	X	O (Stem and pericladia, Foreign matter)	O (↓ 13.0%, Water)	O (↓ 7.0%)	X	X	↑ 1.0% (Essential oil content)
70		*Piper nigrum* Linne							
	CP	FRUCTUS PIPERIS	O (TLC)	X	X	X	X	X	Piperine ↑ 3.0% (HPLC)
	JP								
	KP	PIPERIS NIGRI FRUCTUS	X	O (Foreign matter)	X	O (↓ 7.0%)	X	X	X
	VP	FRUCTUS PIPERIS NIGRI	O (TLC)	X	O (↓ 11.0%, Water)	X	X	X	↑ 1.0% (Essential oil content)
71		*Salvia miltiorrhiza* Bunge							
	CP	RADIX ET RHIZOMA SALVIAE MILTIORRHIZAE	O (TLC)	X	O (↓ 13.0%, Water)	O (↓ 10.0%)	O (↓ 3.0%)	↑ 35.0% (Water-soluble extract), ↑ 15.0% (Ethanol-soluble extract)	Tanshinone IIA ↑ 0.20%, Salvinolic acid B ↑ 3.0% (HPLC)
	JP								
	KP	SALVIAE MILTIORRHIZAE RADIX	O (TLC)	X	O (↓ 12.0%)	O (↓ 7.0%)	X	↑ 25.0% (Dilute ethanol-soluble extract)	X
	VP	RADIX SALVIAE MILTIORRHIZAE	O	O (Foreign matter)	O (↓ 12.0%)	X	X	X	X
72		*Akebia quinata* Decaisne, *Akebia trifoliata* Koidzumi							
	CP	CAULIS AKEBIAE	O (TLC)	X	O (↓ 10.0%, Water)	O (↓ 6.5%)	X	X	Oleanoic acid + Hederagenin ↑ 0.15% (HPLC)
	JP	AKEBIAE CAULIS	O	X	X	O (↓ 10.0%)	X	X	X
	KP	AKEBIAE CAULIS	O	X	X	O (↓ 7.0%)	X	X	X
	VP								
73		*Crataegus pinnatifida* Bunge var. *major* N.E. Brown							
	CP	FRUCTUS CRATAEGI	O (TLC)	X	O (↓ 12.0%, Water)	O (↓ 3.0%)	X	↑ 21.0% (Ethanol-soluble extract)	Citric acid ↑ 5.0% (Titration)
*	JP	CRATAEGI FRUCTUS	O	X	X	O (↓ 6.0%)	X	X	X
	KP	CRATAEGI FRUCTUS	O	X	X	O (↓ 6.0%)	X	X	X
	VP								
74		*Areca catechu* Linne							
	CP	SEMEN ARECAE	O (TLC)	X	O (↓ 10.0%, Water)	X	X	X	Arecoline ↑ 0.30% (Titration)
	JP	ARECAE SEMEN	O (TLC)	O (Pericarp, Foreign matter)	X	O (↓ 2.5%)	X	X	X
	KP	ARECAE SEMEN	O (TLC)	O (Pericarp, Foreign matter)	X	O (↓ 2.5%)	X	X	X
	VP								
75		*Cassia angustifolia* Vahl, *C. acutifolia* Delile							
	CP	FOLIUM SENNAE	O (TLC)	O (Foreign matter)	O (↓ 10.0%, Water)	X	X	X	Sennoside B ↑ 2.5% (Absorption)
	JP	SENNAE FOLIUM	O (TLC)	O (Rachis and fruit, Foreign matter, Total BHC and DDT)	O (↓ 12.0%)	O (↓ 12.0%)	O (↓ 2.0%)	X	Total Sennoside ↑ 1.0% (HPLC)
	KP	SENNAE FOLIUM	O (TLC)	O (Rachis and fruit, Foreign matter)	O (↓ 12.0%)	O (↓ 12.0%)	O (↓ 2.0%)	X	Total Sennoside ↑ 1.0% (HPLC)
	VP								
76		*Crocus sativus* Linne							
	CP	STIGMA CROCI	O (TLC)	O (Absorbance)	O (↓ 12.0%)	O (↓ 7.5%)	O (↓ 1.5%)	↑ 55.0% (30%Ethanol-soluble extract)	Crocin I+II ↑ 10.0%, (HPLC)
	JP	CROCUS	O	O (Aniline dyes, Glycerol, Sugar or honey, Yellow style)	O (↓ 12.0%)	O (↓ 7.5%)	X	X	Crocin (Content)
	KP	CROCUS	O (Crocin)	O (Aniline dyes, Glycerol, Sugar or honey, Yellow style)	O (↓ 12.0%)	O (↓ 7.5%)	X	X	X
	VP								
77		*Dioscorea batatas* Decaisne							
	CP	RHIZOMA DIOSCOREAE	X	X	X	X	X	X	X
	JP	DIOSCOREAE RHIZOMA	O	X	O (↓ 14.0%)	O (↓ 6.0%)	O (↓ 0.5%)	X	X
	KP	DIOSCOREAE RHIZOMA	O	X	O (↓ 14.0%)	O (↓ 6.0%)	O (↓ 0.5%)	X	X
	VP								
78		*Pharbitis nil* Choisy							
	CP	SEMEN PHARBITIDIS	O (TLC)	X	O (↓ 10.0%, Water)	O (↓ 5.0%)	O (↓ 1.0%)	↑ 15.0% (Ethanol-soluble extract)	Caffeic acid+Caffeic acid ethyl ester ↑ 0.20% (HPLC)
	JP	PHARBITIDIS SEMEN	X	X	X	O (↓ 6.0%)	X	X	X
	KP	PHARBITIDIS SEMEN	X	X	X	O (↓ 6.0%)	X	X	X
	VP								
79		*Saposhnikovia divaricata* Schiskin							
	CP	RADIX SAPOSHNIKOVIAE	O (TLC)	X	O (↓ 10.0%, Water)	O (↓ 6.5%)	O (↓ 1.5%)	↑ 13.0% (Ethanol-soluble extract)	Cimicifugoside+5-Methoxyvisaminol ↑ 0.24% (HPLC)
	JP	SAPOSHNIKOVIAE RADIX	X	O (Foreign matter)	X	O (↓ 7.0%)	O (↓ 1.5%)	↑ 20.0% (Dilute ethanol-soluble extract)	X
	KP	SAPOSHNIKOVIAE RADIX	X	O (Foreign matter)	X	O (↓ 7.0%)	O (↓ 1.5%)	↑ 20.0% (Dilute ethanol-soluble extract)	X
	VP								
80		*Schizonepeta tenuifolia* Briquet							
	CP	SPICA SCHZONEPETAE	O (TLC)	X	O (↓ 12.0%, Water)	X	X	↑ 8.0% (Ethanol-soluble extract)	↑ 0.40% (Essential oil content), Pulegone ↑ 0.08% (HPLC)
	JP	SCHIZONEPETAE SPICA	O	X	X	O (↓ 11.0%)	O (↓ 3.0%)	↑ 8.0% (Dilute ethanol-soluble extract)	X
	KP	SCHIZONEPETAE SPICA	O	X	X	O (↓ 11.0%)	O (↓ 3.0%)	↑ 8.0% (Dilute ethanol-soluble extract)	X
	VP								
81		*Sophora flavescens* Aiton							
	CP	RADIX SOPHORAE FLAVESCENTIS	O (TLC)	X	O (↓ 11.0%, Water)	O (↓ 8.0%)	O (↓ 1.5%)	↑ 20.0% (Water-soluble extract)	Matrine+Oxymatrine ↑ 1.2% (HPLC)
	JP	SOPHORAE RADIX	O	O (Stem, Foreign matter)	X	O (↓ 6.0%)	O (↓ 1.5%)	X	X
	KP	SOPHORAE RADIX	O	O (Stem, Foreign matter)	X	O (↓ 6.0%)	O (↓ 1.5%)	X	X
	VP								
82		*Sophora japonica* Linne							
	CP	FLOS SOPHORAE	O (TLC)	X	X	X	X	↑ 37.0% (30% Methanol-soluble extract)	Rutin ↑ 6.0% (HPLC)
*	JP	SOPHORAE FLOS	O (TLC)	X	O (↓ 10.0%)	X	O (↓ 1.5%)	X	X
	KP	SOPHORAE FLOS	O (TLC)	O (Foreign matter, Rutin)	X	O (↓ 9.0%)	X	X	X
	VP								

No.		Latin name	Identification	Purification	Loss on drying	Total ash	Acid insoluble ash	Extract content	Assay (Essential oil content)
			(O: Established, X: Not established, ↓ : Not more than, ↑ : Not less than)						
83		*Perilla frutescens* Britton var. *acuta* Kudo							
	CP	FRUCTUS PERILLAE	X	X	X	X	X	X	X
*	JP	PERILLAE FRUCTUS	O	X	X	O (↓ 10.0%)	O (↓ 6.0%)	X	X
	KP								
	VP	FRUCTUS PERILLAE	X	O (Foreign matter)	O (↓ 12.0%, Water)	X	X	X	X
84		*Aloe ferox* Miller							
	CP	ALOE	O (TLC)	X	O (↓ 12.0%, Water)	O (↓ 4.0%)	O (↓ 1.0%)	↑ 60.0% (Ethanol-soluble extract)	Barbaloin ↑ 6.0% (HPLC)
	JP	ALOE	O (TLC)	O (Resin, Ethanol-insoluble substances)	O (↓ 12.0%)	O (↓ 2.0%)	X	↑ 40.0% (Water-soluble extract)	Barbaloin ↑ 4.0% (HPLC)
	KP								
	VP	ALOE	O	X	X	X	X	X	Hydroxyanthoracen ↑ 28.0% (Absorption)
85		*Alpinia officinarum* Hance							
	CP	RHIZOMA ALPINIAE OFFICINARUM	O	X	O (↓ 16.0%, Water)	O (↓ 4.0%)	O (↓ 1.0%)	X	Cineol ↑ 0.15% (GC)
	JP	ALPINIAE OFFICINARI RHIZOMA	O (TLC)	X	O (↓ 15.0%)	O (↓ 7.5%)	O (↓ 1.5%)	↑ 14.0% (Dilute ethanol-soluble extract)	X
	KP								
	VP	RHIZOMA ALPINIAE OFFICINARUM	X	X	X	X	X	X	X
86		*Angelica pubescens* Maximowicz							
	CP	RADIX ANGELICAE PUBESCENTIS	O (TLC)	X	X	O (↓ 8.0%)	X	↑ 3.0% (Ether-soluble extract)	Osthol ↑ 0.50% (HPLC)
*	JP	ANGELICAE PUBESCENTIS RADIX	O	O (Stone cork cell, Calcium oxalate)	O (↓ 15.0%)	O (↓ 9.0%)	O (↓ 1.0%)	X	X
	KP								
	VP	RADIX ANGELICAE PUBESCENTIS	O (TLC)	X	O (↓ 13.0%, Water)	O (↓ 8.0%)	X	↑ 3.0% (Ether-soluble extract)	X
87		*Arctium lappa* Linne							
	CP	FRUCTUS ARCTII	O (TLC)	X	X	O (↓ 7.0%)	O (↓ 2.0%)	X	Arctiin ↑ 5.0% (HPLC)
	JP	ARCTII FRUCTUS	O (TLC)	X	O (↓ 12.0%)	O (↓ 7.0%)	O (↓ 1.0%)	↑ 15.0% (Dilute ethanol-soluble extract)	X
	KP								
	VP	FRUCTUS ARCTII	O	X	O (↓ 12.0%)	O (↓ 7.0%)	X	X	X
88		*Areca catechu* Linne							
	CP	PERICARPIUM ARECAE	O	X	O (↓ 12.0%, Water)	X	X	X	X
*	JP	ARECAE PERICARPIUM	O	X	O (↓ 11.0%)	O (↓ 6.0%)	X	X	X
	KP								
	VP	PERICARPIUM ARECAE CATECHI	O (Powder)	O (Foreign matter)	O (↓ 12.0%)	X	X	X	X
89		*Aster tataricus* Linne fil.							
	CP	RADIX ET RHIZOMA ASTERIS	O (TLC)	X	X	O (↓ 15.0%)	O (↓ 8.0%)	X	Friedelin ↑ 0.10% (HPLC)
*	JP	ASTERIS RADIX	O	X	O (↓ 18.0%)	O (↓ 12.0%)	O (↓ 6.0%)	↑ 30.0% (Dilute ethanol-soluble extract)	X
	KP								
	VP	RADIX ASTERIS	O	X	O (↓ 12.0%)	O (↓ 15.0%)	O (↓ 8.0%)	X	X
90		*Caesalpinia sappan* Linne							
	CP	LIGNUM SAPPAN	O (TLC)	X	O (↓ 12.0%, Water)	X	X	↑ 10.0% (Dilute ethanol-soluble extract)	X
	JP	SAPPAN LIGNUM	O	O (Put a small piece of Sappan Wood in Calcium hydroxide TS: on purple-blue color derelops)	O (↓ 11.5%)	O (↓ 2.0%)	X	↑ 7.0% (Dilute ethanol-soluble extract)	X
	KP								
	VP	LIGNUM SAPPAN	O		O (↓ 11.5%)	O (↓ 1.0%)	X	X	X
91		*Chrysanthemum indicum* Linne							
	CP	FLOS CHRYSANTHEMI INDICI	O (TLC)	X	O (↓ 14.0%, Water)	O (↓ 9.0%)	O (↓ 2.0%)	X	Buddoleoside ↑ 0.80% (HPLC)
	JP	CHRYSANTHEMI FLOS	O (TLC)	X	O (↓ 15.0%)	O (↓ 8.5%)	O (↓ 1.0%)	↑ 30.0% (Dilute ethanol-soluble extract)	X
	KP								
	VP	FLOS CHRYSANTHEMI INDICI	O (TLC)	X	O (↓ 13.0%)	X	X	X	X
92		*Citrus aurantium* Linne							
	CP	FRUCTUS AURANTII IMMATURUS	O (TLC)	X	O (↓ 15.0%, Water)	O (↓ 7.0%)	O (↓ 1.0%)	↑ 12.0% (70%Ethanol-soluble extract)	Synephrine ↑ 0.30% (HPLC)
	JP	AURANTII FRUCUTUS IMMATURUS	O	X	X	O (↓ 7.0%)	X	X	X
	KP								
	VP	FRUCTUS AURANTII IMMATURUS	O (TLC)	O (Foreign matter)	O (↓ 12.0%, Water)	O (↓ 7.0%)	X	X	X
93		*Clematis chinensis* Osbeck, *C. manshurica* Ruprecht, *C. hexapetala* Pallas							
	CP	RADIX ET RHIZOMA CLEMATIDIS	O (TLC)	X	O (↓ 15.0%, Water)	O (↓ 10.0%)	X	↑ 15.0% (Ethanol-soluble extract)	X
	JP	CLEMATIDIS RADIX	O	X	O (↓ 13.0%)	O (↓ 8.5%)	O (↓ 3.0%)	↑ 15.0% (Dilute ethanol-soluble extract)	X
	KP								
	VP	RADIX CLEMATIDIS	X	X	O (↓ 12.0%)	O (↓ 10.0%)	X	↑ 15.0% (Ethanol-soluble extract)	X
94		*Cnidium monnieri* Cusson							
	CP	FRUCTUS CNIDII	O (TLC)	X	O (↓ 13.0%, Water)	O (↓ 13.0%)	O (↓ 6.0%)	↑ 7.0% (Ethanol-soluble extract)	Osthol ↑ 1.0% (HPLC)
	JP	CNIDII MONNIERIS FRUCTUS	O (TLC)	X	O (↓ 12.0%)	O (↓ 17.0%)	O (↓ 6.0%)	↑ 8.0% (Dilute ethanol-soluble extract)	X
	KP								
	VP	FRUCTUS CNIDII	O (TLC)	O (Foreign matter)	O (↓ 13.0%, Water)	X	X	X	↑ 1.0% (Essential oil content)
95		*Diospyros kaki* Thunberg							
	CP	CALYX KAKI	O (TLC)	X	X	X	X	X	X
*	JP	KAKI CALYX	O	X	O (↓ 15.0%)	O (↓ 8.0%)	O (↓ 1.0%)	↑ 12.0% (Dilute ethanol-soluble extract)	X
	KP								
	VP	CALYX KAKI	X	X	O (↓ 12.0%)	X	X	X	X
96		*Eriobotrya japonica* Lindley							
	CP	FOLIUM ERIOBOTRYAE	O	X	X	X	X	↑ 10.0% (Water-soluble extract)	X
	JP	ERIOBOTRYAE FOLIUM	O (TLC)	X	O (↓ 15.0%)	O (↓ 10.0%)	X	↑ 16.0% (Dilute ethanol-soluble extract)	X
	KP								
	VP	FOLIUM ERIOBOTRYAE JAPONICAE	X	O (Foreign matter)	O (↓ 13.0%)	O (↓ 7.0%)	X	↑ 10.0% (Water-soluble extract)	X

No.		Latin name	Identification	Purification	Loss on drying	Total ash	Acid insoluble ash	Extract content	Assay (Essential oil content)
			(O: Established, X: Not established, ↓ : Not more than, ↑ : Not less than)						
97		*Houttuynia cordata* Thunberg							
	CP	HERBA HOUTTUYNIAE	O (TLC)	X	O (↓ 15.0%, Water)	X	O (↓ 2.5%)	↑ 10.0% (Water-soluble extract)	X
	JP	HOUTTUYNIAE HERBA	O	O (Foreign matter)	X	O (↓ 14.0%)	O (↓ 3.0%)	↑ 10.0% (Dilute ethanol-soluble extract)	X
	KP								
	VP	HERBA HOUTTUYNIAE CORDATAE	O	O (Foreign matter)	O (↓ 13.0%, Water)	O (↓ 14.0%)	X	X	↑ 0.08% (Essential oil content)
98		*Lindera strychnifolia* Fernabdez-Villar							
	CP	RADIX LINDERAE	O (TLC)	X	X	X	X	X	Linderane ↑ 0.030% (HPLC)
	JP	LINDERAE RADIX	O (TLC)	X	O (↓ 14.0%)	O (↓ 2.5%)	X	↑ 6.0% (Dilute ethanol-soluble extract)	X
	KP								
	VP	RADIX LINDERAE	O (Powder)	O (Old hard, Fibrous roots)	O (↓ 12.0%, Water)	X	X	X	X
99		*Lycium chinense* Miller							
	CP	CORTEX LYCII	O	X	X	O (↓ 11.0%)	X	X	X
	JP	LYCII CORTEX	O (TLC)	X	O (↓ 11.5%)	O (↓ 20.0%)	O (↓ 3.0%)	↑ 10.0% (Dilute ethanol-soluble extract)	X
	KP								
	VP	CORTEX LYCII	X	X	O (↓ 11.0%)	X	X	X	X
100		*Peucedanum praeruptorum* Dunn, *Angelica decursiva* Franchet et Savatier							
	CP	RADIX PEUCEDANI	O (TLC)	X	O (↓ 12.0%, Water)	O (↓ 8.0%)	O (↓ 2.0%)	↑ 20.0% (Dilute ethanol-soluble extract)	Praeruptorin A ↑ 0.90% (HPLC)
*	JP	PEUCEDANI RADIX	O	X	O (↓ 13.0%)	O (↓ 7.5%)	O (↓ 2.0%)	↑ 20.0% (Dilute ethanol-soluble extract)	X
	KP								
	VP	RADIX PEUCEDANI	O	X	O (↓ 13.0%, Water)	X	X	↑ 20.0% (Ethanol-soluble extract)	X
101		*Prunus mume* Siebold et Zuccarini							
	CP	FRUCTUS MUME	O (TLC)	X	O (↓ 13.0%, Water)	O (↓ 5.0%)	O (↓ 0.5%)	↑ 24.0% (Water-soluble extract),	Citric acid ↑ 15.0% (Titration)
*	JP	MUME FRUCTUS	O	X	O (↓ 19.0%)	O (↓ 5.0%)	X	↑ 25.0% (Dilute ethanol-soluble extract)	X
	KP								
	VP	FRUCTUS MUME PRAEPARATUS	X	X	O (↓ 15.0%)	X	X	X	X
102		*Saussurea lappa* Clarke							
	CP	RADIX AUCKLANDIAE	O (TLC)	X	X	O (↓ 4.0%)	X	X	Costunolide+Dehydrocostunolide ↑ 1.8% (HPLC)
	JP	SAUSSUREAE RADIX	O	O (Foreign matter)	X	O (↓ 4.0%)	X	↑ 17.0% (Dilute ethanol-soluble extract)	X
	KP								
	VP	RADIX SAUSSUREAE LAPPAE	O	O (Foreign matter)	O (↓ 15.0%, Water)	X	X	X	↑ 0.4% (Essential oil content)
103		*Smilax glabra* Roxburgh							
	CP	RHIZOMA SMILACIS GLABRAE	O	X	O (↓ 15.0%, Water)	O (↓ 5.0%)	O (↓ 1.0%)	↑ 15.0% (Dilute ethanol-soluble extract)	X
	JP	SMILACIS RHIZOMA	X	X	X	O (↓ 5.0%)	X	X	X
	KP								
	VP	RHIZOMA SMILACIS GLABRAE	O (Powder)	O (Tender rhizomes, Foreign matter)	O (↓ 13.0%)	O (↓ 5.0%)	X	X	X
104		*Terminalia chebula* Retzius							
	CP	FRUCTUS CHEBULAE	O (TLC)	X	O (↓ 13.0%, Water)	O (↓ 5.0%)	O (↓ 1.0%)	↑ 30.0% (Water-soluble extract),	X
*	JP	CHEBULAE FRUCTUS	O	X	O (↓ 14.0%)	O (↓ 5.0%)	X	↑ 30.0% (Dilute ethanol-soluble extract)	X
	KP								
	VP	FRUCTUS TERMINALIAE CHEBULAE	O	X	O (↓ 13.0%)	X	X	X	X
105		*Tribulus terrestris* Linne							
	CP	FRUCTUS TRIBULI	O (TLC)	X	O (↓ 9.0%, Water)	O (↓ 12.0%)	X	X	X
	JP	TRIBULI FRUCTUS	O (TLC)	O (Peduncle, Foreign matter)	O (↓ 11.0%)	O (↓ 13.0%)	O (↓ 1.5%)	↑ 8.5% (Dilute ethanol-soluble extract)	X
	KP								
	VP	FRUCTUS TRIBULI TERRESTRIS	O (Powder)	X	O (↓ 13.0%)	X	X	X	X
106		*Vitex trifolia* Linne							
	CP	FRUCTUS VITICIS	O (TLC)	O (Foreign matter)	O (↓ 14.0%, Water)	O (↓ 7.0%)	X	↑ 8.0% (Methanol-soluble extract)	Vitexicarpin ↑ 0.030% (HPLC)
*	JP	VITICIS FRUCTUS	O	O (Peduncle, Foreign matter)	O (↓ 12.0%)	O (↓ 9.0%)	O (↓ 3.5%)	X	X
	KP								
	VP	FRUCTUS VITICIS TRIFOLIAE	O (Powder)	O (Young thin fruit, Foreign matter)	O (↓ 11.0%, Water)	X	X	X	X

* Registered in the Japanese Herbal Medicine Codex (JHMC) 1989.

Table 5

Comparative table on TLC conditions of identification for crude drugs in CP, JP, KP and VP

Comparative Table on TLC Conditions of Identification for Crude Drugs in CP, JP, KP and VP

No.	Latin name	TLC condition			
		(1) developing solvent	(2) detection	(3) color tone on TLC	(4) marker compounds
1	*Achyranthes bidentata* Blume				
	CP RADIX ACHYRANTHIS BIDENTATAE	chloroform / methanol (40 : 1)	phosphomolybdic acid TS, 110°		oleanoic acid
	KP ACHYRANTHIS RADIX	chloroform / methanol / water (8 : 2 : 0.5)	1) UV 254 nm 2) sulfuric acid TS		20-hydroxyecdison
	VP RADIX ACHYRANTHIS BIDENTATAE	chloroform / methanol (40 : 1)	phosphomolybdic acid in ethanol, 110°, 10 min		oleanoic acid
2	*Aconitum carmichaeli* Debeaux				
	JP PROCESSI ACONITI RADIX	ethyl acetate / ethanol (99.5)/ ammonia water (28) (40 : 3 :2)	Dragendorff's TS	yellow-brown	benzoylmesaconone hydrobromide
3	*Alpinia oxyphylla* Miquel				
	CP FRUCTUS ALPINIAE OXYPHYLLAE	n-hexane / ethyl acetate (9 : 1)	1) UV 254 nm 2) dinitrophenylhydrazine dilute TS	1) dark spot 2) orange-red	
	VP FRUCTUS ALPINIAE OXYPHYLLAE	n-hexane / ethyl acetate (9 : 1)	UV 254 nm		
4	*Anemarrhena asphodeloides* Bunge				
	CP RHIZOMA ANEMARRHENAE	benzene / acetone (9 : 1)	8% vanillin in ethanol / sulfuric acid (0.5 : 5), 100°		sarsasapogenin
	KP ANEMARRHENAE RHIZOMA	chloroform / methanol / water (52 : 28 : 8)	sulfuric acid TS		anemasaponin B
	VP RHIZOMA ANEMARRHENAE	benzene / acetone (9 : 1)	8% vanillin in ethanol / sulfuric acid (0.5 : 5), 100°, 5 min		sarsasapogenin
5	*Angelica dahurica* Bentham et Hooker fil				
	CP RADIX ANGELICA DAHURICAE	petroleum ether / ether (3 : 2)	UV 365 nm		imperatorin, isoimperatorin
	VP RADIX ANGELICA DAHURICAE	benzene / ethyl acetate (9 : 1)	UV 365 nm	blue fluorescent	
6	*Astragalus membranaceus* Bunge				
	CP RADIX ASTRAGALI	chloroform / methanol / water (13 : 7 : 2)	1) 10% sulfuric acid in ethanol, 105° 2) UV 365 nm	1) brown 2) orange-yellow	astragloside IV
	VP RADIX ASTRAGALI MEMBRANACEI	chloroform / methanol / water (65 : 35 : 10)	10% sulfuric acid in ethanol, 105°, 5 min		astragloside IV
7	*Atractylodes lancea* De Candolle, *A. chinensis* Koidzumi				
	CP RHIZOMA ATRACTILODIS	petroleum ether / ethyl acetate (20 : 1)	*p* -dimethyaminobenzaldehyde ethanol in 10% sulfuric acid	muddy green	atractydin
	VP RHIZOMA ATRACTILODIS	petroleum ether / ethyl acetate (20 : 1)	*p* -dimethyaminobenzaldehyde ethanol in 10% sulfuric acid		
8	*Atractylodes ovata* De Candolle				
	CP RHIZOMA ATRACTYLODIS MACROCEPHALAE	petroleum ether / ethyl acetate (50 : 1)	5% vanillin in sulfuric acid	pink	atractylon
	VP RHIZOMA ATRACTYLODIS MACROCEPHALAE	petroleum ether / ethyl acetate (50 : 1)	1% vanillin in 5% sulfuric acid, 60°	pink	
9	*Bupleurum falcatum* Linne				
	CP RADIX BUPLEURI	ethyl acetate / ethanol / water (8 : 2 : 1)	2% *p* -dimethyaminobenzaldehyde in 40% sulfuric acid 60°, 365 nm	yellow	saikosaponin a, d
	JP BUPLEURI RADIX	chloroform / methanol / water (30 : 10 : 1)	sulfuric acid / ethanol (95) (1:1), 50°, 5 min	blue to blue-purple	saikosaponin a
	KP BUPLEURI RADIX	chloroform / methanol / water (30 : 10 : 1)	sulfuric acid / ethanol (95) (1:1), 50°, 5 min	blue to blue-purple	saikosaponin a
	VP RADIX BUPLEURI	ethyl acetate / ethanol / water (8 : 2 : 1)	5% *p* -dimethyaminobenzaldehyde in 40% sulfuric acid 60°, 365 nm		
10	*Carthamus tinctorius* Linne				
	CP FLOS CARTHAMI	ethyl acetate / formic acid / water / methanol (7 : 2 : 3 : 0.4)			
	VP FLOS CARTHAMI TINCTORII	ethyl acetate / formic acid / water (8 : 1 :1)	put in a chamber pre-saturated with the vapour of ammonia	1) 4 brownish-yellow spots 2) 2 greenish-yellow spots	
11	*Cimicifuga heracleifolia* Komarov				
	CP RHIZOMA CIMICIFUGAE	benzene / ethyl acetate / formic acid (6 : 1 : 0.5)	UV 365 nm		isoferulic acid
12	*Cinnamomum cassia* Blume				
	CP CORTEX CINNAMOMI	petroleum ether / ethyl acetate (17 : 3)	ethanolic 2,4-dinitrophenylhydrazine TS		cinnamaldehyde
	JP CINNAMOMI CORTEX	hexane / ethyl acetate (2 : 1)	1) UV 254 nm 2) 2,4-dinitrophenylhydrazine TS	1) purple 2) yellow orange	
	KP CINNAMOMI CORTEX	hexane / ethyl acetate (2 : 1)	1) UV 254 nm 2) 2,4-dinitrophenylhydrazine TS	1) purple 2) yellow orange	
	VP CORTEX CINNAMOMI	n-hexane / chloroform / ethyl acetate (4 : 1 : 1)	2,4-dinitrophenylhydrazine	5 orange spots	cinnamic aldehyde
13	*Cornus officinalis* Siebold et Zuccarini				
	CP FRUCTUS CORNI	toluene / ethyl acetate / formic acid (20 : 4 : 0.5)	1) 10% sulfuric acid in ethanol, 110° 2) UV 365 nm	1) purplish-red 2) yellow orange fluorescent	ursolic acid
	JP CORNI FRUCTUS	ethyl acetate / water / formic acid (6 : 1 : 1)	4-methoxybenzaldehyde-sulfuric acid TS, 90°, 3 min	red-purple	loganin
	KP CORNI FRUCTUS	ethyl acetate / water / formic acid (6 : 1 : 1)	*p* -anisaldehyde-sulfuric acid TS, 90°, 3 min	red-purple	loganin
	VP FRUCTUS CORNI OFFICINALIS	cyclohexane / chloroform / ethyl acetate (20 : 5 : 8)	10% sulfuric acid in ethanol, 110°, 5-7 min	purplish-red	ursolic acid
14	*Curcuma longa* Linne				
	CP RHIZOMA CURUCUMAE LONGAE	chloroform / methanol / formic acid (96 : 4 : 0.7)	UV 365 nm		curcumin
	JP CURCUMAE RHIZOMA	ethyl acetate / hexane / acetic acid (100) (70 : 30 : 1)		yellow	
	KP CURCUMAE LONGAE RHIZOMA	chloroform / methanol / formic acid (96 : 4 : 0.7)			curcumin
	VP RHIZOMA CURUCUMAE LONGAE	chloroform / acetic acid (9 : 1)	3% boric acid / 10% oxalic acid (3 : 1)	3 spots 1) brick red 2) orange 3) yellow	
15	*Cyperus rotundus* Linne				
	CP RHIZOMA CYPERI	benzene / ethyl acetate / glacial acetic acid (92 : 5 : 5)	1) 254 nm 2) 2,4-dinitrophenylhydrazine TS	1) dark blue 2) orange-red	α-cyperone

No.	Latin name	TLC condition			
		(1) developing solvent	(2) detection	(3) color tone on TLC	(4) marker compounds
16	*Ephedra sinica* Stapf				
	CP HERBA EPHEDRAE	chloroform / methanol / concentrated ammonia (20 : 5 : 0.5)	ninhydrin TS, 105°	red	ephedrine hydrochloride
	JP EPHEDRAE HERBA	1-butanol / water / acetic acid (100) (7 : 2 : 1)	ninhydrin-ethanol TS (1→50), 105°, 5 min	red-purple	
	KP EPHEDRAE HERBA	n-butanol / water / acetic acid (7 : 2 : 1)	2% ninhydrin-ethanol TS, 105°, 10 min	reddish purple	
	VP HERBA EPHEDRAE	chloroform / methanol / ammonia (20 : 5 : 0.5)	ninhydrin TS, 105°, 5 min		ephedrine
17	*Epimedium koreanum* Nakai				
	CP HERBA EPIMEDII	ethyl acetate / butanone / formic acid / water (10 : 1 : 1 : 1)	1) UV 365 nm 2) Alminium chloride TS, UV 365 nm	2) orange red fluorescent	icariin
	JP EPIMEDII HERBA	ethyl acetate / ethanol (99.5)/ water (8 : 2 :1)	UV 254 nm	dark purple	icariin
	KP EPIMEDII HERBA	ethyl acetate / methylethylketone / formic acid / water (10 : 1 : 1 : 1)	1) UV 365 nm 2) Alminium chloride TS, UV 365 nm	1) dark reddish 2) orange red	icariin
	VP HERBA EPIMEDII	ethyl acetate / butanone / formic acid / water (10 : 1 : 1 : 1)	1) UV 365 nm 2) Alminium chloride in ethanol, UV 365 nm	1) dark red 2) orange	icariin
18	*Evodia rutaecarpa* Bentham				
	CP FRUCTUS EVODIAE	cyclohexane / ethyl acetate / methanol / trihexylamine (19 : 5 : 1 : 1)	10% sulfuric acid in ethanol		rutaecarpine
	KP EVODIAE FRUCTUS	hexane / ethyl acetate (3 : 2)	Dragendorff's TS		evodiamine
19	*Foeniculum vulgare* Miller				
	CP FRUCTUS FOENICULI	petroleum ether / ethyl acetate (17 : 2.5)	dinitrophenylhydrazine TS	orange-red	4-methoxybenzaldehyde
	JP FOENICULI FRUCTUS	hexane / ethyl acetate (20 : 1)	UV 254 nm	dark purple	
	KP FOENICULI FRUCTUS	hexane / ethyl acetate (20 : 1)		dark purple	
20	*Forsythia suspensa* Vahl				
	CP FRUCTUS FORSYTHIAE	benzene / acetone / ethyl acetate / formic acid / water (20 : 25 : 30 : 3 : 3)	1) UV 365 nm 2) vanillin in sulfuric acid TS		
	VP FRUCTUS FORSYTHIAE	cyclohexane / chloroform / benzene / methanol (5 : 3 : 5 : 1)	5% frerric chloride in ethanol (acidifide with HCl)		
21	*Fritillaria verticillata* Willdenow var. *thunbergii* Baker				
	CP BULBUS FRITILLAIAE THUNBERGII	ethyl acetate / methanol / strong ammonia TS (17 : 2 : 1)	dilute potassium iodobismuthate TS		peimine, peininine
	JP FRITILLARIAE BULBUS	ethyl acetate / methanol / ammonia TS (17 : 2 : 1)	Dragendorff's TS	yellow-red	
	VP BULBUS FRITILLAIAE THUNBERGII	ethyl acetate / methanol / concentrated ammonia solution (17 : 2 : 1)	Dragendorff reagent		
22	*Gardenia jasminoides* Ellis				
	CP FRUCTUS GARDENIAE	ethyl acetateacetone / acetone / formic acid / water (5 : 5 : 1 : 1)	10% sulfuric acid in ethanol, 110°		geniposide
	JP GARDENIAE FRUCTUS	ethyl acetate / methanol (3 : 1)	4-methoxybenzaldehyde-sulfuric acid TS, 105°, 10 min	dark purple	geniposide
	KP GARDENIAE FRUCTUS	ethyl acetate / methanol (3 : 1)	p-anisaldehyde-sulfuric acid TS, 105°, 10 min	dark purple	geniposide
	VP FRUCTUS GARDENIAE	ethyl acetateacetone / acetone / formic acid / water (5 : 5 : 1 : 1)	ethanol / sulphuric acid (5 :1), 100°, 10 min		geniposide
23	*Glycyrrhiza uralensis* Fisher, *G. glabra* Linne				
	CP RADIX ET RHIZOMA GLYCYRRHIZAE	ethyl acetate / formic acid / glacial acetic acid / water (15 : 1 : 1 : 2)	10% sulfuric acid in ethanol, 105°, UV 365 nm	yellow orange fluorescent	ammonium glycyrrhizinate
	JP GLYCYRRHIZAE RADIX	1-butanol / water / acetic acid (100) (7 : 2 : 1)	UV 254 nm		glycyrrhizinic acid
	KP GLYCYRRHIZAE RADIX	n-butanol / water / acetic acid (7 : 2 : 1)	UV 254 nm		glycyrrhizinic acid
	VP RADIX GLYCYRRHIZAE	petroleum ether / benzene / ethyl acetate / glacial acetic acid (10 : 20 : 7 : 0.5)	10% phosphomolybdic acid in ethanol, 105°, 5 min		glycyrrhetic acid
24	*Leonurus sibiricus* Linne.				
	CP HERBA LEONURI	n-butanol / hydrochloric acid / water (4 : 1 : 0.5)	dilute potassium iodobismuthate TS		stachydrine hydrochloride
25	*Lonicera japonica* Thunberg				
	CP FLOS LONICERAE JAPONICAE	butyl acetate / formic acid / water (7 : 2.5 : 2.5)	UV 365 nm		chlorogenic acid
26	*Magnolia officinalis* Rehder et Wilson var. *biloba* Rehder et Wilson				
	CP CORTEX MAGNOLIAE OFFICINALIS	benzene / methanol (27 : 1)	1% vanillin in sulfuric acid, 100°		magnolol, honokiol
	JP MAGNOLIAE CORTEX	1-butanol / water / acetic acid (100) (4 : 2 : 1)	Dragendorff's TS	yellow	
	KP MAGNOLIAE CORTEX	n-butanol / water / acetic acid (4 : 2 : 1)	Dragendorff's TS	yellow	
	VP CORTEX MAGNOLIAE OFFICINALIS	benzene / methanol (27 : 1)	1% vanillin in sulfuric acid, 100°, 10 min		magnolol, honokiol
27	*Mentha arvensis* Linne var. *piperascens* Malinvaud				
	CP HERBA MENTHAE	benzene / ethyl acetate (19 : 1)	vanillin in sulfuric acid TS / ethanol (1 : 4), 100°		menthol
	VP HERBA MENTHAE ARVENSIS	ethyl acetate / toluene (5 : 95)	anisaldehyde solution, 100-105°, 5-10 min		menthol
28	*Morus alba* Linne				
	CP CORTEX MORI	polyamide TLC, acetic acid	UV 365 nm		
29	*Myristica fragrans* Houttuyn				
	CP SEMEN MYRISTICAE	petroleum ether / benzene (1 : 1)	anisaldehyde TS, 105°, several min		
	KP MYRISTICAE SEMEN	chloroform / n-hexane (7 : 3)	expose the plate to iodine vapor	yellow	
	VP SEMEN MYRISTICAE	petroleum ether / benzene (1 : 1)	anisaldehyde solution, 105°, several min		
30	*Nelumbo nucifera* Gaertner				
	CP SEMEN NELUMBINIS	n-hexane / acetone (7 : 2)	5% vanillin in 10% sulfuric acid ethanol, 105°		
31	*Notopterygium incisum* Ting ex H. T. Chang, *N. forbesii* Boissieu				
	JP NOTOPTERYGII RHIZOMA	ODS TLC, methanol / water (9 : 1)	1) UV 365 nm 2) UV 254 nm	1) blueish white fluorescent 2) dark purple	

No.	Latin name	TLC condition			
		(1) developing solvent	(2) detection	(3) color tone on TLC	(4) marker compounds
32	*Paeonia lactiflora* Pallas				
	CP RADIX PAEONIAE ALBA	chloroform / ethyl acetate / methanol / formic acid (40 : 5 : 10 : 0.2)	5% vanillin in sulfuric acid	bluish-purple	paeoniflorin
	JP PAEONIAE RADIX	acetone / ethyl acetate / acetic acid (100) (10 : 10 : 1)	4-methoxybenzaldehyde-sulfuric acid TS, 105°, 5 min	purple-red	paeoniflorin
	KP PAEONIAE RADIX	acetone / ethyl acetate / glacial acetic acid (26 : 14 : 5)	p-anisaldehyde-sulfuric acid TS, 105°, 5 min	purple-red	paeoniflorin
	VP RADIX PAEONIAE	chloroform / ethyl acetate / methanol / formic acid (40 : 5 : 10 : 0.2)	5% vanillin in sulfuric acid		paeoniflorin
33	*Paeonia suffruticosa* Andrews				
	CP CORTEX MOUTAN	cyclohexane / ethyl acetate (3 : 1)	5% frerric chloride in ethanol (acidifide with HCl)	bluish-brown	paeonol
	JP MOUTAN CORTEX	hexane / ethyl acetate (1 : 1)	UV 254 nm		paeonol
	KP MOUTAN CORTEX RADICIS	hexane / ethyl acetate (1 : 1)	UV 254 nm		paeonol
	VP CORTEX PAEONIA SUFFURUTICOSAE	cyclohexane / ethyl acetate (3 : 1)	5% frerric chloride in ethanol		paeonol
34	*Panax ginseng* C. A. Meyer				
	CP RADIX ET RHIZOMA GINSENG	chloroform / ethyl acetate / methanol / water (15 : 40 : 22 : 10)	1) 10% sulfuric acid in ethanol, 105°, 2) UV 365 nm		ginsenoside Rb1, Re, Rf, Rg1
	JP GINSENG RADIX	chloroform / methanol / water (13 : 7 : 2)	dilute sulfuric acid, 110°, 5 min	red-purple	ginsenoside Rg1
	KP GINSENG RADIX ALBA	chloroform / methanol / water (13 : 7 : 2)	dilute sulfuric acid, 110°, 5 min	red-purple	ginsenoside Rg1
	VP RADIX GINSENG	chloroform / ethyl acetate / methanol / water (15 : 40 : 22 : 10)	10% sulfuric acid in ethanol (96%), 105°, several min, UV 365 nm		
35	*Platycodon grandiflorum* A. De Candolle				
	CP RADIX PLATYCODONIS	chloroform / ether (1 : 1)	10% sulfuric acid in ethanol, 105°		
36	*Pogostemon cablin* Bentham				
	CP HERBA POGOSTEMONIS	petroleum ether / ethyl acetate / glacial acetic acid (95 : 5 : 0.2)	5% frerric chloride in ethanol	purplish-blue	patchouli alcohol
	VP HERBA POGOSTEMONIS	benzene	1% vanillin in sulfuric acid, 120°		
37	*Prunella vulgaris* Linne var. *lilacina* Nakai				
	CP SPICA PRUNELLAE	cyclohexane / chloroform / ethyl acetate / gracial acetic acid (20 : 5 : 8 : 0.5)	10% sulfuric acid in ethanol, 100°, UV 365 nm		ursolic acid
	VP SPICA PRUNELLAE	cyclohexane / chloroform / ethyl acetate / gracial acetic acid (20 : 5 : 8 : 0.5)	10% sulfuric acid in ethanol, 100°, UV 366 nm		
38	*Prunus armeniaca* Linne, *P. armeniaca* Linne var. *ansu* Maximowicz				
	CP SEMEN ARMENIACAE AMARUM	chloroform / ethyl acetate / methanol / water (15 : 40 : 22 : 10)	phosphomolybdic acid in sulfuric acid, 105°		amygdalin
	JP ARMENIACAE SEMEN	ethyl acetate / methanol / water (7 : 3 : 1)	dilute sulfuric acid, 105°, 10 min	brown to dark green	
	KP ARMENIACAE SEMEN	ethyl acetate / methanol / water (7 : 3 : 1)	dilute sulfuric acid, 105°, 10 min	brown to dark brown	amygdalin
	VP SEMEN ARMENIACAE AMARUM	chloroform / ethyl acetate / methanol / water (15 : 40 : 22 : 10)	phosphomolybdic acid in sulfuric acid, 105°, 10 min		
39	*Prunus persica* Batsch, *P. persica* Batsch var. *davidiana* Maximowicz				
	JP PERSICAE SEMEN	ethyl acetate / methanol / water (7 : 3 : 1)	dilute sulfuric acid, 105°, 10 min	brown to dark green	
	KP PERSICAE SEMEN	ethyl acetate / methanol / water (7 : 3 : 1)	dilute sulfuric acid, 105°, 10 min	brown to dark brown	amygdalin
40	*Rheum palmatum* Linne				
	CP RADIX ET RHIZOMA RHEI	petroleum ether / ethyl formate / formic acid (15 : 5 : 1)	UV 365 nm	orange fluorescent	rhein
	JP RHEI RHIZOMA	ethyl acetate / 1-propanol / water / acetic acid (100) (40 : 40 : 30 : 1)	UV 365 nm	red fluorecent	sennoside A
	KP RHEI RHIZOMA	ethyl acetate / 1-propanol / water / acetic acid (40 : 40 : 30 : 1)	UV 365 nm	red fluorecent	sennoside A
	VP RHIZOMA RHEI	petroleum ether / ethyl formate / formic acid (75 : 25 : 1)	UV 365 nm	yellow fluorescent	emodin
41	*Schisandra chinensis* Baillon				
	CP FRUCTUS SCHISANDRAE CHINENSIS	petroleum ether / ethyl formate / formic acid (15 : 5 : 1)	UV 254 nm		deoxyschisandorin
	JP SCHISANDRAE FRUCTUS	hexane / ethyl acetate / acetic acid (100) (10 : 10 : 1)	UV 254 nm	blue-violet	schisandorin
	KP SCHISANDRAE FRUCTUS	hexane / ethyl acetate / acetic acid (10 : 10 : 1)	UV 254 nm	bluish-purple	schisandorin
	VP FRUCTUS SCHISANDRAE	petroleum ether / ethyl formate / formic acid (15 : 5 : 1)	UV 254 nm		
42	*Scutellaria baicalensis* Georgi				
	CP RADIX SCUTELLARIAE	toluene / ethyl acetate / methanol / formic acid (10 : 3 : 1 : 2)	UV 365 nm		baicalin, baicalein
	JP SCUTELLARIAE RADIX	1-butanol / water / acetic acid (4 : 2 : 1)	iron (III) chloride hexahydrate in methanol (1 in 100)	dark-green	baicalin
	KP SCUTELLARIAE RADIX	chloroform / methanol / glacial acetic acid (20 : 10 : 3)	ferric chloride in methanol (1 in 100)	dark-green	baicalin
43	*Strychnos nux-vomica* Linne				
	CP SEMEN STRYCHNI	toluene / acetone / ethanol / concentrate ammonia (4 : 5 : 0.6 : 0.4)	potassium iodobismuthate		brucine
	VP SEMEN STRYCHNI	toluene / acetone / ethanol / concentrate ammonia (4 : 5 : 0.6 : 0.4)	Dragendorff reagent		strychnine, brucine
44	*Syzygium aromaticum* Merrill et Perry				
	CP FLOS CARYOPHYLLI	petroleum ether / ethyl acetate (9 : 1)	5% vanillin in sulfuric acid, 105°		eugenol
45	*Trichosanthes kirilowii* Maximowicz				
	CP RADIX TRICHOSANTHIS	n-butanol / absolute ethanol / glacial acetic acid / water (8 : 2 : 2 : 3)	ninhydrin TS, 105°		L-citrulline
	VP RADIX TRICHOSANTHIS	n-butanol / absolute ethanol / glacial acetic acid / water (8 : 2 : 2 : 3)	ninhydrin in ethanol, 105°		
46	*Zingiber officinale* Roscoe				
	JP ZINGIBERIS RHIZOMA	ethyl acetate / hexane (1 : 1)	4-dimethylbenzaldehyde TS, 105°, 5 min	green	6-gingerol
	KP ZINGIBERIS RHIZOMA	hexane / acetone / glacial acetic acid (10 : 7 : 1)	2,4-dinitrophenylhydrazine TS, 105°, 10 min	brown	6-gingerol
47	*Zizyphus jujuba* Miller var. *inermis* Rehder				
	CP FRUCTUS JUJUBAE	toluene / ethyl acetate / gracial acetic acid (14 : 4 : 0.5)	10% sulfuric acid in ethanol		oleanolic acid

No.	Latin name	TLC condition (1) developing solvent	(2) detection	(3) color tone on TLC	(4) marker compounds
48	*Zizyphus jujuba* Miller var. *spinosa* (Bunge) Hu ex H. F. Chou				
	CP SEMEN ZIZIPHI SPINOSAE	n-butanol saturated with water	1% vanillin in sulfuric acid		jujuboside A, B
	JP ZIZYPHI SEMEN	acetone / ethyl acetate / water / acetic acid (100) (10 : 10 : 3 : 1)	1) UV 254 nm, 2) 1-naphthol-sulfuric acid TS, 105°, 5 min	1) purple, 2) yellow-green to grayish green	
	VP SEMEN ZIZIPHI MAURITIANAE	n-butanol saturated with water	10% phosphomolybdic acid in ethanol, 110°, 5 min		
49	*Akebia quinata* Decaisne, *A. trifoliata* Koidzumi				
	CP CAULIS AKEBIAE	n-hexane / ethyl acetate / glacial acetic acid (6 : 4 : 0.25)	10% sulfuric acid in ethanol, 105°		oleanolic acid, hedragenin
50	*Aloe ferox* Miller				
	CP ALOE	ethyl acetate / methanol / water (100 : 17 : 13)	10% potassium hydroxide in methanol, UV 365 nm		aloin
	JP ALOE	ethyl acetate / acetone / water / acetic acid (100) (20 : 5 : 2 : 2)	UV 365 nm	red fluorecent	barbaloin
51	*Alpinia officinarum* Hance				
	JP ALPINIAE OFFICINARI RHIZOMA	cyclohexane / ethyl acetate / acetic acid (100) (12 : 8 : 1)		yellow-brown	
52	*Angelica pubescens* Maximowicz				
	CP RADIX ANGELICAE PUBESCENTIS	n-hexane / benzene / ethyl acetate (2 : 1 : 1)	UV 365 nm		
	VP RADIX ANGELICAE PUBESCENTIS	benzene / ethyl acetate (9 : 1)	UV 365 nm		
53	*Arctium lappa* Linne				
	CP FRUCTUS ARCTII	chloroform / methanol / water (40 : 8 : 1)	10% sulfuric acid in ethanol, 105°		arctiin
	JP ARCTII FRUCTUS	acetone / ethyl acetate / water (15 : 10 : 1)	dilute sulfuric acid, 105°, 5 min	red-purple	
54	*Areca catechu* Linne				
	CP SEMEN ARECAE	cyclohexane / ethyl acetate / concentrated ammonia TS (7.5 : 7.5 : 0.2)	dilute potassium iodobismuthate TS	orange-red	
	JP ARECAE SEMEN	acetone / water / acetic acid (100) (10 : 6 : 1)	Iodine TS	red-brown	arecoline hydrobromide
	KP ARECAE SEMEN	acetone / water / glacial acetic acid (10 : 6 : 1)	Iodine TS	red-brown	arecoline hydrobromide
55	*Aster tataricus* Linne fil.				
	CP RADIX ET RHIZOMA ASTERIS	petroleum ether / ethyl acetate (9 : 1)	2, 4-dinitrophenylhydrazine TS	yellow	shionone
56	*Caesalpinia sappan* Linne				
	CP LIGNUM SAPPAN	chloroform / acetone / formic acid (8 : 4 : 1)	12 min, under sunlight		
57	*Cassia angustifolia* Vahl, *C. acutifolia* Delile				
	CP FOLIUM SENNAE	ethyl acetate / n-propanol / water (4 : 4 : 3)	20% nitroc acid, 120°, 10 min, 5% potassium hydroxide in dilute ethanol, UV 365 nm		
	JP SENNAE FOLIUM	ethyl acetate / 1-propanol / water / acetic acid (40 : 40 : 30 : 1)	UV 365 nm	red fluorecent	sennoside A
	KP SENNAE FOLIUM	ethyl acetate / 1-propanol / water / acetic acid (40 : 40 : 30 : 1)	UV 365 nm	red fluorecent	sennoside A
58	*Cassia obtusifolia* Linne, *C. tora* Linne				
	CP SEMEN CASSIAE	petroleum ether / ethyl formate / formic acid (15 : 5 : 1)	UV 365 nm	orange fluorescent	emodin, crysophanol
59	*Chrysanthemum indicum* Linne				
	CP FLOS CHRYSANTHEMI INDICI	ethyl acetate / butanone / chloroform / formic acid / water (15 : 15 : 6 : 4 : 1)	UV 365 nm		buddleoside
	JP CHRYSANTHEMI FLOS	ethyl acetate / 2-butanone / water / formic acid (25 : 3 : 1 : 1)	iron (III) chloride-methanol TS	dark green	
	VP FLOS CHRYSANTHEMI INDICI	ethyl acetate / formic acid / water (8 : 1 : 1)	put in a chamber pre-saturated with the vapour of ammonia	1) 4 brownish-yellow spots 2) 2 greenish-yellow spots	
60	*Citrus aurantium* Linne				
	CP FRUCTUS AURANTII IMMATURUS	n-butanol / acetic acid / water (4 : 1 : 5)	0.5% ninhydrin TS in ethanol, 105°		synephrine
	VP FRUCTUS AURANTII IMMATURUS	methanol / acetone / chloroform / ammonia (3 : 4 : 13 : 0.5)	0.5% ninhydrin solution in ethanol, 105°, 10 min		synephrine
61	*Clematis chinensis* Osbeck, *C. manshurica* Ruprecht, *C. hexapetala* Pallas				
	CP RADIX ET RHIZOMA CLEMATIDIS	toluene / ethyl acetate / formic acid (20 : 3 : 0.2)	10% sulfuric acid in ethanol, 105°		oleanolic acid
62	*Cnidium monnieri* Cusson				
	CP FRUCTUS CNIDII	toluene / ethyl acetate / n-hexane (3 : 3 : 2)	UV 365 nm		osthol
	JP CNIDII MONNIERIS FRUCTUS	hexane / ethyl acetate (2 : 1)	UV 365 nm	blue-white	osthol
	VP FRUCTUS CNIDII	benzene / ethyl acetate (30 : 1)	UV 365 nm		osthol
63	*Crataegus pinnatifid* Bunge var. *major* N.E. Brown				
	CP FRUCTUS CRATAEGI	toluene / ethyl acetate / formic acid (20 : 4 : 0.5)	sulfuric acid / etanol (3→10), 80°, UV 365 nm	oranege-yellow	ursolic acid
64	*Crocus sativus* Linne				
	CP STIGMA CROCI	ethyl acetate / methanol / water (100 : 16.5 : 13.5)	UV 365 nm		
65	*Diospyros kaki* Thunberg				
	CP CALYX KAKI	toluene (saturated with water) / methyl formate / formic acid (5 : 4 : 1)	1% ferric chloride in ethanol		gallic acid
66	*Eriobotrya japonica* Lindley				
	JP ERIOBOTRYAE FOLIUM	ODS TLC, acetonitrile / water (2 : 3)	dilute sulfuric acid, 105°, 10 min	red-purple	
67	*Gentiana scabra* Bunge				
	CP RADIX ET RHIZOMA GENTIANAE	ethyl acetate / methanol / water (20 : 2 : 1)	UV 254 nm		gentiopicrin
	JP GENTIANAE SCABRAE RADIX	ethyl acetate / ethanol (99.5)/ water (8 : 2 :1)	UV 254 nm	dark purple	gentiopicroside
	KP GENTIANAE SCABRAE RADIX	chloroform / methanol / water (30 : 10 : 1)	UV 254 nm	dark purple	gentiopicroside

No.	Latin name	TLC condition (1) developing solvent	(2) detection	(3) color tone on TLC	(4) marker compounds
68	*Houttuynia cordata* Thunberg				
	CP HERBA HOUTTUYNIAE	n-hexane / ethyl acetate (9 : 1)	dinitrophenylhydrazine TS	yellow	methylnonylketone
69	*Lindera strychnifolia* Fernabdez-Villar				
	CP RADIX LINDERAE	toluene / ethyl acetate (15 : 1)	1% vanillin in sulfuric acid		linderane
	JP LINDERAE RADIX	ethyl acetate / methanol / ammonia water (28) (10 : 2 : 1)	Dragendorff's TS	yellow brown	
70	*Lycium barbarum* Linne, *L. chinense* Miller				
	CP FRUCTUS LYCII	ethyl acetate / chloroform / formic acid (3 : 2 : 1)	UV 365 nm		
	JP LYCII FRUCTUS	hexane / ethyl acetate (10 : 1)		yellow	
71	*Lycium chinense* Miller				
	JP LYCII CORTEX	1-butanol / water / pyridine / acetic acid (100) (3 : 1 : 1 : 1)	Dragendorff's TS, 105°, 3 min	dark brown	
72	*Peucedanum praeruptorum* Dunn, *Angelica decursiva* Franchet et Savatier				
	CP RADIX PEUCEDANI	petroleum ether / ethyl acetate (3 : 1)	UV 254 nm		praeruptorin A
73	*Pharbitis nil* Choisy				
	CP SEMEN PHARBITIDIS	chloroform / methanol / formic acid (100 : 9 : 4)	phosphomolybdic acid TS , 110°		caffeic acid, caffeoyl acetate
74	*Phellodendron amurense* Ruprecht, *P . chinense* Schneider				
	CP CORTEX PHELLODENDRI AMURENSIS	ethyl acetate / butanone / formic acid / water (10 : 6 : 1 : 1)	UV 365 nm		berberine hydrochloride
	CP CORTEX PHELLODENDRI CHINENSIS	ethyl acetate / butanone / formic acid / water (10 : 6 : 1 : 1)	UV 365 nm		berberine hydrochloride
	JP PHELLODENDRI CORTEX	1-butanol / water / acetic acid (100) (7 : 2 : 1)	UV 365 nm	yellow to yellow-green	berberine chloride
	KP PHELLODENDRI CORTEX	n-butanol / water / gracial acetic acid (7 : 2 : 1)	UV 365 nm	yellow to yellow-green	berberine chloride
75	*Piper nigrum* Linne				
	CP FRUCTUS PIPERIS	benzene / ethyl acetate / acetone (7 : 2 : 1)	10% sulfuric acid in ethanol		piperine
	VP FRUCTUS PIPERIS NIGRI	benzene / ethyl acetate / acetone (7 : 2 : 1)	10% sulfuric acid in ethanol, 110°		
76	*Polygala tenuifolia* Willdenow				
	CP RADIX POLYGALAE	toluene / ethyl acetate / formic acid (14 : 4 : 05)	10% sulfuric acid in ethanol, 105°		
77	*Prunus mume* Siebold et Zuccarini				
	CP FRUCTUS MUME	cyclohexane / chloroform / ethyl acetate / formic acid (20 : 5 : 8 : 0.1)	10% sulfuric acid in ethanol, 105°		ursolic acid
78	*Pueraria lobata* Ohwi				
	CP RADIX PUERARIAE LOBATAE	chloroform / methanol / water (7 : 2.5 : 0.25)	UV 365 nm		puerarin
	JP PUERARIAE RADIX	ethyl acetate / methanol / water (12 : 2 :1)	UV 365 nm	blue-white	puerarin
	KP PUERARIAE RADIX	chloroform / methanol / water (6 : 4 : 1)	UV 365 nm	blueish white	puerarin
79	*Rehmannia glutinosa* Liboschitz				
	CP RADIX REHMANNIAE	chloroform / methanol / water (14 : 6 : 1)	anisaldehyde TS, 105°		catalpol
	VP RADIX REHMANNIAE GLUTINOSAE	chloroform / methanol / water (70 : 30 : 5)	anisaldehyde solution, 105°, 5 min		catalpol
80	*Salvia miltiorrhiza* Bunge				
	CP RADIX ET RHIZOMA SALVIAE MILTIORRHIZAE	toluene / chloroform / etyl acetate / methanol / formic acid (2 : 3: 4 : 0.5 : 2)	UV 254 nm		salvinolic acid B
	KP SALVIAE MILTIORRHIZAE RADIX	hexane / ethyl acetate (4 : 1)	1) UV 254 nm, 2) sulfuric acid for spray		tansinone II A
81	*Saposhnikovia divaricata* Schiskin				
	CP RADIX SAPOSHNIKOVIAE	chloroform / methanol (4 : 1)	UV 254 nm		prim-*O* -glucosylcimifugin, 5-*O* -methylvisamminoside
82	*Saussurea lappa* Clarke				
	CP RADIX AUCKLANDIAE	chloroform / cyclohexane (5 : 1)	1% vanillin in sulfuric acid		dehydrocostuslactone, costunolide
83	*Schizonepeta tenuifolia* Briquet				
	CP SPICA SCHZONEPETAE	petroleum ether / ethyl acetate (37 : 3)	1% vanillin in sulfuric acid		pulegone
84	*Scrophularia ningpoensis* Hemsley, *S. buergeriana* Miquel				
	CP RADIX SCROPHULARIAE	n-butanol / gracial acetic acid / water (7 : 1 : 2)	vanillin TS in sulfuric acid		harpagide, harpagoside
85	*Sophora flavescens* Aiton				
	CP RADIX SOPHORAE FLAVESCENTIS	benzene / acetone / methanol (8 : 3 : 0.5), toluene / ethyl acetate / metanol / water (2 : 4 : 2 : 1)	potassium iodobismuthate TS, ethanolic sodium nitrate TS	orange	oxymatrine
86	*Sophora japonica* Linne				
	CP FLOS SOPHORAE	ethyl acetate / formic acid / water (8 : 1 : 1)	alminium chlorode TS, UV 365 nm		rutin
*	JP SOPHORAE FLOS	chloroform / methanol / water (6 : 4 : 1)	annmonia gas	yellow	
	KP SOPHORAE FLOS	ethyl acetate / formic acid / water (8 : 1 : 1)	alminium chlorode TS, UV 365 nm		rutin
87	*Terminalia chebula* Retzius				
	CP FRUCTUS CHEBULAE	chloroform / ethyl acetate / formic acid (6 : 4 : 1)	2% iron trichloride in ethanol		gallic acid
88	*Tribulus terrestris* Linne				
	CP FRUCTUS TRIBULI	chloroform / methanol / water (13 : 7 : 2)	modified *p* -dimethyaminobenzaldehyde TS, 105°		
	JP TRIBULI FRUCTUS	ethyl acetate / water (40 : 1)	dilute sulfuric acid, 105°, 5 min, UV 365 nm	blue-white fluorescent	
89	*Vitex trifolia* Linne				
	CP FRUCTUS VITICIS	cyclohexane / ethyl acetate / methanol (3 : 2 : 0.2)	10% alminium chlorode		vitexicarpin

* Registered in the Japanese Herbal Medicine Codex (JHMC) 1989.

Table 6

Comparative table on assay conditions for crude drugs in CP, JP, KP and VP

Comparative Table on Assay Conditions for Crude Drugs in CP, JP, KP and VP

No.	Latin name	Assay (↑: Not less than)	(1) method	(2) developing solvent	(3) detection
1	*Aconitum carmichaeli* Debeaux				
	JP PROCESSI ACONTI RADIX	Total Alkaloids 0.7〜1.5% (Type 1), 0.1〜0.6% (Type 2), 0.5〜0.9% (Type 3)	Titration		
2	*Anemarrhena asphodeloides* Bunge				
	CP RHIZOMA ANEMARRHENAE	Diosgenin ↑ 1.0%	HPLC (ODS column)	methanol / water (95 : 5)	Evaporative Light Scattering method
3	*Angelica dahurica* Bentham et Hooker fil				
	CP RADIX ANGELICA DAHURICAE	Imperatorin ↑ 0.080%	HPLC (ODS column)	methanol / water (55 : 45)	UV 300 nm
4	*Astragalus membranaceus* Bunge				
	CP RADIX ASTRAGALI	Astrogaroside IV ↑ 0.04%	HPLC (ODS column)	acetonitrile / water (32 : 68)	Evaporative Light Scattering method
5	*Bupleurum scorzonerifolium* Willd.				
	JP BUPLEURI RADIX	Saikosaponin a + d ↑ 0.35%	HPLC (ODS column, I.D. 4.6 mm x 15 cm, 5 mm)	1) acetonitrile / water (2 : 3) 2) 50˚ 3) adjust flow rate to elute Saikosaponin d at ca. 8 min	UV 206 nm
	KP BUPLEURI RADIX	Saikosaponin a ↑ 0.3%	HPLC (ODS column, I.D. 4-6 mm x 15-25 cm, 5-10 mm)	1) acetonitrile / water (35 : 65) 2) 20˚ 3) 0.8 mL/min	UV 203 nm
6	*Carthamus tinctorius* Linne				
	CP FLOS CARTHAMI	Hydroxysafflor A ↑ 1.0%, Kaempferide ↑ 0.05%	HPLC (ODS column)	Hydroxysafflor A [methanol / acetonitrile / 0.7% phosphoric acid (26 : 2 : 72)], Kaempferide [methanol / 0.4% phosphoric acid (52 : 48)]	Hydroxysafflor A (UV 403 nm), Kaempferide (UV 367 nm)
7	*Cimicifuga heracleifolia* Komarov				
	CP RHIZOMA CIMICIFUGAE	Ferulic acid ↑ 0.1%	HPLC (ODS column)	acetonitrile / 0.1% phosphoric acid solution (13 : 87)	UV 316 nm
8	*Cinnamomum cassia* Blume				
	CP CORTEX CINNAMOMI	Cinnamic acid ↑ 1.5%	HPLC (ODS column)	acetonitrile / water (35 : 75)	UV 290 nm
	KP CINNAMOMI CORTEX	Cinnamic acid ↑ 0.03%	HPLC (ODS column, I.D. 4-6 mm x 15-25 cm, 5-10 mm)	1) methanol / water / glacial acetic acid (12 : 88 : 1) 2) 20˚ 3) 2.0 mL/min	UV 280 nm
9	*Cornus offcinalis* Siebold et Zuccarini				
	CP FRUCTUS CORNI	Loganin ↑ 0.60%	HPLC (ODS column)	acetonitrile / water (15 : 85)	UV 240 nm
	KP CORNI FRUCTUS	Loganin ↑ 0.5%	HPLC (ODS column, I.D. 4-6 mm x 15-25 cm, 5-10 mm)	1) methanol / water (30 : 70) 2) 20˚ 3) 1.0 mL/min	UV 240 nm
10	*Curcuma longa* Linne				
	CP RHIZOMA CURUCUMAE LONGAE	Curcumin ↑ 1.0%	HPLC (ODS column)	acetonitrile / 4% glacial acetic acid solution (48 : 52)	UV 430 nm
11	*Ephedra sinica* Stapf				
	CP HERBA EPHEDRAE	Ephedorine hydrochloride ↑ 1.0%	HPLC (ODS column)	acetonitrile / 0.1% phosphoric acid solution (9 : 87)	UV 207 nm
	JP EPHEDRAE HERBA	Total alkaroids ↑ 0.7%	HPLC (ODS column, I.D. 4-6 mm x 15-25 cm, 5-10 mm)	1) sodium lauryl sulfate (1 in 128) / acetonitrile / phosphoric acid (640 : 360 : 1) 2) 45˚ 3) adjust flow rate to elute ephedrine at ca.14 min	UV 210 nm
	KP EPHEDRAE HERBA	Total alkaroids (Ephedrine+ Psheudoephedrine) ↑ 0.7%	HPLC (ODS column, I.D. 4-6 mm x 15-25 cm, 5-10 mm)	1) sodium lauryl sulfate (1 in 128) / acetonitrile / phosphoric acid (640 : 360 : 1) 2) 45˚ 3) adjust flow rate to elute ephedrine at ca.14 min	UV 210 nm
	VP HERBA EPHEDRAE	Total alkaroids ↑ 0.8%	Titration		
12	*Epimedium koreanum* Nakai				
	CP HERBA EPIMEDII	Total flavonoids ↑ 5.0%, Icariine ↑ 0.50%	Total flavonoids (Absorption) Icariine [HPLC (ODS column)]	Total flavonoids (methanol), Icariine [acetonitrile / water (30 : 70)]	UV 270 nm
13	*Eucommia ulmoides* Oliver				
	CP CORTEX EUCOMMIAE	Pinoresinol-di-glucopyranoside ↑ 0.1%	HPLC (ODS column)	methanol / water (25 : 75)	UV 277 nm
14	*Evodia rutaecarpa* Bentham				
	CP FRUCTUS EVODIAE	Evodiamine+Rutaecarpine ↑ 0.15%	HPLC (ODS column)	acetonitrile / 0.04% octanesulfonic acid sodium salt (43 : 57)	UV 225 nm
15	*Forsythia suspensa* Vahl				
	CP FRUCTUS FORSYTHIAE	Forsythin ↑ 0.15%	HPLC (ODS column)	acetonitrile / water (25 : 75)	UV 277 nm
16	*Fritillaria thunbergii* Miq.				
	CP BULBUS FRITILLAIAE THUNBERGII	Peimine + Peiminine ↑ 0.080%	HPLC (ODS column)	acetonitrile / water/ethylenediamine (70 : 30 : 0.3)	Evaporative Light Scattering method
17	*Gardenia jasminoides* Ellis				
	CP FRUCTUS GARDENIAE	Geniposide ↑ 1.8%	HPLC (ODS column)	acetonitrile / water (15 : 85)	UV 238 nm
	JP GARDENIAE FRUCTUS	Geniposide ↑ 3.0%	HPLC (ODS column, I.D. 6 mm x 15 cm, 5 mm)	1) water / acetonitrile (22 : 3) 2) 30˚ 3) adjust flow rate to elute Geniposide at ca.15 min	UV 240 nm
18	*Glycyrrhiza uralensis* Fisher, *G. glabra* Linne				
	CP RADIX GLYCYRRHIZAE	Glycyrrhizinic acid ↑ 2.0%, Liquiritin ↑ 1.0%	HPLC (ODS column)	Glycyrrhizinic acid [methanol / 0.2 mol/L ammonium acetate / glacial acetic acid (67 : 33 : 1)], Liquiritin [acetonitrile / 0.5%gracial acetic acid (1 : 4)]	Glycyrrhizinic acid (UV 250 nm), Liquiritin (UV 276 nm)
	JP GLYCYRRHIZAE RADIX	Glycyrrhizinic acid ↑ 2.5%	HPLC (ODS column, I.D. 4-6 mm x 15-25 cm, 5-10 mm)	1) dilute acetic acid / acetonitrile (3 : 2) 2) 20˚ 3) adjust flow rate to elute glycyrrhizic acid at ca.10 min	UV 254 nm
	KP GLYCYRRHIZAE RADIX	Glycyrrhizinic acid ↑ 2.5%	HPLC (ODS column, I.D. 4-6 mm x 15-25 cm, 5-10 mm)	1) dilute acetic acid / acetonitrile (3 : 2) 2) 20˚ 3) adjust flow rate to elute glycyrrhizic acid at ca.10 min	UV 254 nm
	VP RADIX GLYCYRRHIZAE	Glycyrrhetic acid ↑ 6.0%	Weight		

No.	Latin name	Assay (↑: Not less than)	(1) method	(2) developing solvent	(3) detection
19	*Leonurus japonicus* Houtt.				
	CP HERBA LEONURI	Stachydrine ↑ 0.50%	TLC (Slica gel TLC)	ethyl acetate / 1-butanol / hydrochloric acid (1 : 8 : 3)	1) 105° 2) UV 510 nm
20	*Lonicera japonica* Thunberg				
	CP FLOS LONICERAE	Chlorogenic acid ↑ 1.5%	HPLC (ODS column)	acetonitrile / 0.4% phosphoric acid solution (13 : 87)	UV 327 nm
21	*Magnolia officinalis* Rehder et Wilson var. *biloba* Rehder et Wilson				
	CP CORTEX MAGNOLIAE OFFICINALIS	Magnolol+Honokiol ↑ 2.0%	HPLC (ODS column)	methanol / water (78 : 22)	UV 294 nm
	JP MAGNOLIAE CORTEX	Magnolol ↑ 0.8%	HPLC (ODS column, I.D. 4-6 mm x 15-25 cm, 5-10 mm)	1) water / acetonitrile / acetic acid (50 : 50 : 1) 2) 20° 3) adjust flow rate to elute magnolol at ca.14 min	UV 289 nm
	KP MAGNOLIAE CORTEX	Magnolol ↑ 0.8%	HPLC (ODS column, I.D. 4-6 mm x 15-25 cm, 5-10 mm)	1) water / acetonitrile / acetic acid (50 : 50 : 1) 2) 20° 3) adjust flow rate to elute magnolol at ca.14 min	UV 289 nm
22	*Paeonia lactiflora* Pallas				
	CP RADIX PAEONIAE ALBA	Paeoniflorin ↑ 1.6%	HPLC (ODS column)	acetonitrile / 0.1% phosphoric acid solution (14 : 86)	UV 230 nm
	JP PAEONIAE RADIX	Paeoniflorin ↑ 2.0%	HPLC (ODS column, I.D. 4.6 mm x 15 cm, 5 mm)	1) water / acetonitrile / phosphoric acd (850 : 150 : 1) 2) 20° 3) adjust flow rate to elute paeoniflorin at ca.10 min	UV 232 nm
	KP PAEONIAE RADIX	Paeoniflorin ↑ 2.0%	HPLC (ODS column, I.D. 4-6 mm x 15-25 cm, 5-10 mm)	1) water / acetonitrile (4 : 1) 2) 20° 3) adjust flow rate to elute paeoniflorin at ca.10 min	UV 230 nm
23	*Paeonia suffruticosa* Andrews				
	CP CORTEX MOUTAN	Paeonol ↑ 1.2%	HPLC (ODS column)	methanol / water (45 : 55)	UV 274 nm
	JP MOUTAN CORTEX	Paeonol ↑ 1.0%	HPLC (ODS column, I.D. 4-6 mm x 15-25 cm, 5-10 mm)	1) water / acetonitrile / acetic acid (100) (65 : 35 : 2) 2) 20° 3) adjust flow rate to elute paeonol at ca.14 min	UV 274 nm
	KP MOUTAN CORTEX RADICIS	Paeonol ↑ 1.0%	HPLC (ODS column, I.D. 4-6 mm x 15-25 cm, 5-10 mm)	1) water / acetonitrile / acetic acid (100) (65 : 35 : 2) 2) 20° 3) adjust flow rate to elute paeonol at ca.14 min	UV 274 nm
	VP CORTEX PAEONIA SUFFURUTICOSAE	Paeonol ↑ 1.0%	Absorption	water	UV 274 nm
24	*Panax ginseng* C. A. Meyer				
	CP RADIX ET RHIZOMA GINSENG	Ginsenoside Rg1+Re ↑ 0.30%, Ginsenoside Rb1 ↑ 0.20%	HPLC (ODS column)	Solution A: acetonitrile, Solution B: water, 0-35 min (A 19 : B 81), 35-55 min (A 19-29 : B 81-71), 55-70 min (A 29 : B 71), 70-100 min (A 29-40 : B 71-60)	UV 203 nm
	JP GINSENG RADIX	Ginsenoside Rg1↑ 0.10%, Ginsenoside Rb1↑ 0.20%	HPLC (ODS column, I.D. 4.6 mm x 15 cm, 5 mm)	1) water / acetonitrile (7 : 3) 2) 40° 3) adjust flow rate to elute Ginsenoside Rb1 at ca.20 min	UV 203 nm
25	*Platycodon grandiflorum* A. De Candolle				
	CP RADIX PLATYCODI	Total saponin↑ 6.0%	Dry weight	methanol	Dry weight (105°)
26	*Pogostemon cablin* Bentham				
	CP HERBA POGOSTEMONIS	Patchouli alcohol ↑ 0.10%	GC		
27	*Polygonatum sibiricum* Redoute				
	CP RHIZOMA POLYGONATI	Glucose ↑ 7.0%	Absorption	80% ethanol	UV 582 nm
28	*Prunella vulgaris* Linne var. *lilacina* Nakai				
	CP SPICA PRUNELLAE	Ursolic acid ↑ 0.12%	HPLC (ODS column)	methanol / water (88 : 12)	UV 210 nm
29	*Prunus armeniaca* Linne, *P. armeniaca* Linne var. *ansu* Maximowicz				
	CP SEMEN ARMENIACAE AMARUM	Amygdalin↑ 3.0%	Titration	silver nitrate solution (0.1 mol/L)	
	KP ARMENIACAE SEMEN	Amygdalin↑ 3.0%	HPLC (ODS column, I.D. 4-6 mm x 15-25 cm, 5-10 mm)	1) methanol / water (20 : 80) 2) 20° 3) 1.0 mL/min	UV 214 nm
	VP SEMEN ARMENIACAE AMARUM	Amygdalin↑ 3.0%	Titration		
30	*Prunus persica* Batsch, *P. persica* Batsch var. *davidiana* Maximowicz				
	KP PERSICAE SEMEN	Amygdalin↑ 0.5%	HPLC (ODS column, I.D. 4-6 mm x 15-25 cm, 5-10 mm)	1) methanol / water (20 : 80) 2) 20° 3) 1.0 mL/min	UV 214 nm
31	*Rheum palmatum* Linne				
	CP RADIX ET RHIZOMA RHEI	Aloeemodin+Rhein+Emodin+ Chrysophanol+Physcion ↑ 1.5%	HPLC (ODS column)	methanol / 0.1% phosphoric acid solution (85 : 15)	UV 254 nm
	JP RHEI RHIZOMA	Sennoside A ↑ 0.25%	HPLC (ODS column, I.D. 4-6 mm x 15-25 cm, 5-10 mm)	1) dilute acetic acid (100) (1 in 80) / acetonitrile (4 : 1) 2) 40° 3) adjust flow rate to elute sennoside A at ca.15 min	UV 340 nm
	KP RHEI RHIZOMA	Sennoside A ↑ 0.25%	HPLC (ODS column, I.D. 4-6 mm x 15-25 cm, 5-10 mm)	1) dilute acetic acid (100) (1 in 80) / acetonitrile (4 : 1) 2) 40° 3) adjust flow rate to elute sennoside A at ca.15 min	UV 340 nm
32	*Schisandra chinensis* Baillon				
	CP FRUCTUS SCHISANDRAE CHINENSIS	Schisandrin ↑ 0.40%	HPLC (ODS column)	methanol / water (13 : 7)	UV 250 nm
33	*Scutellaria baicalensis* Georgi				
	CP RADIX SCUTELLARIAE	Baicalin ↑ 9.0%	HPLC (ODS column)	methanol / water / phosphoric acid (47 : 53 : 0.2)	UV 280 nm
	JP SCUTELLARIAE RADIX	Baicalin ↑ 10.0%	HPLC (ODS column, I.D. 4-6 mm x 15-25 cm, 5-10 mm)	1) dilute phosphoric acid (1 in 146) / acetonitrile (18 : 7) 2) 50° 3) adjust flow rate to elute baicalin at ca. 6 min	UV 277 nm
	KP SCUTELLARIAE RADIX	Baicalin ↑ 10.0%	HPLC (ODS column, I.D. 4-6 mm x 15-25 cm, 5-10 mm)	1) dilute phosphoric acid (1 in 146) / acetonitrile (18 : 7) 2) 50° 3) adjust flow rate to elute baicalin at ca. 6 min	UV 277 nm
	VP RADIX SCUTELLARIAE	Flavonoid calculate as Baicalin ↑ 4.0%	Absorption	ethanol	UV 279 nm

No.	Latin name	Assay (↑: Not less than)	(1) method	(2) developing solvent	(3) detection
34	*Strychnos nux-vomica* Linne				
	CP SEMEN STRYCHNI	Strychnine 1.20-2.20%	HPLC (ODS column)	acetonitrile / 0.01 mol/L heptanesulfonic acid sodium salt and 0.02 mol/L potassium dihydrogen phosphate (21 : 79)	UV 260 nm
	JP STRYCHNI SEMEN	Strychnine ↑ 1.07%	HPLC (ODS column, I.D. ca. 4 mm x ca. 15 cm, 5-10 mm)	1) 6.8 g of monobasic potassium phosphate in water to 1000 mL / acetonitrile / triethylamine (45 : 5 : 1), adjust to a pH of 3.0 2) room tempureture 3) adjust flow rate to elute strychnine at ca. 17 min	UV 210 nm
	KP STRYCHNI SEMEN	Strychnine ↑ 1.05%	HPLC (ODS column, I.D. 4-6 mm x 15-25 cm, 5-10 mm)	1) 6.8 g of monobasic potassium phosphate in water to 1000 mL / acetonitrile / triethylamine (45 : 5 : 1), adjust to a pH of 3.0 2) room tempureture 3) adjust flow rate to elute strychnine at ca. 17 min	UV 210 nm
	VP SEMEN STRYCHNI	Strychnine ↑ 1.2%	Absorption	0.5 mol sulphuric acid	UV 262, 300 nm
35	*Syzygium aromaticum* Merrill et Perry				
	CP FLOS CARYOPHYLLI	Eugenol ↑ 11.0%	GC (10% polyenthylene glycol-20M)		
36	*Zingiber officinale* Roscoe				
	KP ZINGIBERIS RHIZOMA	6-Gingerol ↑ 0.4%	HPLC (ODS column, I.D. 4-6 mm x 15-25 cm, 5-10 mm)	1) acetonitrile / water (45 : 55) 2) 20˚ 3) adjust flow rate to elute 6-gingeol at ca. 7 min	UV 280 nm
37	*Aloe ferox* Miller				
	CP ALOE	Barbaloin ↑ 6.0%	HPLC (ODS column)	acetonitrile / water (25 : 75)	UV 355 nm
	JP ALOE	Barbaloin ↑ 4.0%	HPLC (ODS column, I.D. ca. 6 mm x ca.15 cm, 5 mm)	1) water / acetonitrile / acetic acid (100) (74 : 26 : 1) 2) 30˚ 3) adjust flow rate to elute barbaloin at ca.12 min	UV 360 nm
	VP ALOE	Hydroxyanthoracen ↑ 28.0%	Absorption	0.5% magnesium acetate in methanol	UV 512 nm
38	*Alpinia officinarum* Hance				
	CP RHIZOMA ALPINAE OFFICINARUM	Cineol ↑ 0.15%	GC		
39	*Angelica pubescens* Maximowicz				
	CP RADIX ANGELICAE PUBESCENTIS	Osthol ↑ 0.50%	HPLC (ODS column)	acetonitrile / water (60 : 40)	UV 322 nm
40	*Arctium lappa* Linne				
	CP FRUCTUS ARCTII	Arctiin ↑ 5.0%	HPLC (ODS column)	methanol / water (1 : 1.1)	UV 280 nm
41	*Areca catechu* Linne				
	CP SEMEN ARECAE	Arecoline ↑ 0.30%	Titration		
42	*Aster tataricus* Lnne fil.				
	CP RADIX ET RHIZOMA ASTERIS	Shionone ↑ 0.10%	HPLC (ODS column)	1)acetonitrile / water (96 : 4) 2) 40˚	1) 10% sulfuric acid in ethanol 2) 110˚ 3) UV 390 and 650 nm
43	*Cassia angustifolia* Vahl, *C. acutifolia* Delile				
	CP FOLIUM SENNAE	Sennoside B ↑ 2.5%	Absorption	0.5% magnesium acetate in methanol	UV 515 nm
	JP SENNAE FOLIUM	Total Sennosides (sennoside A and sennoside B) ↑ 1.0%	HPLC (ODS column, I.D. 4.6 mm x 15 cm, 5 mm)	1) 2.45 g of tetra-*n* -heptylammonium bromide in 1000 mL of a mixture of dilute 1 mol/L acetic acid-sodium acetate buffer pH 5.0 (1 in 10) / acetonitrile (17 : 8) 2) 50˚ 3) adjust flow rate to elute sennoside A at ca. 26 min	UV 340 nm
	KP SENNAE FOLIUM	Total Sennosides (sennoside A and sennoside B) ↑ 1.0%	HPLC (ODS column, I.D. 4-6 mm x 15-25 cm, 5-10 mm)	1) 2.45 g of tetra-*n* -heptylammonium bromide in 1000 mL of a mixture of dilute 1 mol/L acetic acid-sodium acetate buffer pH 5.0 (1 in 10) / acetonitrile (17 : 8) 2) 50˚ 3) adjust flow rate to elute sennoside A at ca. 26 min	UV 340 nm
44	*Cassia obtusifolia* Linne, *C. tora* Linne				
	CP SEMEN CASSIAE	Crysophanol ↑ 0.080%	HPLC (ODS column)	methanol / 0.1% phosphoric acid solution (85 : 15)	UV 254 nm
45	*Chrysanthemum indicum* Linne				
	CP FLOS CHRYSANTHEMI INDICI	Buddoleoside ↑ 0.80%	HPLC (ODS column)	methanol / water / glacial acetic acid (26 : 23 : 1)	UV 334 nm
46	*Citrus aurantium* Linne				
	CP FRUCTUS AURANRII IMMATURUS	Synephrine ↑ 0.30%	HPLC (ODS column)	methanol / potassium dihydrogen phosphate solution (50 : 50)	UV 275 nm
47	*Cnidium monnieri* Cusson				
	CP FRUCTUS CNIDII	Osthol ↑ 1.0%	HPLC (ODS column)	acetonitrile / water (65 : 35)	UV 322 nm
48	*Coix lacryma-jobi* Linne var. *ma-yuen* Stapf				
	CP SEMEN COICIS	Glycerin trioleate ↑ 0.50%	HPLC (ODS column)	acetonitrile / dichloromethane (65 : 35)	Evaporative Light Scattering method
49	*Crataegus pinnatifida* Bunge var. *typica* Schneider				
	CP FRUCTUS CRATAEGI	Citric acid ↑ 5.0%	Titration		
50	*Crocus sativus* Linne				
	CP STIGMA CROCI	Crocin I+II ↑ 10.0%	HPLC (ODS column)	methanol / water (45 : 55)	UV 440 nm
	JP CROCUS	Crocin (Content of active principle)	Absorption	0.098 g of carbazochrome sodium sulfonate in water to 100 mL	UV 438 nm
51	*Gentiana scabra* Bunge				
	CP RADIX ET RHIZOMA GENTIANAE	Gentiopicrin ↑ 1.0%	HPLC (ODS column)	methanol / water (3 : 7)	UV 270 nm
52	*Lindera aggregata* (Sims) Kosterm.				
	CP RADIX LINDERAE	Linderane ↑ 0.030%	HPLC (ODS column)	acetonitrile / water (56 : 44)	UV 235 nm

No.	Latin name	Assay (↑: Not less than)	(1) method	(2) developing solvent	(3) detection
53	*Lycium barbarum* Linne, *L. chinense* Miller				
	CP FRUCTUS LYCII	Glucose ↑ 1.8%, Betaine ↑ 0.30%	Glucose (Absorption), Betaine [TLC (Slica gel TLC)]	Glucose (80% ethanol), Betaine [acetone / absolute ethanol / hidrochloric acid (10 : 6 : 1)]	Glucose (UV 490 nm), Betain (UV 515, 590 nm)
	KP LYCII FRUCTUS	Betaine ↑ 0.5%	HPLC (ODS column, I.D. 4-6 mm x 15-25 cm, 5-10 mm)	1) acetonitrile / water (85 : 15) 2) 20˚ 3) 1.0 mL/min	UV 210 nm
54	*Peucedanum praeruptorum* Dunn, *P. decursivum* Maxim.				
	CP RADIX PEUCEDANI	Praeruptorin A ↑ 0.90%	HPLC (ODS column)	methanol / water (75 : 25)	UV 321 nm
55	*Pharbitis nil* Choisy				
	CP SEMEN PHARBITIDIS	Caffeic acid+Caffeic acid ethyl ester ↑ 0.20%	HPLC (ODS column)	Solution A: acetonitrile, Solution B: 0.04% phosphoric acid solution , 0-12 min (A 13 : B 87), 12-13 min (A 13-54 : B 87-46), 13-19 min (A 54 : B 46)	UV 325 nm
56	*Phellodendron amurense* Ruprecht, *P. chinense* Schneider				
	CP CORTEX PHELLODENDRI AMURENSIS	Berberine ↑ 0.6%	HPLC (ODS column)	acetonitrile / 0.1% phosphoric acid solution (50 : 50)	UV 265 nm
	CP CORTEX PHELLODENDRI CHINENSIS	Berberine ↑ 3.0%	HPLC (ODS column)	acetonitrile / 0.1% phosphoric acid solution (50 : 50)	UV 265 nm
	JP PHELLODENDRI CORTEX	Berberine ↑ 1.2%	HPLC (ODS column, I.D. 4-6 mm x 15-25 cm, 5-10 mm)	1) 3.4 g of monobasic potassium phosphate and 1.7 g of sodium lauryl sulfate in water to 1000 mL / acetonitrile (1 : 1) 2) 40˚ 3) adjust flow rate to elute berberine at ca. 10 min	UV 345 nm
	KP PHELLODENDRI CORTEX	Berberine ↑ 0.6%	HPLC (ODS column, I.D. 4-6 mm x 15-25 cm, 5-10 mm)	1) 3.4 g of monobasic potassium phosphate and 1.7 g of sodium lauryl sulfate in water to 1000 mL / acetonitrile (1 : 1) 2) 40˚ 3) adjust flow rate to elute berberine at ca. 10 min	UV 345 nm
57	*Piper nigrum* Linne				
	CP FRUCTUS PIPERIS	Piperine ↑ 3.0%	HPLC (ODS column)	methanol / water (77 : 23)	UV 343 nm
58	*Polygala tenuifolia* Willdenow				
	CP RADIX POLYGALAE	Polygalic acid ↑ 0.70% (HPLC)	HPLC (ODS column)	methanol / 0.2% phosphoric acid solution (70 : 30)	UV 210 nm
59	*Prunus mume* Siebold et Zuccarini				
	CP FRUCTUS MUME	Citric acid ↑ 15.0%	Titration		
60	*Pueraria lobata* Ohwi				
	CP RADIX PUERARIAE LOBATAE	Puerarin ↑ 2.4% (HPLC)	HPLC (ODS column)	methanol / water (25 : 75)	UV 250 nm
	JP PUERARIAE RADIX	Puerarin ↑ 2.0% (HPLC)	HPLC (ODS column, I.D. 4.6 mm x 15 cm, 5 mm)	1) 0.05 mol/L sodium dihydrogen phosphate TS / acetonitrile (9 : 1) 2) 40˚ 3) adjust flow rate to elute puerain at ca.15 min	UV 250 nm
	KP PUERARIAE RADIX	Puerarin ↑ 2.0% (HPLC)	HPLC (ODS column, I.D. 4-6 mm x 15-25 cm, 5-10 mm)	1) methanol / water (25 : 75) 2) 15-25˚ 3) 1.0 mL/min	UV 254 nm
61	*Rehmannia glutinosa* Liboschitz				
	CP RADIX REHMANNIAE	Catalpol ↑ 0.20% (HPLC)	HPLC (ODS column)	acetonitrile / 0.1% phosphoric acid solution (1 : 99)	UV 210 nm
62	*Salvia miltiorrhiza* Bunge				
	CP RADIX ET RHIZOMA SALVIAE MILTIORRHIZAE	Tanshinone IIA ↑ 0.20%, Salvinolic acid B ↑ 3.0%	HPLC (ODS column)	Tanshinone IIA [methanol / water (75 : 25)], Salvinolic acid B [methanol / acetonitrile / formic acid / water (30 : 10 : 1 : 59)]	Tanshinone IIA (UV 270 nm), Salvinolic acid B (UV 286 nm)
63	*Saposhnikovia divaricata* Schiskin				
	CP RADIX SAPOSHNIKOVIAE	Cimicifugoside+5-Methoxyvisaminol ↑ 0.24%	HPLC (ODS column)	methanol / water (40 : 60)	UV 254 nm
64	*Saussurea lappa* Clarke				
	CP RADIX AUCKLANDIAE	Costunolide +Dehydrocostuslactone ↑ 1.8%	HPLC (ODS column)	methanol / water (65 : 35)	UV 225 nm
65	*Schizonepeta tenuifolia* Briquet				
	CP SPICA SCHZONEPETAE	Pulegone ↑ 0.080%	HPLC (ODS column)	methanol / water (80 : 20)	UV 252 nm
66	*Scrophularia ningpoensis* Hemsley, *S. buergeriana* Miquel				
	CP RADIX SCROPHULARIAE	Hrapagoside ↑ 0.050%	HPLC (ODS column)	Solution A: acetonitrile, Solution B: 1% acetic acid solution, 0-20 min (A 20-50 : B 80-50)	UV 278 nm
67	*Sophora flavescens* Aiton				
	CP RADIX SOPHORAE FLAVESCENTIS	Matrine+Oxymatrine ↑ 1.2%	HPLC (ODS column)	acetonitrile / absolute ethanol / 3% phosphoric acid solution (80 : 10 : 10)	UV 220 nm
68	*Sophora japonica* Linne				
	CP FLOS SOPHORAE	Total flavonoids ↑ 8.0%, Rutin ↑ 6.0%	Total flavonoids (Absorption) Rutin [HPLC (ODS column)]	Total flavonoids (methanol), Rutin [methanol / 1% glacial acetic acid solution (32 : 68)]	Total flavonoids (UV 500 nm), Rutin (UV 257 nm)
69	*Vitex trifolia* Linne				
	CP FRUCTUS VITICIS	Vitexicarpin ↑ 0.030%	HPLC (ODS column)	methanol / 0.4% phosphoric acid solution (60 : 40)	UV 258 nm

Section 3

Table 7-13 complied by EWG III for Lists of CRS and RMPM

Table 7 to 13 provide lists of CRS, reference sample (for Japan only) and RMPM from any of the four pharmacopoeias.

Table 7, Table 9 and Table 10 are lists of CRS in JP, KP and VP respectively. CRS stands for Chemical Reference Standards certified by the government of each country. Information on CRS described in each list includes names of chemical compound, purity, data on IR, UV, mp, HPLC, TCL, ^{1}H-NMR and ^{13}C-NMR, information source, for which test/assay reference standard is used, for which crude drug CRS is applied, and published reference (e.g. published paper in a peer-reviewed journal).

Table 8, which is applicable to JP only, is the list of reference sample recorded in JP. In Japan, reference sample refers to chemical compounds that are not certified by the government but regulated by the description of JP. It is sold by reagent companies in Japan. Information in this table includes the names of compound, molecular formula, CAS NO., HPLC and TLC condition, Latin name of crude drug, purchase information and Japanese name of crude drugs.

Table 11, Table 12 and Table 13 are lists of RMPM in CP, KP and VP respectively. Japan does not use RMPM as a reference standard. RMPM refers to the Reference of Medicinal Plant Materials, which means that instead of chemical compounds, the whole crude drug from only a certain species is regarded as a standard reference for laboratory test and assay. The information in the lists of RMPM includes RMPM name, scientific name of the standard species and family name of the standard species.

Table 7

List of CRS in Japanese pharmacopoeia

List of CRS in Japanese Pharmacopoeia (JP)

Compound	Purity (%)	IR (cm^{-1})	UV λmax nm (E1% 1cm)	mp	HPLC	TLC Rf value (1: Dev. solv., 2: Detect)	^{1}H-NMR	^{13}C-NMR	Available from	Reference Standard for	Applied to	References
Glycyrrhizinic acid (Glycyrrhizic acid, Glycyrrhizin)	99.7	3400, 2990, 1720, 1670, 1460, 1275, 1220, 1170, 1115, 1080, 1050, 970, 910	251			0.23 [1: 1-BuOH/ H_2O/ AcOH (7:2:1), 2: UV 254 nm, dil. H_2SO_4, 105°C, 10min]			Reference Standard Prepared by Society of Japanese Pharmacopoeia 30 mg, 35,700 JPY	TLC (identification), HPLC (assay)	GLYCYRRHIZAE RADIX, GLYCYRRHIZAE RADIX PULVERATA	*Bull. Natl. Inst. Health Sci* ., **119**, 93-96 (2001)
Baicalin	99.5	3385, 1728, 1662, 1611, 1575	277.2	210.4			4.06 (1H), 5.24 (1H), 5.29 (1H), 5.49 (1H), 7.001 (1H), 7.004 (1H), 7.57-7.62 (3H), 8.06-8.07 (2H), 12.6 (1H).	71.3 (CH), 72.7 (CH), 75.2 (CH), 75.5 (CH), 93.7 (CH), 99.9 (CH), 104.8 (CH), 106.1 (C), 126.4 (CH), 129.1 (CH), 130.6 (C), 130.8 (C),132.0 (CH), 146.8 (C), 149.2 (C), 151.3 (C),170.0 (C), 182.5.	Reference Standard Prepared by Society of Japanese Pharmacopoeia 30 mg, 29,000 JPY	TLC (identification), HPLC (component determination)	SCUTELLARIAE RADIX, SCUTELLARIAE RADIX PULVERATA	*IYAKUHIN KENKYU* , **31** (7), 465-470 (2000)
Paeoniflorin	>99.5	3414, 1713, 1280, 1076	231.6 (260.3)		ODS column (I.D. 4.6 mm x 15 cm), detector 232 nm, Column temp 20℃, H_2O/CH_3CN/H_3PO_4 (850:150:1)	0.30-0.33 [1: acetone/EtOAc/ AcOH (10:10:1), 2: 4-methoxybenz-aldehyde-H_2SO_4, 105℃, 5 min]			Reference Standard Prepared by Society of Japanese Pharmacopoeia 20 mg, 33,900 JPY	TLC (identification), HPLC (component determination)	PAEONIAE RADIX, PAEONIAE RADIX PULVERATA	*IYAKUHIN KENKYU* , **29** (10), 725-729 (1998)
Swertiamarin	99.7	3346, 1697, 1619, 1282, 1068, 1013	236.2 (257.2)		ODS column (I.D. 4.6 mm x 15 cm), column temp 50℃, H_2O/ CH_3CN (91:9), detector 236 nm, adjust flow rate to elute Paeoniflorin at ca.12 min	0.73 [1: EtOAc /1-PrOH/H_2O (6:4:3), 2: UV 254 nm]	1.86 (1H, brd, *J* =13.5Hz), 2.03 (1H, brdd, *J* =5.2, 13.5 Hz), 3.03 (1H, brdd, *J* =1.4, 7.0Hz), 3.34 (1H, dd, *J* =8.7, 10.5Hz), 3.49 (1H, t, *J* =10.5 Hz), 3.52 (1H, m), 3.61 (1H, t, *J* =10.5 Hz), 3.75 (1H, dd, *J* = 2.0, 12.5 Hz), 3.92 (1H, dd, *J* =5.1, 12.5Hz), 4.42 (1H, brdd, *J* =5.2, 13.5Hz), 4.70 (1H, brd, *J* =13.5 Hz), 4.84 (1H, d, *J* =8.7 Hz), 5.29 (1H, m), 5.45 (2H, m), 5.75 (1H, d, *J* =1.4 Hz), 7.73 (1H, s).	171.6 (C), 157.9 (CH), 134.4 (CH), 123.9 (CH_2), 109.2 (C), 102.2 (CH), 101.6 (CH), 79.2 (CH), 78.3 (CH), 75.2 (CH), 72.3 (CH), 68.4 (CH_2), 66.0 (C), 63.4 (CH_2), 52.8 (CH), 36.3 (CH_2).	Reference Standard Prepared by Society of Japanese Pharmacopoeia 20 mg, 34,100 JPY	TLC (identification), HPLC (component determination)	SWERTIAE HERBA, SWERTIAE HERBA PULVERATA	*IYAKUHIN KENKYU* , **32** (3), 118-123 (2001)
Sennoside A	98.7	3419, 1714, 1637, 1074	334 (171.9 ±0.5), 270 (225.9± 0.7)	217.2± 0.6	ODS column (I.D. 4.6 mm x 15 cm), column temp 50℃, pH 5, 1mol/l AcOH-$AcONH_4$ Buffer (1in10)/ CH_3CN (17:8) 1000 ml +Tetra-*n* -heptyl ammonium bromide (2.45 g), detector 340 nm, adjust flow rate to elute Sennoside A at ca.26 min	0.32 [1: 1-PrOH/ AcOEt/ H_2O/AcOH (40:40:30:1), 2: UV 254 nm]			Reference Standard Prepared by Society of Japanese Pharmacopoeia 20 mg, 32,800 JPY	TLC (identification), HPLC (Assay)	SENNAE FOLIUM, SENNAE FOLIUM PURVERATUM	

Sennoside B	98.79	3412, 1712, 1637, 1074	354 (164.8 ±0.9), 309 (167.8± 0.9), 270 (231.0± 1.3)	184.1± 1.3	ODS column (I.D. 4.6 mm x 15 cm), column temp 50℃, pH 5, 1 mol/l AcOH-AcONH$_4$ Buffer (1in10)/ CH_3CN (17:8) 1000 ml +Tetra-*n* -heptyl ammonium bromide (2.45 g), detector 340 nm, adjust flow rate to elute Sennoside B at ca.15 min	0.23[1: 1-PrOH/ AcOEt/ H_2O/AcOH (40:40:30:1), 2: UV 254 nm]			Reference Standard Prepared by Society of Japanese Pharmacopoeia 20 mg, 31,600 JPY	HPLC (Assay)	SENNAE FOLIUM, SENNAE FOLIUM PURVERATUM	
Berberine chloride	>99.5	3400, 1600, 1250	420 (155), 345 (724), 263 (796), 228 (820)		ODS column (I.D. 4.6mm x 150mm), Column temp 40°C, detector 345 nm, flow rate 1.0 ml/min	0.32 [1: 1-BuOH/ H_2O/ AcOH (7:2:1), 2: UV 254 nm]			Reference Standard Prepared by Society of Japanese Pharmacopoeia 30 mg, 32,400 JPY	TLC (identification), HPLC (Assay)	PHELLODENDRI CORTEX, PHELLODENDRI CORTEX PULVERATUS, COPTIDIS RHIZOMA, COPTIDIS RHIZOMA	*Bull. Natl. Inst. Health Sci* ., **119**, 97-100 (2001)
Ginsenoside Rb1		3390, 2932	no specific absorbance	200.1± 0.3	[JP15] ODS column (I.D. 4.6mm x 150 mm), column temp 40 ℃, H_2O/ acetonitrile (7:3), detector 203 nm, adjust flow rate Ginsenoside Rb1 at ca. 20 min	[JP15] [1:lower layer of $CHCl_3$/ MeOH/$H_2$0 (13:7: 2), 2: dil. H_2SO_4, 110℃, 5 min]	0.49(1H, d, *J* =11.0Hz), 1.44 (1H, br d, *J* =14.1 Hz), 3.73 (1H, dt, *J* =5.4, 10.2 Hz), 2.30 (1H, br dd, *J* =10.6, 19.3 Hz), 1.01 (3H, s), 0.93 (3H, s), 1.37 (3H, s), 1.69 (3H, s), 1.63 (3H, s), 1.08 (3H, s), 0.86 (3H, s), 0.93 (3H, s), 4.44 (1H,br d, *J* =7.5 Hz), 4.68 (1H, dd, *J* =2.4, 7.5 Hz), 4.59 (1H, br d, *J* =7.9 Hz), 4.36 (1H, dd, *J* =2.2, 7.7 Hz).	132.2 (C), 126.0 (CH), 105.4 (CH), 105.0 (CH), 104.5 (CH), 98.1 (CH), 91.4 (CH), 85.0 (C), 81.0 (CH), 78.5 (CH), 78.5 (CH), 78.4 (CH), 77.9 (CH), 77.9 (CH), 77.9 (CH), 77.7 (CH), 76.8 (CH), 76.3 (CH), 75.1 (CH), 75.3 (CH), 71.9 (CH), 71.7 (CH), 71.6 (CH), 71.5 (CH), 71.9 (CH), 70.2 (CH_2), 63.1 (CH_2), 62.8 (CH_2), 62.8 (CH_2), 57.5 (CH), 52.9 (CH), 52.4 (C), 51.1 (CH), 49.6 (CH), 41.0 (C), 40.6 (C), 40.3 (CH_2), 37.9 (C), 36.8 (CH_2), 35.8 (CH_2), 31.5 (CH_2), 30.8 (CH_2), 28.4 (CH_3), 27.3 (CH_2), 27.2 (CH_2), 26.0 (CH_3), 23.9 (CH_2), 22.5 (CH_3), 19.2(CH_2), 18.0 (CH_3), 17.4(CH_3), 16.7 (CH_3), 16.7 (CH_3), 16.3 (CH_3).	Reference Standard Prepared by Society of Japanese Pharmacopoeia 15 mg, 53,000 JPY	TLC (identification), HPLC (Assay)	GINSENG RADIX, GINSENG RADIX PULVERATA, GINSENG RADIX RUBRA	*IYAKUHIN KENKYU,* **36** (5), 211-222 (2005)
Ginsenoside Rg1		3390, 2932	no specific absorbance	194.7± 0.3	[JP15] ODS column (I.D. 4.6mm x 150 mm), column temp 30 ℃, H_2O/ acetonitrile (4:1), detector 203 nm, adjust flow rate Ginsenoside Rg1 at ca. 25 min	[JP15] [1:lower layer of $CHCl_3$/ MeOH/$H_2$0 (13:7: 2), 2: dil. H_2SO_4, 110℃, 5 min]	3.10 (1H, dd, *J* =5.1, 11.7 Hz), 4.l0 (dt, *J* =3.3, 10.6 Hz), 1.49 (1H, dd, *J* =2.3, 13.1 Hz), 3.68 (1H, dt, *J* =5.3, 10.4 Hz), 2 29 (1H, dt,*J* =7.7, 10.8 Hz), 1.10 (3H, s), 1.00 (3H, s), 1.35 (3H, s), l.69 (3H, s), 1.63 (3H, s), 1.33 (3H, s), 1.01 (3H, s), 0.96 (3H, s), 4.35 (1H, d, *J* =7.7 Hz), 4.61 (1H, d, *J* =7.7 Hz).	132.3 (C), 125.8 (CH), 105.6 (CH), 98.3 (CH), 84.9 (C), 80.9 (CH_2), 79.1 (CH), 79.8 (CH), 78.2 (CH), 77.9 (CH), 77.7 (CH), 75.5 (CH), 75.4 (CH), 71.9 (CH), 71.7 (CH), 71.2 (CH), 62.9 (CH_2), 62.5 (CH_2), 61.8 (CH), 53. 1 (CH), 52.4 (C), 50.6 (CH), 49.4 (CH), 45.3 (CH_2), 41.9 (C), 40.5 (C), 40.4 (C), 40.2 (CH_2), 36.6 (CH_2), 31.5 (CH_2), 31.4 (CH_3), 31.0 (CH_2), 27.2 (CH_2), 27.6 (CH_2), 25.9 (CH_3), 24.2 (CH_2), 22.8 (CH_3), 18.0 (CH_3), 17. 8 (CH_3),17.6 (CH_3), 17.1 (CH_3), 16.1 (CH_3).	Reference Standard Prepared by Society of Japanese Pharmacopoeia 15 mg, 65,000 JPY	TLC (identification), HPLC (Assay)	GINSENG RADIX, GINSENG RADIX PULVERATA, GINSENG RADIX RUBRA	*IYAKUHIN KENKYU,* **36** (5), 211-222 (2005)
Puerarin	99.1	3364, 1634, 1515, 1060	305.6 (243.5), 249.4 (732.4)	201.5		0.42 [1: $CHCl_3$/ MeOH/H_2O (6:4:1), 2: UV 366 nm]	4.80 (1H, d, *J* =9 Hz), 6.80 (2H, dd, *J* =8.5, 2.5 Hz), 6.98 (1H, d, *J* =8.5 Hz), 7.39 (2H, dd, *J* =8.5, 2.5 Hz), 7.93 (1H, d, *J* =9 Hz), 8.33 (1H, s).	61.4 (CH_2), 70.4 (CH), 70.8 (CH), 73.4 (CH), 78.7 (CH), 81.7 (CH), 112.6 (CH), 114.9 (CH), 116.8 (C), 122.5 (C), 123.0 (C), 126.2 (CH), 130.0 (CH), 152.6 (CH), 156.1 (C), 157.1 (C), 161.0 (C), 174.9 (C).	Reference Standard Prepared by Society of Japanese Pharmacopoeia 20 mg, 34,800 JPY	TLC (identification)	PUERARIAE RADIX	*IYAKUHIN KENKYU* , **33** (2), 118-123 (2002)

Table 8

List of Reference Sample in JP

List of Reference Sample in JP

Compound	Molecular Formula	CAS NO.	HPLC (1: Column, 2: Detect, 3: Colomn Temp., 4: Mobile phase)	TLC condition (1: Dev. solv., 2: Detect)	Color tone on TLC	Application	Name of crude drug	Purchase Information	Japanese name of crude drug
Bergenin	C14H16O9	477-90-7		1: AcOEt/EtOH (95)/H_2O (100:17:13), 2: UV (254 nm)	dark blue	TLC (Identification)	MALLOTI CORTEX	Bergenin Standard 20,000JPY/20mg (WAKO)	Akamegashiwa
Barbaloin	C21H22O9	1415-73-2	1: ODS column (I.D. 6 mm x 15 cm), 2: 360 nm, 3: 30°C, 4: H_2O/ CH_3CN/ AcOH (100) (74:26:1) adjust flow rate to elute barbaloin at ca.12min	1: AcOEt/Ac_2O/H_2O/AcOH (100) (20:5:2:2), 2: UV (365 nm)	red	TLC (Identification) HPLC (Component determination)	ALOE ALOE PULVERATA	Barbaloin Standard 8,500JPY/10mg (WAKO)	Aroe
Arbutin	C12H16O7	497-76-7	1: ODS column (I.D. 4-6 mm x 15-25 cm), 2: 280 nm, 3: 20°C, 4: H_2O/MeOH /0.1mol/L HCl (94:5:1) adjust flow rate to elute arbutin at ca.6min	1: HCOOEt/H_2O/HCOOH (8:1:1), 2: dil. H_2SO_4 (1 in 2), 105°C,10 min	Yellow-brown to blackish brown	TLC (Identification) HPLC (Component determination)	UVAE URSI FOLIUM	Arbutin Standard 9,000JPY/20mg	Urushi
Dehydrocorydaline nitrate	C22H24N2O6		1: ODS column (I.D. 4.6 mm x 15 cm), 2: 340 nm, 3: 40°C, 4: dissolve $NaHPO_4 12H_2O$ (17.91g) in H_2O (970ml) and adjust to pH 2.2 with H_3PO_4. Then, add $NaClO_4 H_2O$ (14.05g) to this solution and add H_2O to make exactly 1000ml. To this solution, add CH_3CN (450ml) , then add sodium laurylsulfate (0.2g) adjust flow rate to elute dehydrocorydaline at ca.24 min			HPLC (Component determination)	CORYDALIS TUBER	Dehydrocorydaline Nitrate Standard 19,800 JPY/10 mg	Engosaku
Parahydroxybenzoic acid	C7H6O3	99-96-7		1: AcOEt/EtOH (99.5)/H_2O (20:2:1), 2: UV (254 nm)	dark purple	TLC (Identification)	CATALPAE FRUCTUS		Kisasage
Amygdalin	C20H27NO11	29883-15-6		1: AcOEt/MeOH/H_2O (7:3:1), 2: dil. H_2SO_4, 105°C,10 min	brown to dark green	TLC (Identification)	ARMENIACAE SEMEN	Amygdalin (90+%) 1,500 JPY/1 g (TOKYO KASEI)	Kyonin
Gentiopicroside	C16H20O9	20831-76-9		1: AcOEt/EtOH (99.5)/H_2O (8:2:1), 2: UV (254 nm)	dark purple	TLC (Identification)	GENTIANAE RADIX GENTIANAE RADIX PULVERATA GENTIANAE SCABRAE RADIX GENTIANAE SCABRAE RADIX PULVERATA	Gentiopicroside Standard 15,000JPY/10mg (WAKO)	Genchiana, Ryutan
Ginsenoside Rg1	C42H72O14	22427-39-0		1: Lower layer of $CHCl_3$/ MeOH/H_2O (13:7:2), 2: dil. H_2SO_4, 110°C, 5 min	red-purple	TLC (Identification)	GINSENG RADIX RUBRA GINSENG RADIX GINSENG RADIX PULVERATA	Ginsenoside-Rg1 Standard 19,000 JPY/10 mg (WAKO)	Kojin, Ninjin
Magnolol	C18H18O2	528-43-8	1: ODS column (I.D.4-6mmx15-25cm), 2: 340nm, 3: 20°C, 4: H_2O/CH_3CN/AcOH (100) (50:50:1) adjust flow rate to elute magnolol at ca.14 min			HPLC (Component determination)	MAGNOLIAE CORTEX MAGNOLIAE CORTEX PULVERATUS	Magnolol Standard 8,800 JPY/20 mg (WAKO)	Koboku
Schizandrin	C24H32O7	7432-28-2		1: AcOEt/hexane/AcOH (100) (10:10:1), UV (254 nm)	blue-violet	HPLC (Identification)	SCHISANDRAE FRUCTUS	Schizandrin Standard 15,700 JPY/20 mg (WAKO)	Gomishi
Saikosaponin a	C42H68O13	20736-09-8		1: $CHCl_3$/MeOH/H_2O (30:10:1), 2: H_2SO_4/EtOH (95) (1:1) 50°C, 5 min	blue to blue-purple	TLC (Identification)	BUPLEURI RADIX	Saikosaponin a Standard 19,600 JPY/12 mg (WAKO)	Saiko

Geniposide	$C_{17}H_{24}O_{10}$	24512-63-8	1: ODS column (I.D.6mmx15cm), 2: 240nm, 3: 30°C, 4: H_2O/ CH_3CN (22:3) adjust flow rate to elute geniposide at ca.15 min	1: AcOEt/MeOH (3:1), 2: 4-methoxybenzaldehyde-H_2SO_4 TS, 105°C, 10 min	dark purple	TLC (Identification) HPLC (Component determination)	GARDENIAE FRUCTUS GARDENIAE FRUCTUS PULVERATUS	Geniposide Standard 7,000 JPY/20 mg (WAKO)	Sanshin
Loganin	$C_{17}H_{26}O_{10}$	18524-94-2		1: AcOEt/H_2O/HCOOH (6:1:1), 2: 4-methoxy-benzaldehyde-H_2SO_4 TS, 90°C, 3 min	red-purple	TLC (Identification)	CORNI FRUCTUS	Loganin Standard 31,500 JPY/20 mg (WAKO)	Sanshuyu
[6]-Gingerol	$C_{17}H_{26}O_4$	23513-14-6		1: hexane/acetone/AcOH (100) (10:7:1), 2:2,4-dinitrophenylhydrazine TS, 105°C, 10 min	brown	TLC (Identification)	ZINGIBERIS RHIZOMA ZINGIBERIS RHIZOMA PULVERATUM	[6]-Gingerol Standard 13,000 JPY/20 mg (WAKO)	Shokyo
Bufalin, Cinobufagin, Resibufogenin	$C_{24}H_{34}O_4$ (Bufalin), (Cinobufagin), $C_{24}H_{32}O_4$ (Resibufogenin)	465-21-4 (Bufalin), 470-37-1 (Cinobufagin), 465-39-4 (Resibufogenin)	1: ODS column (I.D. 4-6 mm x 15-30 cm), 2: 300 nm, 3: 40°C, 4: dil. H_3PO_4 (1 in 1000) /CH_3CN (11:9) adjust flow rate to elute Int.Std. (Int. Std.= indometacin in MeOH (1 in 4000) r.t. 16-19 min.)	**Resibufogenin** 1: cyclohexane/acetone (3:2), 2: dil. H_2SO_4, 105°C, 5 min	blue-green	HPLC (Component determination) TLC (Identification)	BUFONIS VENENUM	Bufalin Standard 24,000 JPY/20 mg (WAKO), Cinobufagin Standard 18,500 JPY/20 mg (WAKO), Resibufogenin Standard 19,600 JPY/20 mg (WAKO)	Senso
Chikusetsusaponin IV	$C_{47}H_{74}O_{18}$			1: AcOEt/H_2O/HCOOH (5:1:1), 2: dil. H_2SO_4, 110°C, 5 min	purple-red	TLC (Identification)	PANACIS JAPONICI RHIZOMA	Chikusetsusaponin IV Standard 24,000 JPY/20 mg (KISHIDA)	Chikusetsuninjin
Capsaicin	$C_{18}H_{27}NO_3$	404-86-4	1: phenylated silica gel (I.D.4.6 mm x 25 cm), 2: 281 nm, 3: 30°C, 4: dil. H_3PO_4 (1 in 1000)/CH_3CN (3:2) adjust flow rate to elute capsaicin at ca.20 min	1: Et_2O/MeOH (19:1), 2: 2, 6-dibromo-*N* -chloro-1,4-benzoquinone monoimine TS, stand in NH_3 gas	blue	TLC (Identification) HPLC (Component determination)	CAPSICI FRUCTUS CAPSICI FRUCTUS PULVERATUM	Capsaicin Standard 25,000 JPY/20 mg (WAKO)	Togarashi
Naringin	$C_{27}H_{32}O_{14}$	10236-47-2		1: AcOEt/EtOH(99.5)/H_2O (8:2:1), 2: 2,6-dibromo-*N* -chloro-1,4-benzo-quinone monoimine TS, stand in NH_3 gas	grayish green	TLC (Identification)	AURANTII PERICARPIUM	Naringin Standard 18,900 JPY/20 mg (WAKO)	Tohi
Emetine hydrochloride	$C_{29}H_{40}N_2O_4$	483-18-1	1: ODS column (I.D. 4-6 mm x 10-25 cm), 2: 283 nm, 3: 50°C, 4: dissolve sodium 1-heptane sulfonate (2.0g) in H_2O (500ml), adjust pH 4.0 with AcOH (100) then add MeOH (500ml) adjust flow rate to elute emetine at ca.14 min			HPLC (Component determination)	IPECACUANHAE RADIX IPECACUANHAE RADIX PULVERATA	**JPY/30 0mg (WAKO, U. S. P. Reference Standards)	Tokon
Arecoline hydrobromide	$C_8H_{13}NO_2$	63-75-2		1: Acetone/H_2O/AcOH (100) (10:6:1), 2: Iodine TS	red-brown	TLC (Identification)	ARECAE SEMEN		Binroji
Atropine sulfate	$C_{34}H_{48}N_2O_{10}S$	55-48-1	1: ODS column (I.D. 4mm x 15 cm), 2: 210 nm, 3: 20°C, 4: dissolve KH_2PO_4 (6.8g) in H_2O (900ml) and add Et_3N (10ml) ajust to pH 3.5 with H_3PO_4. Then, add H_2O to make exactly 1000 ml. Mix this sol. With CH_3CN (9:1). adjust flow rate to elute atropine at ca.14 min (assay for BELLADONNAE RADIX), adjust flow rate to elute scopolamine at ca.8 min (assay for SCOPOLIAE RHIZOMA)	1: Acetone/H_2O/NH_3aq (28) (90:7:3), 2: 80°C, 10 min, after cooling Dragendorff's TS	yellow-red	TLC (Identification) HPLC (Assay)	BELLADONNAE RADIX SCOPOLIAE RHIZOMA	Atropine Sulfate Standard 5,200 JPY/20 mg (WAKO)	Beradonnakon, Rotokon

Paeonol	C9H10O3	552-41-0	1: ODS column (I.D. 4-6 mm x 15-25 cm), 2: 274 nm, 3: 20°C, 4: H_2O/CH_3CN/AcOH (100) (65:35:2), adjust flow rate to elute paeonol at ca.14 min	1: AcOEt/hexane (1:1), 2: UV (254 nm)	no data in JP	TLC (Identification) HPLC (Component determination)	MOUTAN CORTEX MOUTAN CORTEX PULVERATUS	Paeonol Standard 9,000 JPY/10 mg (WAKO)	Botanpi
Strychnine nitrate	C21H23N3O5	66-32-0	1: ODS column (I.D. 4 mm x 15 cm), 2: 210 nm, 3: 20°C, 4: KH_2PO_4 (6.8g) in H_2O (1000 ml)/CH_3CN/ Et_3N (45:5:1), ajust to pH 3.0 with H_3PO_4. adjust flow rate to elute strychnine at ca.17 min			HPLC (Assay)	STRYCHNI SEMEN		Homika
Kainic acid	C10H15NO4	487-79-6		1: H_2O/1-BuOH/AcOH (100) (5:4:1), 2: 90°C, 10 min	light yellow	TLC (Identification)	DIGENEA	Kainic acid 27,000 JPY/10 mg (FUNAKOSHI)	Makuri
Scopolamine hydrobromide	C17H22BrNO4	114-49-8	see Atropine sulfate			HPLC (Assay)	SCOPOLIAE RHIZOMA	Scopolamine Hydrobromide n-Hydrate 5,200 JPY/20 mg (WAKO)	Rotokon

List of Reference Sample in 1st Supplementary of JP14

Compound	Molecular Formula	CAS NO.	HPLC (1: Column, 2: Detect, 3: Colomn Temp., 4: Mobile phase)	TLC condition (1: Dev. solv., 2: Detect)	Color tone on TLC	Application	Name of crude drug	Purchase Information	Japanese name of crude drug
Luteolin	C15H10O6	491-70-3		1: AcOEt/2-butanone/ H_2O/HCOOH (25:3:1:1), 2: $FeCl_3$-MeOH TS	dark green	TLC (Identification)	CHRYSANTHEMI FLOS	Luteolin 6,000 JPY/25 mg	Kikuka
Aristolochic acid I	C17H11NO7	313-67-7	1: ODS column (I.D. 4.6 mm x 25 cm), 2: 400 nm, 3: 40°C, 4: Add $NaH_2PO_4 2H_2O$ (7.8g) and H_3PO_4 (2 ml) in H_2O (1000 ml), mix this solution with CH_3CN (11:9) adjust flow rate to elute aristolochic acid I at ca.15 min			HPLC (Puruty)	ASIASARI RADIX	Aristolochic acid A 43,300 JPY/5 mg (WAKO) Aristolochic Acid A 12,000 JPY/1mg (FUNAKOSHI)	Saishin
Rhynchophylline	C22H28N2O4	76-66-4	1: ODS column (I.D. 4.6 mm x 25 cm), 2: 245 nm, 3: 40°C, 4: dissolve $AcONH_4$ (3.85 g) in H_2O (200 ml)and add AcOH (100) 10 ml into this solution, then add H_2O to make exactly 1000 ml. Add CH_3CN (350 ml) into this solution. adjust flow rate to elute rhynchophylline at ca.15 min			HPLC (Component determination)	UNCARIAE UNCIS CUM RAMULUS	Rhynchophylline Standard 22,000 JPY/10 mg (KISHIDA)	Chotoko
Hirsutine	C22H28N2O3		1: ODS column (I.D. 4.6 mm x 25 cm), 2: 245 nm, 3: 40°C, 4: dissolve $AcONH_4$ (3.85 g) in H_2O (200 ml) and add AcOH (100) 10 ml into this solution, then add H_2O to make exactly 1000 ml. Add CH_3CN (350 ml) into this solution. adjust flow rate to elute rhynchophylline at ca.15 min			HPLC (Component determination)	UNCARIAE UNCIS CUM RAMULUS	Hirsutine Standard 35,000 JPY/5 mg (WAKO)	Chotoko

List of Reference Sample in JP15

Compound	Molecular Formula	CAS NO.	HPLC (1: Column, 2: Detect, 3: Colomn Temp., 4: Mobile phase)	TLC condition (1: Dev. solv., 2: Detect)	Color tone on TLC	Application	Name of crude drug	Purchase Information	Japanese name of crude drug
Icariin	C33H40O15	489-32-7		1: AcOEt/EtOH (99.5)/H2O (8:2:1), 2: UV (254 nm)	dark purple	TLC (Identification)	EPIMEDII HERBA	Icariin 25,000 JPY/20 mg (WAKO)	In-yo-kaku
Benzoylmesaconine hydrochloride	C31H43NO10	86500-43-8		1: AcOEt/EtOH (99.5)/ NH_3aq (28) (40:3:2), 2: dragendorff's TS + sodium nitrite TS	yellow-brown	TLC (Identification)	PROCESSI ACONITI RADIX, PROCESSI ACONITI RADIX PULVERATA	Benzoylmesaconine Hydrochloride 15,000 JPY/5 mg (WAKO)	Bushi, Bushi-matsu
Osthole	C15H16O3	484-12-8		1: n-hexane/AcOEt (2:1), 2: UV (365 nm)	blue-white fluorescent	TLC (Identification)	CNIDII MONNIERIS FRUCTUS	Osthole 20,000 JPY/20 mg (WAKO)	Jya-syou-shi
Chlorogenic acid	C16H18O9	327-97-9		1: AcOEt/H2O/HCOOH (6:1:1), 2: UV (365 nm)	blue-white fluorescent	TLC (Identification)	LONICERAE FOLIUM CUM CAULIS	Chlorogenic Acid 54,600 JPY/ 50 mg (WAKO)	Nin-dou
Aconitine	C34H47NO11	302-27-2	1: ODS column (I.D. 4.6 mm x 15 cm), 2: 231 nm (aconotine, hypaconitine, mesaconitine), 254 nm (jesaconitine), 3: 40°C, 4: phosphate buffer solution for aconite root/tetrahydrofuran (183:17), adjust flow rate to elute mesaconitine at ca.31 min			HPLC (Puruty)	PROCESSI ACONITI RADIX, PROCESSI ACONITI RADIX PULVERATA	Aconitine Standard 39,500 JPY/50 mg (WAKO)	Bushi, Bushi-matsu
Jesaconitine	C35H49NO12	16298-90-1	1: ODS column (I.D. 4.6 mm x 15 cm), 2: 231 nm (aconotine, hypaconitine, mesaconitine), 254 nm (jesaconitine), 3: 40°C, 4: phosphate buffer solution for aconite root/tetrahydrofuran (183:17), adjust flow rate to elute mesaconitine at ca.31 min			HPLC (Puruty)	PROCESSI ACONITI RADIX, PROCESSI ACONITI RADIX PULVERATA		Bushi, Bushi-matsu
Hypaconitine	C33H45NO10	6900-87-4	1: ODS column (I.D. 4.6 mm x 15 cm), 2: 231nm (aconotine, hypaconitine, mesaconitine), 254 nm (jesaconitine), 3: 40°C, 4: phosphate buffer solution for aconite root/tetrahydrofuran (183:17), adjust flow rate to elute mesaconitine at ca.31 min			HPLC (Puruty)	PROCESSI ACONITI RADIX, PROCESSI ACONITI RADIX PULVERATA	Hypaconitine 48,000 JPY/20mg (WAKO)	Bushi, Bushi-matsu
Mesaconitine	C33H45NO11	2752-64-9	1: ODS column (I.D. 4.6 mm x 15 cm), 2: 231 nm (aconotine, hypaconitine, mesaconitine), 254 nm (jesaconitine), 3: 40°C, 4: phosphate buffer solution for aconite root/tetrahydrofuran (183:17), adjust flow rate to elute mesaconitine at ca.31 min			HPLC (Puruty)	PROCESSI ACONITI RADIX, PROCESSI ACONITI RADIX PULVERATA	Mesaconitine 48,000 JPY/20mg	Bushi, Bushi-matsu

Table 9

List of CRS in Korean Pharmacopoeia

List of CRS in Korean Pharmacopoeia (KP)

Compound	Purity (%)	IR (cm^{-1})	UV λmax nm (E1% 1cm)	mp	HPLC	TLC R_f value (1:Dev. solv., 2:Detect)	^{1}H-NMR	^{13}C-NMR	Available from	Reference Standard for	Applied to	References
Baicalin	>95	3385, 1728, 1662, 1611, 1575	277.2	210.4	ZORBX Eclipse XDB-C8 (150 X 4.6 mm), 275 nm, 1% Acetic acid : MeOH : AcCN (60:30:10)	0.17 [1: $CHCl_3$/ MeOH/H_2O (10:5:1), 2: p-anisaldehyde-H_2SO_4, 105°C, 5 min]	5.08 (1H, d, *J* = 7.1 Hz, H-1'), 6.99 (1H, s, H-3), 7.04 (1H, s, H-8), 7.63 (3H, m, H-3', 4', 5'), 8.07 (2H, m, H-2', 6'), 12.5 (1H, br s, -OH)	71.6 (C-4"), 73.0 (C-2"), 75.4 (C-5"), 75.7 (C-3"), 94.3 (C-8),100.4 (C-1"), 105.1 (C-3), 106.6 (C-10), 126.8 (C-2'), 126.8 (C-6'), 129.7 (C-3'), 129.7 (C-5'), 130.8 (C-1'), 131.1 (C-6), 132.7 (C-4'), 146.9 (C-5), 149.8 (C-9), 151.5 (C-7), 164.4 (C-2), 170.3 (C-6"), 182.9 (C-4)	Reference Standard Prepared by KFDA	TLC (identification), HPLC (component determination)	SCUTELLARIAE RADIX, SCUTELLARIAE RADIX PULVERATA	*J. Chinese Chem. Sci* ., **47**, 247-251 (2000)
Paeoniflorin	>95	3414, 1713, 1280, 1076	231.6		YMC pack ODS-A C18 (10 mm x 250 mm), 220 nm, AcCN/ H_2O (3:7)	0.4 [1:$CHCl_3$/ MeOH (5:1), 2: p-anisaldehyde-H_2SO_4, 105°C, 5 min]	1.43 (3H, s, H-10), 1.90 (1H, d, *J* = 12.4 Hz, H-3), 2.04 (1H, d, *J* = 11.0 Hz, H-6), 2.28 (1H, d, *J* = 12.4 Hz, H-3), 2.59 (1H, dd, *J* = 11.0, 6.8 Hz, H-6), 2.66 (1H, d, *J* = 6.8 Hz, H-5), 4.60 (1H, d, *J* = 7.6 Hz, H-1'), 4.81 (2H, s, H-8), 5.49 (1H, s, H-9) 7.57 (2H, t, *J* = 7.3 Hz, H-3", 5"), 7.70 (1H, t, *J* = 7.3 Hz, H-4"), 8.13 (2H, d, *J* = 8.5 Hz, H-2", 6")	19.6 (C-10), 23.4 (C-6), 44.0 (C-5), 44.5 (C-3), 61.7 (C-8), 62.9 (C-6'), 71.7 (C-4'), 72.2 (C-7), 75.0 (C-2'), 77.9 (C-5'), 78.0 (C-3'), 87.2 (C-2), 89.3 (C-1), 100.2 (C-1'), 102.3 (C-9), 106.4 (C-4), 129.6 (C-3", 5"), 130.7 (C-2".6"), 131.2 (C-1"), 134.4 (C-4"), 168.0 (C-7")	Reference Standard Prepared by KFDA	TLC (identification), HPLC (component determination)	Paeoniae Radix	*IYAKUHIN KENKYU* , **29** (10), 725-729 (1998)
Berberine chloride	>95	3400, 1600, 1250	420, 345, 263, 228		TSK-gel ODS-80Ts (4.6 mm x 150 mm), Column temp 40°C, 345 nm	0.5 [1:$CHCl_3$/ MeOH (5:1), 2: p-anisaldehyde-H_2SO_4, 105°C, 5 min]	3.24 (H-5), 4.07 (10-OMe), 4.19 (9-OMe), 4.88 (H-6), 6.07 (-OCH_2O-), 6.83 (H-4), 7.39 (H-1), 7.88 (H-12), 7.90 (H-11), 8.34 (H-13), 9.54 (H-8)	27.2 (C-5), 56.3 (C-6), 56.7 (10-OMe), 61.9 (9-OMe), 102.3 (-OCH_2O-), 105.1 (C-1), 108.5 (C-4), 119.8 (C-1a), 120.2 (C-13), 121.8 (C-8a), 123.1 (C-12), 126.9 (C-11), 129.8 (C-4a), 133.5 (C-12a), 138.2 (C-13a), 144.1 (C-8), 144.1 (C-9), 148.6 (C-2), 150.5 (C-10), 151 (C-3)	Reference Standard Prepared by KFDA	TLC (identification), HPLC (Assay)	PHELLODENDRI Bark, COPTIDIS RHIZOMA	*Bull. Natl. Inst. Health Sc* ., **119** , 97-100 (2001); *Phytochemistry* , **28**, 2833-2839 (1989)

Loganin	>95	3431, 1711, 1074	237	220-222	YMC pack ODS-A C18 (10 mm x 250 mm), 254 nm, AcCN/H_2O (3:7)	0.17 [1:$CHCl_3$/ MeOH (5:1), 2: p-anisaldehyde-H_2SO_4, 105°C, 5min]	1.07 (3H, d, *J* = 6.8 Hz, H-10), 1.62 (1H, m, H-6a), 1.87 (1H, m, H-8), 2.03 (1H, m, H-6b), 2.23 (1H, m, H-9), 3.09 (1H, m, H-5), 3.17-3.39 (4H, m, H-2', 3', 4', 5'), 3.66 (1H, dd, *J* = 11.8, 6.0 Hz, H-6'a), 3.89 (1H, dd, *J* = 11.8, 5.2 Hz, H-6'b), 4.04 (1H, t, *J* = 4.4 Hz, H-7), 4.64 (1H, d, *J* = 8.0 Hz, H-1'), 5.26 (1H, d, *J* = 4.4 Hz, H-1), 7.38 (1H, s, H-3)	13.4 (C-10), 32.2 (C-5), 42.2 (C-8), 42.6 (C-6), 46.6 (C-9), 62.1 (C-6'), 71.6 (C-4'), 74.7 (C-7), 75.1 (C-2'), 78.0 (C-5'), 78.3 (C-3'), 97.7 (C-1), 99.9 (C-1'),114.1 (C-4), 152.1 (C-3), 169.6 (C-11)	Reference Standard Prepared by KFDA	TLC (identification), HPLC (component determination)	CORNI FRUCTUS	*Fitoterapia* **71**, 420-424 (2000)
Hesperidin	>95	3432, 1646, 1096	336, 284, 204	272-274	YMC pack ODS-A C18 (10 mm x 250 mm), 280 nm, AcCN/ H_2O (2:8)	0.45 [1:$CHCl_3$/ MeOH/H_2O (10:5:1), 2: p-anisaldehyde-H_2SO_4, 105°C, 5 min]	1.09 (1H, d, *J* = 6 Hz, H-6'''), 3.77 (3H, s, -OMe), 4.52 (1H, brs, H-1'''), 5.51 (1H, dd, *J* = 9,3 Hz, H-2), 5.51 (1H, d, *J* = 9 Hz, H-1''), 6.13 (2H, brs, H-6, 8), 6.92 (3H, brs, H-2', 5', 6'), 11.86 (1H, brs, -OH)	17.9 (C-6'''), 55.5 (OMe), 65.7 (C-6''), 68.0 (C-5'''), 69.3 (C-3'''), 69.9 (C-2'''), 70.3 (C-4''), 71.7 (C-4'''), 72.6 (C-2''), 75.2 (C-5''), 75.7 (C-3''), 78.1 (C-2), 95.4 (C-8), 96.1 (C-6), 99.2 (C-1''), 100.2 (C-1'''), 103.0 (C-10), 111.7 (C-5'), 113.6 (C-2'), 117.9 (C-6'), 130.4 (C-1'), 145.8 (C-3'), 147.6 (C-4'), 162.0 (C-9), 162.3 (C-5), 164.6 (C-7), 196.4 (C-4)	Reference Standard Prepared by KFDA	TLC (identification), HPLC (component determination)	AURANTII NOBILIS PERICARPIURN	*Phytochemistry,* **37**, 1463-1466 (1994)
Puerarin	>95	3428, 1630, 1515, 1445, 1396, 1257, 1057, 889, 835, 631	249, 301	187	Curosil PFP (250 X 4.6 mm), 254 nm, AcCN : H_2O (15:85)	0.50 [1: $CHCl_3$/ MeOH/H_2O (6:4:1), 2: UV (254nm), p-anisaldehyde-H_2SO_4, 105°C, 10min]	4.81 (1H), 6.80 (2H), 6.99 (1H), 7.40 (2H), 7.94 (1H), 8.34 (1H)	70.6 (CH_2), 70.8 (CH), 73.3 (CH), 73.5 (CH), 78.8 (CH), 81.9 (CH), 112.7 (C), 115.0 (CH), 115.2 (CH), 115.4 (CH), 116.7 (C), 122.6 (C), 123.1 (C), 126.3 (CH), 130.1 (CH), 130.1 (CH), 144.8 (CH), 144.8 (CH), 152.7 (C), 157.2 (C), 161.2 (C), 175.0 (C)	Reference Standard Prepared by KFDA	TLC (identification), HPLC (component determination)	Pueraria Root	*Tetrahedron* , **56**, 8915-8920 (2000)
Magnolol	>95	3267, 2901, 1639, 1497, 1417, 1226, 1114, 994, 913, 821, 789, 643	210, 371	101.5-102	Curosil PFP (250 X4.6 mm), 220 nm, AcCN : H_2O (50:50)	0.30 [1: Hexane /EtOAc (5:1), 2: UV (254nm), p-anisaldehyde-H_2SO_4, 105°C, 10min]	3.35 (4H), 5.07 (2H), 5.11 (2H), 5.65(2H), 5.95 (2H), 6.93 (2H), 7.08 (2H), 7.12 (2H)	39.3 (CH_2), 115.8 (CH_2), 116.6 (CH), 123.7 (C), 129.9 (CH), 131.1 (CH), 133.2 (C), 137.5 (CH), 151.1 (C)	Reference Standard Prepared by KFDA	TLC (identification), HPLC (component determination)	Magnolia Bark	*Chem. Pharm. Bull* , **39**, 2024-2036 (1991)

Schizandrin	>95	3525, 2936, 1594, 1490, 1457, 1401, 1321, 1274, 1237, 1197, 1161, 1105, 1010	217, 250	128-129	Curosil PFP (250 X 4.6 mm), 220 nm, AcCN : H_2O (50:50)	0.23 [1: n-Hexane/EtOAc (5:1), 2: UV (254 nm), p-anisaldehyde-H_2SO_4, 105°C, 10min]	0.81 (3H), 1.25 (3H), 1.86 (2H), 2.34 (1H), 2.35 (1H), 2.62 (1H), 2.65 (1H), 3.56 (3H), 3.58 (3H), 6.53 (1H), 6.60 (1H)	15.8 (CH_3), 29.8 (CH_3), 34.1 (CH_2), 40.7 (CH_2), 41.7 (CH), 55.8 (CH_3), 55.9 (CH_3), 60.5 (CH_3), 60.6 (CH_3), 60.9 (CH_3), 71.7 (C), 109.8 (CH), 110.3 (CH), 122.6 (C), 124.1 (C), 131.7 (C), 131.8 (C), 140.1 (C), 140.7 (C), 151.5 (C), 151.8 (C), 152.0 (C), 152.3 (C)	Reference Standard Prepared by KFDA	TLC (identification), HPLC (component determination)	Scizandra Fruit	*Phytochemistry* , **27**, 569-573 (1988)
Ephedrine HCl	>95	3325, 2971, 1754, 1589, 1452, 1391, 1237, 1113, 1047, 989, 751, 700	202	218	Curosil PFP (250 X 4.6 mm), 220 nm, 10 mM ammonium acetate : AcCN (50:50)	0.31 [1: $CHCl_3$/ MeOH/H_2O (6:5:1), 2: UV (365 nm)]	1.06 (3H), 2.77 (3H), 3.43 (1H), 5.38 (1H), 7.11-7.67 (5H)	10.8 (CH_3), 32.8 (CH_3), 62.2 (CH), 72.5 (CH), 127.8 (CH), 129.7 (CH), 130.3 (CH), 142.2 (C)	Reference Standard Prepared by KFDA	TLC (identification), HPLC (component determination)	Ephedra Herb	*Planta Med.,* **54**, 69-70 (1988)
Amygdarin	>95	3409, 2890, 1629, 1454, 1363, 1067. 1027, 891, 761, 702, 618, 405	207	214	Intersil ODS-3 (150 X 4.6 mm), 254 nm, AcCN : H_2O (15:85)	0.73 [1: $CHCl_3$/ MeOH/H_2O (6:4:1), 2: UV (254 nm), *p* -anisaldehyde-H_2SO_4, 105°C, 10min]	3.15-4.06 (12H), 4.42 (1H), 4.42 (1H), 5.72 (1H), 7.34 (3H), 7.41 (2H)	61.6 (CH_2), 69.1(CH_2), 69.6 (CH), 70.1 (CH), 70.5 (CH), 73.7 (CH), 74.1 (CH), 76.3 (CH), 76.3 (CH), 76.5 (CH), 76.8 (CH), 102.5 (CH), 103.7 (CH), 119.4 (C), 128.4 (CH), 128.4 (CH), 130.2 (CH), 130.2 (CH), 131.2 (CH), 133.5 (C)	Reference Standard Prepared by KFDA	TLC (identification), HPLC (component determination)	Apricot Kernel	*Phytochemistry* , **29**, 1179-1181 (1990)
tanshinone IIA	>95			215-216	ODS column (I.D.4.6 mm x 20 cm), 268 nm, Column temp 20°C, CH_3CN/H_2O (75:25), flow rate 1.0ml/min	0. 5 [1: Hexane /EtOAc (4:1), 2: UV (254 nm), dil. H_2SO_4, 105°C, 10 min]	7.63, 7.54 (2H), 7.22 (1H), 3.18 (2H), 2.25 (3H), 1.18-1.63 (4H), 1.31 (6H)	29.9 (C-1), 19.1 (C-2), 37.8 (C-3), 34.6 (C-4), 144.4 (C-5), 133.4 (C-6), 120.2 (C-7), 127.4 (C-8), 126.5 (C-9), 150.1 (C-10), 183.6 (C-11), 175.7 (C-12),119.9 (C-13), 161.7 (C-14), 141.3 (C-15), 121.1 (C-16), 8.8 (C-17), 31.8 (C-18), 31.8 (C-19)	Reference Standard Prepared by KFDA	TLC (identification)	SALVIAE MILTIORRHIZAE RADIX	*Kor. J. Pharmacogy,* **30**(2), 158-162 (1999)
Evodiamine	>95		268, 282, 291	278	ODS column (4.6 mm x 15 cm), 254 nm, Column temp 25°C, CH_3CN/ H_2O (1:1), flow rate 1.0 ml/min	0.45 [1: Hexane /EtOAc (3:2), 2: UV (254nm), dil. dragendorff, 105°C, 10 min]			Reference Standard Prepared by KFDA	TLC (identification)	EVODIAE FRUCTUS	

Table 10

List of CRS in Vietnamese Pharmacopoeia

List of CRS in Vietnamese Pharmacopoeia (VP)

Compound	Purity (%)	UV λ max nm (E 1%, 1 cm)	mp	HPLC	TLC Rf value (1:Dev. solv., 2:Detect)	Available from	Reference Standard for	Applied to	GC	Specific Optical Rotation
Artemisinin	98.60% (as is)	292 nm (592.4)	151-154	Lichrosorb RP 18 (ID. 250 x 4 mm), 260 nm, MeOH/H_2O (45:55) add 0.01M NaH_2PO_4 and 0.01M Na_2HPO_4	0.45 [1: Toluen/ A_cOH (95:5), 2: In day light or UV 366 nm]	Prepared by National Institute of Drug Quality Control (NIDQC); 100mg 100,000 VND	Identification (IR, TLC) Assay (UV)			
Atropin sulfat	99.56% (Anhydrous)	251 nm (4.9) 257 nm (5.8) 263 nm (4.4)	135-140			ASEAN RS; 200mg 40 USD	Identification (IR) Assay (UV)	Flos Daturae Folium Daturae		
Ouabain	86.89%	495 nm		Test for related substances, RP18, Lichrospher (250 x 4mm), 220 nm, H_2O/ACN (90:10)			Identification (IR) Assay (UV)			
Cafein	99.77% (Anhydrous)		237	RP18 Lichrosorb (250 x 4 mm), 254 nm, H_2O/ACN/1M KH_2PO_4 /1M CH_3COOH	Test for related substances, $CHCl_3$/ MeOH (3:2), UV 254 nm	Prepared by NIDQC; 200 mg 100,000 VND	Identification (IR) Assay (UV, HPLC)			
Ephedrin HCL	99.97% (Anhydrous)	251 nm (7.29) 257 nm (9.14) 263 nm (7.03)	219-221			ASEAN RS; 200mg 40 USD	Identification (IR)	Herba Ephedrae		
Reserpin	99.81% (Anhydrous)					ASEAN RS; 200mg 40 USD	Identification (IR)	Cortex et Radix Rauvolfiae		
Rotundin	99.4% (Anhydrous)	281 nm (150.21)	144		$CHCl_3$/EtOH/ Con. NH_4OH (98:2:0.5)	Prepared by NIDQC; 200 mg 100,000 VND	Identification (TLC) Assay (UV)	Tuber Stephaniae glabrae		
Menthol	0.9976					Prepared by NIDQC; (Available in the near future)		Herba Menthae	OVI-G 43 Col. col. temp. 180℃; FID 260℃; SPL 240℃; 1.7 ml/min	-50.55
Cineol	0.9946					Prepared by NIDQC; (Available in the near future)		Herba Adenosmatis indiani; Herba Adenosmatis caerulei; Herba Adenosmatis bracteosi	OVI-G 43 Col. col. temp 120 -180℃; FID 240℃; SPL 220℃; 1.7 ml/min	

Table 11

List of Reference of Medicinal Plant Materials (RMPM) in CP

List of Reference of Medicinal Plant Materials (RMPM) in CP

RMPM	Scientific name	Famlily
Benzoinum	*Styrax tonkinensis* (Pierre) Craib ex Hart.	Styracaceae
Bulbus Allii Macrostemi	*Allium macrostemon* Bre., *A. chinensis* G. Don	Liliaceae
Bulbus Fritillariae Cirrhosae	*Fritillaria cirrhosa* D. Don, *F. unibracteata* Hsiao et K. C. Hsia, *F. Przewalskii* Maxim., *F. delavayi* Franch.	Liliaceae
Bulbus Fritillariae Hupehensis	*Fritillaria hupehensis* Hsiao et K. ZC. Hsia	Liliaceae
Bulbus Fritillariae Pallidiflorae	*Fritillaria walujewii* Regel, *P. Pallidiflora* Schrenk	Liliaceae
Bulbus Fritillariae Thunbergii	*Fritillaria thunbergii* Miq.	Liliaceae
Bulbus Fritillariae Ussuriensis	*Fritillaria ussuriensis* Maxim.	Liliaceae
Bulbus Lilii	*Lilium lancifolium* Thunb., *L. brownii* F. E. Brown var. *viridulum* Baker, *L. pumilum* DC.	Liliaceae
Calyx Seu Fructus Physalis	*Physalis alkekengi* L. var. *franchetii* (Mast.) Makino	Solanaceae
Caulis Erycibers	*Erycibe schmidtti* Craib	Convolvulaceae
Caulis Piperis Kadsurae	*Piper kadsura* (Choisy) Ohwi	Piperaceae
Caulis Polygoni Multiflori	*Polygonum multiflorum* Thunb.	Polygonaceae
Caulis Sargentodoxae	*Sargentodoxa cuneata* (Oliv.) Rehd. Et Wils.	Sargentodoxaceae
Cornu Cervi Pantotrichum	*Cervus nippon* Temminck, *C. elaphus* Linnaeus	Cervidae
Cornu Saigae Tataricae	*Saiga tatarica* Linnaeus	Bovidae
Cortex Albizae	*Albizia julibrissin* Durazz.	Leguminosae
Cortex Ailanthi	*Ailanthus altissima* (Mill.) Swingle	Simaroubaceae
Cortex Dictamni	*Dictamnus dasycarpus* Turcz.	Rutaceae
Cortex Meliae	*Melia toosendan* Sieb. et Zucc., *M. azedarach* L.	Meliaceae
Cortex Mori	*Morus alba* L.	Moraceae
Cortex Moutan	*Paeonia suffruticosa* Andr.	Paeoniaceae
Cortex Phellodendri Amurensi	*Phellodendron amurense* Rupr.	Rutaceae
Cortex Phellodendri Chinensi	*Phellodendron chinense* Schneider	Rutaceae
Cortex Pseudolaricis	*Pseudolarix kaempferi* Gord.	Pinaceae
Eupolyphaga Seu Steleophaga	*Eupolyphaga sinensis* Walker, *Steleophaga plancyi* (Boleny)	Corydiidae
Exocarpium Citri Grandis	*Citrus grandis* 'Tomentosa', *C. grandis* (L.) Osbeck	Rutaceae
Flos Albiziae	*Albizia julibrissin* Durazz.	Leguminosae
Flos Buddlejae	*Buddleja officinalis* Maxim.	Buddlejaceae
Flos Campais	*Campsis grandiflora* (Thunb.) K. Schum., *C. radicans* (L.) Seem.	Bignoniaceae
Flos Carthami	*Carthamus tinctorius* L.	Compositae
Flos Celostae Cristatae	*Celosia cristata* L.	Amaranthaceae
Flos Chrysanthemi Indici	*Chrysanthemum Indicum* L.	Compositae
Flos Eriocauli	*Eriocaulon buergerianum* Koern.	Eriocaulaceae
Flos Genkwa	*Daphne genkwa* Sieb. et Zucc.	Thymelaeaceae
Flos Inulae	*Inula japonica* Thunb., *I. britannica* L.	Compositae
Flos Sophorae	*Sophora japonica* L.	Leguminosae
Folium Apocyni Veneti	*Apocynum venetum* L.	Apocynaceae
Folium Eucommiae	*Eucommia ulmoides* Oliv.	Eucommiaceae
Folium Ginko	*Ginko biloba* L.	Ginkgoaceae
Folium Mori	*Morus alba* L.	Moraceae
Folium Perillae	*Perilla frutescens* (L.) Britt.	Labiatae
Folium Rhododendri Daurici	*Rhododendron dauricum* L.	Ericaceae
Folium Sennae	*Cassia angustifolia* Vahl, *C. acutifolia* Delile	Leguminosae
Folium Victicis Negundo	*Vitex negundo* L. var. *cannabifolia* (Sieb. et Zucc.) Hand. -Mazz.	Verbenaceae
Fructus Alpiniae Oxyphyllae	*Alpinia oxyphylla* Miq.	Zingiberaceae
Fructus Anisi Stellati	*Illicium verum* Hook. f.	Illiciaceae
Fructus Arctii	*Arctium lappa* L.	Compositae
Fructus Aristolochiae	*Aristolochia contorta* Bge., *A. debilis* Sieb. et Zucc.	Aristolochiaceae
Fructus Aurantii Immaturus	*Citrus aurantium* L., *C. sinensis* Osbeck	Rutaceae
Fructus Cannabis	*Cannabis sativa* L.	Moraceae
Fructus Carotae	*Daucus carota* L.	Umbelliferae
Fructus Carpesii	*Carpesium abrotanoides* L.	Compositae
Fructus Chaenomelis	*Chaenomeles speciosa* (Sweet) Nakai	Rosaceae
Fructus Chebulae	*Terminalia chebula* Retz., *T. chebula* Retz. var. *tomentella* Kurt.	Combretaceae
Fructus Citri	*Citrus medica* L., *C. wilsonii* Tanaka	Rutaceae
Fructus Citri Sarcodactylis	*Citrus medica* L. var. *sarcodactlis* Swingle	Rutaceae
Fructus Cnidii	*Cnidium monnieri* (L.) Cuss.	Umbelliferae

RMPM	Scientific name	Famlily
Fructus Cratagi	*Crataegus pinnatifida* Bge. var. *major* N. E. Br., *C. pinnatifida* Bge.	Rosaceae
Fructus Evodiae	*Evodia rutaecarpa* (Juss.) Benth., *E. rutaecarpa* (Juss.) Benth. var. *officinalis* (Dode) Huang, *E. rutaecarpa* (Juss.) Benth. var. *bodinieri* (Dode) Huang	Rutaceae
Fructus Forsythiae	*Forsythia suspensa* (Thunb.) Vahl	Oleaceae
Fructus Galangae	*Alpinia galanga* Willd.	Zingiberaceae
Fructus Gardeniae	*Gardenia jasminoides* Ellis	Rubiaceae
Fructus Hordei Germinatus	*Hordeum vulgare* L.	Gramineae
Fructus Jujuae	*Ziziphus jujuba* Mill.	Rhamnaceae
Fructus Litseae	*Litsea cubeba* (Lour.) Pers.	Lauraceae
Fructus Lycii	*Lycium barbarum* L.	Solanaceae
Fructus Momordicae	*Momordica grosvenori* Swingle	Cucurbitaceae
Fructus Mume	*Prunus mume* (Sieb.) Sieb. et Zucc.	Rosaceae
Fructus Piperis Longi	*Piper longum* L.	Piperaceae
Fructus Schisandrae Chinensis	*Schisandra chinensis* (Turcz.) Baill.	Schisandraceae
Fructus Schisandra Sphenantherae	*Schisandra sphenanthera* Rehd. et Wils.	Schisandraceae
Fructus Toosendan	*Melia toosendan* Sieb. et Zucc.	Meliaceae
Fructus Tribuli	*Tribulus terrestris* L.	Zygophyllaceae
Fructus Xanthii	*Xanthium sibiricum* Patr.	Compositae
Galla Chinensis	*Rhus chinensis* Mill., *R. potaninii* Maxim., *R. punjabensis* Stew. var *sinica* (Diels) Rehd. et Wils., *Melaphis chinensis* (Bell) Baker	Anacardiaceae
Ganoderma	*Ganoderma lucidum* (Leyss ex Fr.) Karst., *G. sinense* Zhao, Xu et Zhang	Ganodermataceae
Herba Andrographitis	*Andrographis paniculata* (Burm. f.) Ness	Acanthaceae
Herba Artemisiae Annuae	*Artemisia annua* L.	Compositae
Herba Cichorii Radix Cichori	*Cichorium glandulosum* Boiss. et Huet, *C. intybus* L.	Compositae
Herba Cirsii	*Cirsium setosum* (Willd.) MB.	Compositae
Herba Cirsii Japonici	*Cirsium japonucum* Fisch. ex DC.	Compositae
Herba Cistanches	*Cistanche deserticola* Y. C. Ma, *C. tubulosa* (Schrenk) Wight	Orobanchaceae
Herba Corydalis Bungeanae	*Corydalis bungeana* Turcz.	Papaveraceae
Herba Desmodii Styracifolii	*Desmodium styracifolium* (Osb.) Merr.	Leguminosae
Herba Ecliptae	*Eclipta prostrata* L.	Compositae
Herba Eupatorii	*Eupatorium fortunei* Turcz.	Compositae
Herba Hyperici Perforati	*Hypericum perforatum* L.	Guttiferae
Herba Lamiophlomis	*Lamiophlomis rotata* (Benth.) Kudo	Labiatae
Herba Leonuri	*Leonurus japonicus* Houtt.	Labiatae
Herba Lobeliae Chinensis	*Lobelia chinensis* Lour.	Campanulaceae
Herba Lycopodii	*Lycopodium japonicum* Thunb.	Lycopodiaceae
Herba Potentillae Chinensis	*Potentilla chinensis* Ser.	Rosaceae
Herba Sarcandrae	*Sarcandra glabra* (Thunb.) Nakai	Chloranthaceae
Herba Saururi	*Saururus chinensis* (Lour.) Baill.	Saururaceae
Herba Saussureae Involucratae	*Saussurea involucratae* (Kar. et Kir.) Sch. Bip.	Compositae
Herba Schizonepetae	*Schizonepeta tenuifolia* Briq.	Labiatae
Herba Selaginellae	*Selaginella tamariscina* (Beauv.) Spring, *S. pulvinata* (Hook. Et Grev.) Maxim.	Selaginellaceae
Herba Siegesbeckiae	*Siegesbeckia orientalis* L., *S. pubescens* Makino, *S. glabrescens* Makino	Compositae
Herba Swertiae Mileensis	*Swertia mileensis* T. N. Ho et W. L. Shih	Gentianaceae
Herba Verbenae	*Verbena officinalis* L.	Verbenaceae
Herba Violae	*Viola yedoensis* Makino	Violaceae
Herba Visci	*Viscum coloratum* (Komar.) Nakai	Santalaceae
Lasiosphaera Seu Calvatia	*Lasiosphaera fenzlii* Reich., *Calvatia gigantea* (Batsch ex Pers.) Lloyd, *C. lilacina* (Mont. et Berk.) Lloyd.	Lycoperdaceae
Lignum Dalbergiae Odorferae	*Dalbergia odorifera* T. Chen	Leguminosae
Lignum Sappan	*Caesalpinia sappan* L.	Leguminosae
Margarita	*Pteria martensii* (Dunker), *Hyriopsis cumingii* (Lea), *Cristaria plicata* (Leach)	Peteriidae
Medulla Junci	*Juncus effusus* L.	Juncaceae
Pericarpium Citri Reticulatae	*Citrus reticulata* Blanco	Rutaceae
Pericarpium Papaveris	*Papaver somniferum* L.	Papaveraceae
Pericarpium Trichosanthis	*Trichosanthes kirilowii* Maxim., *T. rosthornii* Harms	Cucurbitaceae
Pericarpium Zanthoxyli	*Zanthoxylum schinifolium* Sieb. Et Zucc., *Z. bungeanum* Maxim.	Rutaceae
Pheretima	*Pheretima aspergillum* (E. Perrier), *P. vulgaris* Chen, *P. guillelmi* (Michaelsen), *P. pectinifera* Michaelsen	Megascolecidae
Poria	*Poria cocos* (Schw.) Wolf	Polyporaceae
Radix Adenophorae	*Adenophora tetraphylla* (Thunb.) Fisch., *A. stricta* Miq.	Campanulaceae

RMPM	Scientific name	Famlily
Radix Ampelopsis	*Ampelopsis japonica* (Thunb.) Makino	Vitaceae
Radix Angelicae Dahuricae	*Angelica dahurica* (Fisch. ex Hoffm.) Benth. et Hook. f., *A. dahurica* (Fisch. ex Hoffm.) Benth. et Hook. f. var. *formosana* (Boiss.) Shan et Yuan	Umbelliferae
Radix Angelicae Pubescentis	*Angelica pubescens* Maxim. f. *biserrata* Shan et Yuan	Umbelliferae
Radix Angelicae Sinensis	*Angelica sinensis* (Oliv.) Diels	Umbelliferae
Radix Astragali	*Astragalus membranaceus* (Fisch.) Bge. var. *mongholicus* (Bge.) Hsiao, *A. membranaceus* (Fisch.) Bge.	Leguminosae
Radix Aucklandiae	*Aucklandia lappa* Decne.	Compositae
Radix Bupleuri	*Bupleurum chinense* DC. *B. scorzonerifolium* Willd.	Umbelliferae
Radix Changii	*Changium smyrnioides* Wolff	Umbelliferae
Radix Condonopsis	*Condonopsis pilosula* (Franch.) Nannf., *C. pilosula* Nannf. var. *modesta* (Nannf.) L. T. Shen, *C. tangshen* Oliv.	Campanulaceae
Radix Curcumae	*Curcuma wenyujin* Y. H. Chen et C. Ling, *C. longa* L., *C. kwangsiensis* S. G. Lee et C. F. Liang, *C. phaeocaulis* Val.	Zingiberaceae
Radix Dipsaci	*Dipsacus asperoides* C. Y. Chng et T. M. Ai	Dipsacaceae
Radix Et Rhizoma Asteris	*Aster tataricus* L. f.	Compositae
Radix Et Rhizoma Cynanchi Atrati	*Cynanchum atratum* Bge., *C. versicolor* Bge.	Asclepiadaceae
Radix Et Rhizoma Notoginseng	*Panax notoginseng* (Burk.) F. H. Chen	Araliaceae
Radix Et Rhizoma Rhei	*Rheum palmatum* L., *R. tanguticum* Maxim. ex Balf., *R. officinale* Baill.	Polygonaceae
Radix Et Rhizoma Rubiae	*Rubia cordifolia* L.	Rubiaceae
Radix Et Rhizoma Salviae Miltiorrhizae	*Salvia miltiorrhiza* Bge.	Labiatae
Radix Et Rhizoma Seu Caulis Acanthopanacis Senticosi	*Acanthopanax senticosus* (Rupr. et Maxim.) Harms	Araliaceae
Radix Et Rhizoma Ginseng	*Panax ginseng* C. A. Mey.	Araliaceae
Radix Et Rhizoma Ginseng Rubra	*Panax ginseng* C. A. Mey.	Araliaceae
Radix Et Rhizoma Glycyrrhizae	*Glycyrrhiza uralensis* Fisch. *G. inflata* Bat. *G. glabra* L.	Leguminosae
Radix Gentianae Macrophyllae	*Gentiana Macrophylla* Pall., *G. straminea* Maxim., *G. crassicaulis* Duthie ex Burk., *G. dahurica* Fisch.	Gentianaceae
Radix Hedysari	*Hedysarum polybotrys* Hand. -Mazz.	Leguminosae
Radix Inulae	*Inula helenium* L.	Compositae
Radix Kansui	*Euphorbia kansui* T. N. Liou ex T. P. Wang	Euphorbiaceae
Radix Knoxiae	*Knoxia valerianoides* Thorel et Pitard	Rubiaceae
Radix Linderae	*Lindera aggregata* (Sims) Kosterm.	Lauraceae
Radix Morindae Officinalis	*Morinda officinalis* How	Rubiaceae
Radix Ophiopogonis	*Ophiopogon japonicus* (Thunb.) Ker-Gawl.	Liliaceae
Radix Paeoniae Alba	*Paeonia lactiflora* Pall.	Paeoniaceae
Radix Paeoniae Rubra	*Paeonia lactiflora* Pall., *P. veitchii* Lynch	Paeoniaceae
Radix Panacis Quinquefolii	*Panax quinquefolium* L.	Araliaceae
Radix Platycodonis	*Platycodon grandiflorum* (Jacq.) A. DC.	Campanulaceae
Radix Polygalae	*Polygala tenuifolia* Willd., *Polygala sibirica* L.	Polygalaceae
Radix Polygoni Multiflori	*Polygonum multiflorum* Thunb.	Polygonaceae
Radix Psedostellariae	*Psedostellaria heterophylla* (Miq.) Pax ex Pax et Hoffm.	Fagaceae
Radix Rehmanniae	*Rehmannia glutinosa* Libosch.	Scrophulariaceae
Radix Rhapontici	*Rhaponticum uniflorum* (L.) DC.	Compositae
Radix Saposhnikoviae	*Saposhnikovia divaricata* (Turcz.) Schischk.	Umbelliferae
Radix Scrophulariae	*Scrophularia ningpoensis* Hemsl.	Scrophulariaceae
Radix Scutellariae	*Scutellaria baicalensis* Georgi	Labiatae
Radix Vladimiriae	*Vladimiria souliei* (Franch.) Ling, *V. souliei* (Franch.) Ling var. *cinerea* Ling	Aristolochiaceae
Radix Zanthoxyli	*Zanthoxylum nitidum* (Roxb.) DC.	Rutaceae
Ramulus Et Folium Picrasmae	*Picrasma quassioides* (D. Don) Benn.	Simaroubaceae
Rhizoma Acori Calami	*Acorus calamus* L.	Araceae
Rhizoma Acori Tatarinowii	*Acorus tatarinowii* Schott	Araceae
Rhizoma Alpiniae Officinarum	*Alpinia officinarum* Hance	Zingiberaceae
Rhizoma Atractylodis	*Atractylodes lancea* (Thunb.) DC. *A. chinensis* (DC.) Koidz.	Compositae
Rhizoma Atractylodis Macrocephalae	*Atractylodes macrocephala* Koidz.	Compositae
Rhizoma Belamcandae	*Belamcanda chinensis* (L.) DC.	Iridaceae
Rhizoma Bletillae	*Bletilla striata* (Thunb.) Reichb. f.	Orchidaceae
Rhizoma Chuanxiong	*Ligusticum chuanxiong* Hort.	Umbelliferae
Rhizoma Coptidis	*Coptis chinensis* Franch., *C. deltoidea* C. Y. Cheng et Hsiao, *C. teeta* Wall.	Ranunculaceae
Rhizoma Corydalis	*Corydalis yanhusuo* W. T. Wang	Papaveraceae
Rhizoma Curcumae	*Curcuma phaeocaulis* Val., *C. kwangsiensis* S. G. Lee et C. F. Liang, *C. wenyujin* Y. H. Chen et C. Ling	Zingiberaceae

RMPM	Scientific name	Famlily
Rhizoma Curcumae Longae	*Curcuma longa* L.	Zingiberaceae
Rhizoma Cyperi	*Cyperus rotundus* L.	Cyperaceae
Rhizoma Dioscoreae Septemlobae	*Dioscorea septemloba* Thunb., *D. futschauensis* Uline ex R. Kunth	Dioscoreaceae
Rhizoma Dryopteris Crassirhizomae	*Dryopteris Crassirhizoma* Nakai	Dryopteridaceae
Rhizoma Et Radix Ligustici	*Ligusticum sinense* Oliv., *L. jeholense* Nakai et Kitag.	Umbelliferae
Rhizoma Et Radix Notopterygii	*Notopterygium incisum* Ting ex H. T. Chang, *N. forbesii* Boiss.	Umbelliferae
Rhizoma Et Radix Polygoni Cuspidati	*Polygonum cuspidatum* Sieb. et Zucc.	Polygonaceae
Rhizoma Fagopyri Dibotryis	*Fagopyrum dibotrys* (D. Don) Hara	Polygonaceae
Rhizoma Gastrodiae	*Gastrodia elata* Bl.	Orchidaceae
Rhizoma Iridis Tectori	*Iris tectorum* Maxim.	Iridaceae
Rhizoma Menispermi	*Menispermum dauricum* DC.	Menispermaceae
Rhizoma Paridis	*Paris polyphylla* Smith var. *yunnanensis* (Franch.) Hand. -Mazz., *P. polyphylla* Smith var. *chinensis* (Franch.) Hara	Liliaceae
Rhizoma Phragmitis	*Phragmites communis* Trin.	Gramineae
Rhizoma Picrorhizae	*Picrorhiza scrophulariiflora* Pennell	Scrophulariaceae
Rhizoma Sparganii	*Sparganium stoloniferum* Buch. -Ham.	Sparganiaceae
Rhizoma Wenyujim Concisa	*Curcuma wenyujin* Y. H. Chen et C. Ling,	Zingiberaceae
Rhizoma Zingiberis	*Zingiber officinale* Rosc.	Zingiberaceae
Sanguis Draxonis	*Daemonorops draco* Bl.	Arecaceae
Semen Arecae	*Areca catechu* L.	Arecaceae
Semen Cassiae	*Cassia obtusifolia* L., *C. tora* L.	Leguminosae
Semen Coicis	*Coix lacryma-jobi* L. var. *mayuen* (Roman.) Stapf	Gramineae
Semen Myristicae	*Myristica fragrans* Houtt.	Myristicaceae
Semen Nelumbinis	*Nelumbo nucifera* Gaertn.	Nymphaeaceae
Semen Nigellae	*Nigella glandulifera* Freyn	Ranunculaceae
Semen Pharbitidis	*Pharbitis nil* (L.) choisy, *P. purpurea* (L.) Voigt	Convolvulaceae
Semen Raphani	*Raphanus sativus* L.	Brassicaceae
Semen Vaccariae	*Vaccaria segetalis* (Neck.) Garcke	Caryophyllaceae
Spica Schizonepetae	*Schizonepeta tenuifolia* Briq.	Labiatae
Squama Manis	*Manis pentadactyla* Linnaeus	Manidae
Stigama Croci	*Crocus sativus* L.	Iridaceae
Styrax	*Liquidambar orientalis* Mill.	Hamamelidaceae
Venenum Bufonis	*Bufo bufo gargarizans* Cantor, *B. melanostictus* Schneider	Bufonidae

Table 12

List of Reference of Medicinal Plant Materials (RMPM) in KP

List of Reference of Medicinal Plant Materials (RMPM) in KP

RMPM	Scientific name	Family
Alismatis Rhizoma	*Alisma olientale* Juzepczuk	Alismataceae
Anethi Fructus	*Anethum graveolens* L.	Umbelliferae
Angelicae Dahurica Root	*Angelica dahurica* Bentham et Hooker	Umbelliferae
Angelicae Gigantis Radix	*Angelica gigas* Nakai	Umbelliferae
Angelicae koreanae Radix	*Ostericum koreanum* Maxim.	Umbelliferae
Angelicae koreanae Radix	*Notepterysium incisum* Ting ex H.T.Chang	Umbelliferae
Angelicae koreanae Radix	*Notopterysium forbesii* Boiss.	Umbelliferae
Angelicae Tenuissimae Radix	*Angelica tenuissima* Nakai	Umbelliferae
Anthrisci Radix	*Angelica decursiva* Franchet et Savatier	Umbelliferae
Atractylodis Rhizoma	*Atractylodes lancea* D.C	Compositae
Atractylodis Rhizoma	*Atractylodes chinensis* Koidzumi	Compositae
Atractylodis Rhizoma Alba	*Atractylodes japonica* Koidzumi	Compositae
Atractylodis Rhizoma Alba	*Atractylodes ovata* Koidzumi	Compositae
Aurantii Nobilis Pericarpiurn	*Citrus unshiu* Markovich	Rutaceae
Bupleurum Root	*Bupleurum falcatum* L.	Umbelliferae
Cnidium Rhizome	*Cnidium officinale* Makino	Umbelliferae
Ferulae Resina	*Ferula assafoetida* L.	Umbelliferae
Foeniculi Fructus	*Foeniculum vulgare* Miller	Umbelliferae
Glehnia Root	*Glehnia littoralis* Fr. Schmidt et Miquel	Umbelliferae
Leonuri Herba	*Leonurus sibiricus* L.	Labiatae
Paeoniae Radix	*Paeonia lactiflora* Pallas	Paeoniaceae
Ponciri Fructus	*Poncirus trifoliata* Rafinesqul	Rutaceae
Scirpi Rhizoma	*Sparganium stoloniferum* Buchanan-Hamilton	Sparganiaceae
Smilacis Rhizoma	*Smilax china* L.	Liliaceae
Torilidis Fructus	*Cnidium morieri* (L.) Cuss.	Umbelliferae
Torilidis Fructus	*Torilis japonica* Decandolle	Umbelliferae

Table 13

List of Reference of Medicinal Plant Materials (RMPM) in VP

List of Reference of Medicinal Plant Materials (RMPM) in VP

RMPM	Scientific name	Family
Blackberrylily Rhizome	*Belamcanda chinesis* (L.) DC.	Iridaceae
Cuttlebone	*Sepia esculenta* Hoyle	Sepiadae
Cynara Leaf	*Cynara scolymus L.*	Compositae
Dahurian Angelica Root	*Angelica dahurica* (Fisch. ex Hoffm.) Benth. et Hook	Umbelliferae
Dwarf Lilyturf Turber	*Ophiopogon Japonicus* (L.f) Ker-Gawl	Asparagaceae
Erythrina Variegata leaf	*Erythrina variegata* L.	Leguminosae
Fortune Eupatorium Herb	*Eupatorium fortunei* jurcz.	Compositae
Heartleaf Houttuynia Herb	*Houttuynia cordata* Thunb.	Saururaceae
Java Brucea Fruite	*Brucea javanica* (L.) Merr.	Simarubaceae
Kudzuvine Root	*Pueraria thomsonii* Benth.	Leguminosae
Largehead Atractylodes Rhizome	*Atractylodes macrocephala* Koidz.	Compositae
Motherwort Herb	*Leonurus japonicus* Houtt.	Lamiaceae
Obscured homalomena	*Homalomena occulta* (Lour) Schott.	Araceae
Ocimum gratissimum Herb	*Ocimum gratissimum* L.	Lamiaceae
Ocimum tenuiflorum Herb	*Ocimum tenuiflorum* L.	Lamiaceae
Passiflora Herb	*Passiflora foetida* L.	Passifloraceae
Peper Fruit	*Piper nigrum* L.	Piperaceae
Plantago leaf	*Plantago major* L.	Plantaginaceae
Siberian Cocklebur Fruit	*Xanthium strumarium* L.	Compositae
Snowbellleaf Tickclover Herb	*Desmodium styracifolium* (Osb.) Merr	Leguminosae
Stephania Tuber	*Stephania* sp.	Menispermaceae
Styphnolobium Flower	*Styphnolobium japonicum* (L.) schott	Leguminosae
Twotoothed Achyranthes Root	*Achyranthes bidentata* Blume	Amaranthaceae
Wedelia Herb	*Wedelia chinensis* (Osbeck) Merr.	Compositae

Section 4

Table 14-15 complied by EWG IV for Analytically Validated Methods

Table 14 to 15 are lists of analytically validated chemical assay, identification test and purity test for herbal materials (i.e. methods that have been formally validated in each country). This part of information is not included in any published pharmacopoeia, but directly provided by the pharmacopoeia commission of the country involved. Only Japan and Koran pharmacopoeia commissions provided such a list for this project.

Table 14 and Table 15 list analytically validated methods from Japan and Korea respectively. The information in the list includes names of herbal materials, target compound, for what purpose (e.g. chemical assay, purity test), method, accuracy/trueness, precision, specificity, detection/quantitation limit, linearity, range and published reference.

Table 14

Analytically Validated Chemical Assay, Identification Test and Purity Test for Herbal Materials in JP15

Analytically validated chemical assay, identification test and purity test for herbal materials in JP15

Herbal materials	Target compound	Purpose	Method	Accuracy/ Trueness	Precision	Specificity	Detection/Quantitation limit	Linearity	Range	References and notes
CAPSICI FRUCTUS	capsaicin and dihydrocapsaicin	chemical assay (component determination)	HPLC	○	repeatability/ intra-assay precision	○	not needed	○	○	
SWERTIAE HERBA	swertiamarin	chemical assay (component determination)	HPLC	○	repeatability/ intra-assay precision, reproducibility	○	not needed	○	○	
UNCARIAE UNCIS CUM RAMULUS	rhynchophylline	chemical assay (component determiantion)	HPLC	○	repeatability/ intra-assay precision, reproducibility	○	not needed	○	○	Yomura, K. et al, Iyakuhin Kenkyu 35, 143-165 (2004)
ASIASARI RADIX	aristolochic acid I	purity test (no detection)	HPLC	not needed	not needed	○	○ detection limit	not needed	not needed	
CORYDALIS TUBER	dehydrocorydaline nitrate	chemical assay (component determiantion)	HPLC	△	repeatability/ intra-assay precision	○	not needed	○	×	partially validated
PROCESSI ACONITI RADIX (POWDERED ACONITI RADIX PULVERATA)	aconitine, jesaconitine, hypaconitine and mesaconitine	purity test	HPLC	○	repeatability/ intra-assay precision	○	○ detection limit	○	○	Nakamura, Y. et al., J. Nat. Med., 60, 285-294 (2006)
ELEUTHEROCOCCI SENTICOSI RHIZOMA	eleuteroside B	identification test (deteciton)	HPLC	○	not needed	○	○ detection limit	not needed	not needed	Maruyama, T. et al., Planta Medica, submitted
ASTRAGALI RADIX, POLYGALAE RADIX, GLYCYRRIHIZAE RADIX, CINNAMOMI CORTEX, GINSENG RADIX RUBRA, ASIASARI RADIX, CORNI FRUCTUS, SENNAE FOLIUM, PERILLAE HERBA, ZIZYPHI FRUCTUS, AURANTII NOBILIS PERICARPIUM, GINSENG RADIX, ERIOBOTRYAE FOLIUM, MOUTAN CORTEX	total BHC and total DDT	purity test	GC	○	repeatability/ intra-assay precision	○	○ detection limit	○	○	Suzuki, H. et al., Iyakuhin Kenkyu 567-581 (2006)
GINSENG RADIX RUBRA, GINSENG RADIX (GINSENG RADIX PULVERATA)	ginsenoside Rg1 and ginsenoside Rb1	chemical assay (component determination)	HPLC	○	repeatability/ intra-assay precision	○	not needed	○	○	Yamamoto, K., et al., Iyakuhin Kenkyu 36, 211-222 (2005)
BUPLEURI RADIX	saikosaponin a and saikosaponin d	chemical assay (component determination)	HPLC	○	repeatability/ intra-assay precision	○	not needed	○	○	Suzuki, H. et al., Natural Medicine 58, 138-144 (2004)

Table 15

Analytically Validated Chemical Assay or Purity Test for Herbal Materials in KP

Analytically validated chemical assay or purity test for herbal materials in KP

Herbal materials	Target compound	Purpose	Method	Accuracy/ Trueness	Precision	Specificity	Detection/Quantitation limit	Linearity	Range	Comment
Bezoar Bovis	Combined bilirubin (Total bilirubin-free bilirubin)	chemical assay (component determination)	HPLC	○	repeatability/ reproducibility/ intermediated precision	○	0.3-25 μg/ml (range) 0.03 μg/ml (detection limit)	○	○	KP7
Angelicae gigantis Radix	decurcin/ decurcinol angelate	chemical assay (component determination)	HPLC	○	repeatability/ reproducibility/ intermediated precision	○	2.0-75.0μg/ml (range)	○	○	KP7
Puerariae Radix	puerarin	chemical assay (component determination)	HPLC	x	x	○	not needed	○	○	KP7
Persicae Semen	amigdaline	chemical assay (component determination)	HPLC	x	x	○	not needed	○	○	KP7
Moutan Cortex Radicis	paeonol	chemical assay (component determination)	HPLC	x	x	○	not needed	○	○	KP7
Corni Fructus	loganin	chemical assay (component determination)	HPLC	x	x	○	not needed	○	○	KP7
Bupleuri Radix	saikosaponin a	chemical assay (component determination)	HPLC	x	x	○	not needed	○	○	KP7
Aurantii Nobilis Pericarpium	hesperidin	chemical assay (component determination)	HPLC	x	x	○	not needed	○	○	KP7
Scutellariae Radix	baicalin	chemical assay (component determination)	HPLC	x	x	○	not needed	○	○	KP7
Rehmaniae Radix	5-hydroxymethyl 2-furraldehyde	chemical assay (component determination)	HPLC	x	x	○	not needed	○	○	KP7
Acanthopanacis Cortex	acanthoside D	chemical assay (component determination)	HPLC	x	x	○	not needed	○	○	KP7

Section 5

Table 16 complied by EWG V for Information on General Test

Table 16 is the Comparative table on general testing methods for crude drugs in JP, KP, CP and VP. This table lists the detailed information on general testing methods described in each pharmacopoeia. Part of these methods is referred in Table 4. Testing methods described in this table include sampling, foreign matter, preparation of the test sample of analysis, loss on drying, total ash, acid-insoluble ash, sulphated ash, water-soluble ash, extract content, essential oil content, microscopic examination, arsenic limit test, heavy metal limit test, description of general quality control method (CP only), processing of crude drugs, and determination of tanninoids and cineol.

Table 16

Comparative Table on General Testing Methods for Crude Drugs in JP, KP, CP and VP

Comparative Table on General Testing Methods for Crude Drugs in JP, KP, CP and VP

JP	KP	CP	VP
Sampling	**Sampling**	**Sampling of Crude Drugs**	**SAMPLING OF CRUDE DRUGS**
Unless Otherwise specified, sample should be taken by the following methods. If necessary, preserve the samples in tight containers. (1) When crude drugs to be sampled are small-sized, cut or powdered, 50 to 250 g of sample should be taken after mixing thoroughly. (2) When crude drugs to be sampled are large-sized, 250 to 500 g of sample should be taken after mixing thoroughly. (3) When the mass of each single piece of the crude drugs is not less than 100 g, not less than 5 pieces should be taken for a sample, or not less than 500 g of the sample should be taken after cutting to a suitable size and mixing thoroughly.	Unless Otherwise specified, sample should be taken by the following methods. If necessary, preserve the samples in tight containers. (1) When crude drugs to be sampled are small-sized, cut or powdered, 50 to 250 g of sample should be taken after mixing thoroughly. (2) When crude drugs to be sampled are large-sized, 250 to 500 g of sample should be taken after mixing thoroughly. (3) When the mass of each single piece of the crude drugs is not less than 100 g, not less than 5 pieces should be taken for a sample, or not less than 500 g of the sample should be taken after cutting to a suitable size and mixing thoroughly.	Sampling of Crude Drugs refers to the method used to sort the crude drugs for examination. The validity of sampling affects directly the precision and accuracy of the examination. The procedure for sampling should be followed in details. 1. Examine the confirmation of the name, source of material, specification and package form of the cargo before sampling. Examine the intactness cleanliness of package and contamination of moulds and foreign matter, make notes in detail. The abnormal packages should be examined separately. 2. The general requirements for sampling of crude drugs in a consignment are as follows: when the total number of package less than 5, the packages are sampled one by one. 5-99 packages, 5 packages are sampled at random; 100-1000 packages, 5% are sampled; more than 1000 packages, 1% of the part in excess of 1000 packages are sampled; Precious crude drugs are sampled one by one, regardless of the number of packages. 3. If the material is in crushed or powdered form or in pieces of less than 1 cm in size, at least 2-3 portions of sample are taken by suitable means from different parts in each package. If volume of package is large, samples taken should be 10 cm in depth below the surface from different parts. The quantity of samples taken is defined as follows: Common drugs: 100-500 g Powdered drugs: 25 g Precious drugs: 5-10 g As for the drugs of large size or large number, representative samples can be taken on the basis of real situation. 4. Mix the samples thoroughly, i. e. the total quality of samples taken. if the total quantity of samples taken is several times that required for the testing, take an avarage sample by quartering, until sufficient quantity of sample is obtained for testing and retention. 5. The quantity or average sample taken should be not less than 3 times of that required for the testing, using one third for analysis, another one third for verification and the remaining as aretention which should be kept.	Sampling of clude drugs refers to the method used to sort the crude drugs for examination. The representativeness of samples affects directly the prescision and accuracy of the examination. Attention should be paied to the following points while sampling: a) Valify the name, source of the material, specifications and forms of packages before sampling. Examine the intactness, cleanliness of the packagem the contamination of modules and foreign matter, make notes in details. Abnormal packages should be eamined more carefully. b) The general requirements for sampling of crude drugs are as follows: For a number of packages: less tha 5, every package is sampled; less than 100, 5 packages are sampled; from 100 to 1000, 5% of packages are sampled; over 1000, 50 packages and 1% of the number in excess of 1000 packages are sampled. For precious crude drugs every package is sampled, regardless of the number of packages. c) If the material is in scraps or powder form or in pieces of less than 1 cm in size, at least 2-3 portions of sample are taken by suitable means from different places in each package. If the number of packages is small, the amount of sample taken shoule be not less than 3 times the quantity required for testing. If the number of packages is large, the amount of sample taken is as follows: Common drugs: 100-500 g Powdered drugs: 25 g Precious drugs: 5-10 g (unless otherwis specified) For the drugs in large size, a representative sample can be taken from different places of a package (at 10 cm in depth below the surface for large package). d) Mix the samples taken as required for the test sample. If the sample size of drug is small, take an aberage sample by quartering method as follows: Spread the samples (after mixing throughly) in a square, then divide the sample into 4 equal parts by diagonals; take two opposite parts and mix again. With the mixture obtained, repeat the quartering in the wame way until a sufficient amount of sample is obtained for testing and retention. In the case of large size drugs, the avarage samples can be obtained with any appropriate methods. The amount of an average sample should not less than 3 times of that required for testing, using one third for analysis, another for verification and the remaining as retained sample which should be kept at least for one year.
Foreign matter	**Foreign matter**	**Determination of Foreign Matter**	**DETERMINATION OF FOREIGN MATTER IN CRUDE DRUGS**
Unless otherwise specified, weigh 25 to 500 g of the sample, spread out in a thin layer, and separate the foreign matter by inspecting with the naked eye or with the use of a magnifying glass of 10 magnifications. Weigh, and determine the percentage of foreign matter.	Unless otherwise specified, weigh 25 to 500 g of the sample, spread out in a thin layer, and separate the foreign matter by inspecting with the naked eye or with the use of a magnifying glass of 10 magnifications. Weigh, and determine the percentage of foreign matter.	Foreign mater consists of any or all of the following: 1. The biological origin of which is the same as that specified in the monograph concerned but the appearance or botanical parts is different. 2. The biological origin of which differs from that specified in the monograph concerned. 3. Foreign mineral matters such as stones, sand, lumps of soil. Method (1) Weight a quantity of the drug as specified in the monograph and spread out in a thin layer. Detect the foreign matter by inspection with naked eye or with a lens (5-10 X), or by the use of a suitable sieve, If necessary, to separate the foreign matter. (2) Weight separately each kind of foreign matter and calculate the percentage content.	Foreign matter in herbal drugs consists of any or all of the following: Foreign mineral mannter such as stons, sand, lumps of soil. Other herbs and other parts of the plant that are not specified as clude drugs. Remains of insects. Method: Weigh a quantity of the crude drug as specified in the monograph and spread out in a thin layer. Detect the foreign matter by inspection with naked eye or with a lens or by use of a suitable sieve, if necessary, to separate the foreign matter. Weigh the foreign matter and calculate the percentage, using the expression: X% = a/p x 100 where: a: Mass of foreign matter (g), p: Mass of test sample being examined (g)
Preparation of the test sample for analysis	**Preparation of the test sample for analysis**		
Preparations are to be made by mixing the sample well. Powdered drugs should be used as they are, and in the case of unpowdered drugs, unless otherwise specified, grind the sample into powder. If the sample cannot be ground into powder, reduce it as finely as possible, spread it out in a thin layer, and withdraw a typical portion for analysis. If necessary, preserve the test sample in a tight container.	Preparations are to be made by mixing the sample well. Powdered drugs should be used as they are, and in the case of unpowdered drugs, unless otherwise specified, grind the sample into powder. If the sample cannot be ground into powder, reduce it as finely as possible, spread it out in a thin layer, and withdraw a typical portion for analysis. If necessary, preserve the test sample in a tight container.		
Loss on drying	**Loss on drying**	**Determination of Loss on Drying**	**DETERMINAITON OF LOSS ON DRYING**
Unless otherwise specified, transfer 2 to 6 g of the test sample for analysis to a tared weighing bottle, and weigh accurately. Dry at 105℃ for 5 hours, allow to cool in a desiccator (silica gel), and weigh accurately. Continue the drying at 105℃, and weigh accurately at 1-hour intervals.	Unless otherwise specified, transfer 2 to 6 g of the test sample for analysis to a tared weighing bottle, and weigh accurately. Dry at 105℃ for 5 hours, allow to cool in a desiccator (silica gel), and weigh accurately. Continue the drying at 105℃, and weigh accurately at 1-hour intervals.	Mix the substance being examined thoroughly, if it is in the form of large crystals, reduce them to a size of about 2 mm by crushing. Place 1 g or the amount specified under individual monographs of the substance being examined in a tarred, shallow weighing bottle, previously dried to constant weight under the conditions specified in individual monographs, unless otherwise directed. The substance being	Loss on drying is the loss of mass, expressed as percentage (m/m), of the test sample being dried under conditions specified in the individual monograph. The loss of mass after during represents the loss of the absorbed water, one part or the whole water of crystallisation and other volatile substances present in the sample being examined. The determination of loss of drying should not affect basic physico-

JP	KP	CP	VP
Loss on drying	**Loss on drying**	**Determination of Loss on Drying**	**DETERMINAITON OF LOSS ON DRYING**
When the mass of the sample becomes constant, the loss of mass represents the percentage of loss on drying (%). When the period of time for drying is specified, weigh accurately after drying for the period of time specified, and determine the loss on drying (%).	When the mass of the sample becomes constant, the loss of mass represents the percentage of loss on drying (%). When the period of time for drying is specified, weigh accurately after drying for the period of time specified, and determine the loss on drying (%).	examined should be evenly distributed to form a layer of not more than 5 mm in thickness, or not more than 10 mm in the case of bulky material. When the loaded bottle is placed in the chamber of desiccator, remove the stopper and put in beside the bottle, or leave it on the bottle in half open position. Upon the opening of the drying chamber or desiccator, the bottle should be closed promptly. If the substance is dried by heating, allow it to cool to room temperature in a desiccator before weighing. If the substance melts at a lower temperature than the specified drying temperature, maintain the bottle with its content below the melting temperature until most of water is removed, then dry it under the specified conditions. If a vacuum desiccator or constant temperature vacuum desiccator is to be used, a pressure of 2.67 kPa (20 mm Hg) or less should be maintained unless otherwise directed. The desiccants used in a desiccator are usually anhydrous calcium chloride, silica gel or phosphorus pentoxide. Phosphorus pentoxide is often used in a constant temperature vacuum desiccataor. The desiccants should be kept fully effective.	chemical properties of the substance being examined; so in each individual monograph the drying method is specified and selected among the following methods: Method 1: drying in an oven under atmospheric pressure Method 2: drying under reduced pressure Method 3: drying in a desiccator over a strong desiccant such as concentrated sulfuric aciem phosphorus pent oxide, anhydrous calcium chloride, silica gel, etc... For each method, detailed specific conditions are prescribed in the individual monograph for the substance being examined. When prescribed in the monograph: "Not exceed 1% (1 g, 105℃, 4 hours)", it means method 1 used: one gram of the sample being examined is dried in an oven at 105℃ for 4 hours and the loss mass should not exceed 10 mg. "Not exceed 0.5% (1 g, phosphorous pent oxide, 24 hours)" means method 2 is used: one gram of the substance being examined is dried in a drying device for 24 hours under reduced pressure (2 kPa) with the presence of phosphorus pent oxide as desiccant and the loss of mass should not exceed 5mg. Not exceed 0.2% (1 g, silica gel, 24 hours) means method 3 is used: one gram of the substance being examined is dried in a drying device for 24 hours under reduced pressure (2kPa) with the presence of desiccant silica gel and the loss of mass should not exceed 2 mg. When the drying time is not specified in the monograph, the sample should be dried to constant weight (this means two consecutive weightings should not differ by more than 0.5 milligram, the second weighing being made after an additional period of drying (1 hour in an oven or 6 hours in a desiccator). Method The container used in weightings ca be a Petri dish or a weighing bottle which is dried for 30 minutes following the method and conditions specified in the monograph, and then the container is weighed to determine its mass. Place immediately a quantity of the substance being examined (the quantity prescribed in the monograph, with a deviation of ±10%) in the container and weigh it accurately. Unless otherwise stated in the monograph, the sample being examined is evenly spread to form a layer of a thickness not more than 5 mm. If the sample being examined contains large pieces, it should be quickly ground to obtain particles of size under 2 mm before weighing. Dry the sample under the conditions prescribed in the monograph using the same drying device as that has been used for drying the container. When drying in an oven, the temperature in the oven used should not differ by more than ±2℃ from the specified temperature. After drying, the sample is allowed to cool in a desiccator. over silica gel as desiccant, down to room temperature, then weighed immediately. If the substance being examined melts at a temperature lower than the specified temperature, it should be kept for 1 to 2 hours at a temperature 5℃ to 10℃ lower than its melting point before heating up to the described temperature. For sample in the form of capsules or draggers, the shells should be discarded and the sample being examined is quickly ground to form a powder of 2 mm particles, and amount of powder equivalent to at least 4 draggers or capsules is taken for testing. For materia medica, unless otherwise prescribed, method 1 is applied. The sample is ground into pieces not larger than 3 mm in diameter, then an amount of 2 g to 5 g is taken and evenly spread to form a layer of a thickness not more than 5 mm (or not more than 10 mm when the sample is porous material). The sample is dried as described in the monograph at the specified temperature for the prescribed period of time.
Total ash	**Total ash**	**Determination of Ash (Total ash)**	**DETERMINATION OF ASH**
Ignite previously a crucible of platinum, quartz or porcelain between 500℃ and 550℃ for 1 hour. Cool, and weigh accurately the crucible. Unless otherwise specified, weigh accurately 2 to 4 g of the test sample for analysis in this crucible, take off the lid or keep it open a little if necessary, heat the crucible at a low temperature at first, then gradually heat to a temperature between 500℃ and 550℃, ignite to incinerate the residue for more than 4 hours until no carbonized substance remains in the ash, cool, and weigh accurately the ash. Incinerate repeatedly to	Ignite previously a crucible of platinum, quartz or porcelain between 500℃ and 550℃ for 1 hour. Cool, and weigh accurately the crucible. Unless otherwise specified, weigh accurately 2 to 4 g of the test sample for analysis in this crucible, take off the lid or keep it open a little if necessary, heat the crucible at a low temperature at first, then gradually heat to a temperature between 500℃ and 550℃, ignite to incinerate the residue for more than 4 hours until no carbonized substance remains in the ash, cool, and weigh accurately the ash. Incinerate repeatedly to	Pulverize the material being examine, pass through No.2 sieve, mix well. Place 2∽3 g (3∽5 g for the determination of acid-insoluble ash) of powdered drug in a tarred crucible, weigh accurately (to nearest 0.01 g), ignite slowly till the sample is completely carbonized, keep it from burning with care, raise the temperature gradually to 500∽600℃, incinerate to constant weight and the ash is carbon-free. Calculate the percentage of ash with reference to the air-dried drug. If carbon-free ash cannot be obtained in this way, cool the crucible and moisten the residue with hot water or 2 ml of 10% ammonium nitrate solution. Evaporate to dryness on a water bath, ignite the residue as above until carbonfree ash is obtained.	Use method 1 unless otherwise directed in the monograph. Method 1: For vegetable drugs: Incinerate 2 to 3 of the ground drug in a tarred platinum or silica crucible at a temperature not exceed 450℃ until free from carbon, cool and weigh. If a carbon-free ash cannot be obtained in this way, exhaust the charred mass with hot water, stair with glass rod, filter through an ashless filter paper. Wash the glass rod and filter paper, combine the washings and the filtrate. Place the filter paper and the residue in a crucible and ignite until a white or almost white ash obtained. Add the filtrate to residue in the crucible, evaporate to dryness, and ignite at a temperature not exceeding 450℃ to constant mass. Calculate the percentage of ash with reference to air dried drug. For other substances: Carry out the above method using 1g, unless

JP	KP	CP	VP
Total ash	**Total ash**	**Determination of Ash (Total ash)**	**DETERMINATION OF ASH**
constant mass, cool, weigh accurately, and determine the amount (%) of total ash. If a carbonized substance remains and constant mass cannot be obtained in the above-mentioned method, extract the charred mass with hot water, collect the insoluble residue on filter paper for assay, and incinerate the resi-due and filter paper until no carbonized substance remain in the ash. Then add the filtrate, evaporate it to dryness, and incinerate. Cool, weigh accurately, and determine the mass (%) of the total ash. If a carbon-free ash cannot be obtained even in this way, moisten the ash with a small amount of ethanol (95), break up the ash with a glass rod, wash the rod with a small amount of ethanol (95), evaporate carefully, and determine the mass of the total ash as described above. A desiccator (silica gel) is used for cooling.	constant mass, cool, weigh accurately, and determine the amount (%) of total ash. If a carbonized substance remains and constant mass cannot be obtained in the above-mentioned method, extract the charred mass with hot water, collect the insoluble residue on filter paper for assay, and incinerate the resi-due and filter paper until no carbonized substance remain in the ash. Then add the filtrate, evaporate it to dryness, and incinerate. Cool, weigh accurately, and determine the mass (%) of the total ash. If a carbon-free ash cannot be obtained even in this way, moisten the ash with a small amount of ethanol (95), break up the ash with a glass rod, wash the rod with a small amount of ethanol (95), evaporate carefully, and determine the mass of the total ash as described above. A desiccator (silica gel) is used for cooling.		otherwise directed in the monograph. Calculate the percentage of ash. Method 2: Heat a porcelain or platinum crucible to red heat for 30 minutes, allow to cool in a desiccator and weigh. Unless otherwise specified in the monograph, evenly distribute 1 g of the substance being examined in the crucible, dry at 100℃ to 150℃ for 1 hour and ignite to constant weight in a muffle furnace at 575℃ to 625℃. Allow the crucible to cool in a desiccator and weigh after each ignition. Flames should not be produced at any time during the procedure. If after prolonged ignition a carbon-free ash cannot be obtained, take up with hot water, filter through an ashless filter paper and ignite again the residue and the filter paper. Combine the filtrate with the ash, carefully evaporate to dryness and ignite to constant weight. Calculate the percentage of ash with reference to the air-dried drug.
Acid-insoluble ash	**Acid-insoluble ash**	**Determination of Ash (Acid-insoluble ash)**	**DETERMINATION OF ACID INSOLUBLE ASH**
Add carefully 25 mL of dilute hydrochloric acid to the total ash, boil gently for 5 minutes, collect the insoluble matter on filter paper for assay, and wash thoroughly with hot water. Dry the residue together with the filter paper, and ignite to incinerate in a tared crucible of platinum, quartz or porcelain for 3 hours. Cool in a desiccator (silica gel), weigh, and determine the amount (%) of acid-insoluble ash. When the amount determined exceeds the limit specified, incinerate repeatedly to constant mass.	Add carefully 25 mL of dilute hydrochloric acid to the total ash, boil gently for 5 minutes, collect the insoluble matter on filter paper for assay, and wash thoroughly with hot water. Dry the residue together with the filter paper, and ignite to incinerate in a tared crucible of platinum, quartz or porcelain for 3 hours. Cool in a desiccator (silica gel), weigh, and determine the amount (%) of acid-insoluble ash. When the amount determined exceeds the limit specified, incinerate repeatedly to constant mass.	Place the obtained in the determination of total ash in crucible, add 10 ml of dilute hydrochloric acid with great care, cover with a watch glass, heat on a water bath for 10 minutes. Rinse the watch glass, with 5 ml of hot water and add the rinsings to the crucible, filter with an ashless filter paper, transfer the residue to the filter paper with water, wash till the filtrate yields no reactions of chlorides. Transfer the filter paper together with the residue to the original crucible, dry and ignite to constant weight. Calculate the percentage of acid-insoluble ash with reference to the air-dried drug.	Use method 1 unless otherwise directed in the monograph. Method 1: Boil the ash for 5 minutes with 25 ml of 2 M hydrochloric acid R, filter, collect the insoluble matter in a previously weighed sintered-glass crucible or on an ashless filter paper, wash with hot water and ignite. Calculate the percentage of acid-insoluble ash with reference to the air-dried drug. Method 2: Place the ash or the sulphated ash, as specified in the mono-graph, in a crucible, add 15 ml of water and 10 ml of hydrochloric acid R, cover with a watch glass, boil gently for 10 minutes and allow to cool. Wash the watch glass with 5ml of hot water, collect the washings in the crucible. Collect the insoluble matter in a previously weighed sintered-glass funnel or on ashless filter paper, wash with hot water until the filtrate is neutral. Dry, ignite to dull redness, allow to cool in a desiccator and weigh. Repeat until the difference between tow successive weightings is not more than 1 mg. Calculate the percentage of acid-insoluble ash with reference to air-dried drug.
			DETERMINATION OF SULPHATED ASH
			Use method 1 unless otherwise directed in the monograph. Method 1: Heat a porcelain or platinum crucible to redness for 10 minutes, allow to cool in a desiccator and weigh. Unless otherwise specified in the monograph, place 1 g of the substance being examined in the crucible, moisten with sulphuric acid R, ignite gently, again moisten with sulphuric acid and ignite at about 800℃. Cool, weigh again, ignite for 15 minutes and cool, weigh again. Repeat this procedure until tow successive weightings do not differ by more than 0.5 mg. If the residue is reserved for the test of heavy metals, ignition should be carried out at 500℃ to 600℃. Method 2: Heat a porcelain or platinum crucible to redness for 10 minu-tes, allow to cool in a desiccator and weigh. Place a suitable quantity of the substance being examined in the crucible, add 2 ml of 1 M sulphuric acid R and heat, first on a water bath, then cautiously over a flameand then progressively to about 600℃. Continue incineration until all black particles have disappeared and then allow to cool. Add a few drops of 1 M sulphuric acid R, incinerate as before and allow to cool. Add a few drops of a 15.8 % m/v solution of ammonium carbonate R, evaporate to dryness. Incinerate carefully, allow to cool, weigh. Incinerate for 15 minutes and repeat this procedure to constant mass.
			DETERMINATION OF WATER-SOLUBLE ASH
			Boil the ash (Appends 7.6) for 5 minutes with 25 ml of water. Collect the insoluble matter in a previously weighed sintered-glass funnel or filter crucible or on an ashless filter paper, wash with hot water and ignite for 15 minutes at a temperature not exceeding 450℃. Allow to cool in a desiccator and weigh to determine the quantity of water insoluble residue. The difference between the weight of ash add the weight of water-insoluble residue is the mass of water-soluble ash. Calculate the percentage of water-soluble ash with reference to the air-dried drug.
Extract content	**Extract content**	**Determination of Extractives**	**DETERMINATION OF EXTRACTIVES IN HERBAL DRUGS**
The test for the extract content in crude is performed as directed in the following methods: (1) Dilute ethanol-soluble extract-Unless	The test for the extract content in crude is performed as directed in the following methods: (1) Dilute ethanol-soluble extract-Unless	1. Determination of Water-soluble Extractives Pulverize the material being examined, pass through No.2 sieve, mix well. Cold maceration method Place 4 g of the powdered material,	Determination of water-soluble extractives Cold maceration method: Unless otherwise specified in the monograph, place about 4.000 g of the moderately coarse powdered

JP	KP	CP	VP
Extract content	**Extract content**	**Determination of Extractives**	**DETERMINATION OF EXTRACTIVES IN HERBAL DRUGS**
otherwise specified, weigh accurately about 2.3 g of the sample for analysis, extract with 70 mL of dilute ethanol in a suitable flask with intermittent shaking for 5 hours, and allow to stand for 16 to 20 hours. Filter, and wash flask and residue with small portions of dilute ethanol until the filtrate measures 100 mL. Evaporate a 50 mL aliquot of filtrate to dryness, dry at 105℃ for 4 hours, and cool in a desiccator (silica gel). Weigh accurately the amount, multiply it by 2, and determine theamount of dilute ethanol-soluble extract. Calculate the extract content (%) with respect to the amount of the sample on the dried basis, obtained under the loss on drying. (2) Water-soluble extract-Proceed as directed in (1), using water instead of dilute ethanol, weigh accurately the amount, multiply by 2, and determine the amount of water-soluble extract. Calculate the extract content (%) with respect to amount of the sample on the dried basis, obtained under the loss on drying. (3) Diethyl ether-soluble extract-Unless otherwise specified, dry the sample for analysis in a desiccator (silica gel) for 48 hours, weigh accurately about 2 g of it, and place in a suitable flask. Add 70 mL of diethyl ether, attach a reflux condenser to the flask, and boil gently on a water bath for 4 hours. Cool, filter, and wash the flask and the residue with small portions of diethyl ether until the filtrate measures 100 mL. Evaporate a 50 mL aliquot of the filtrate to dryness on a water bath, dry in a desiccator (silica gel) for 24 hours, weigh accurately the amount, multiply it by 2, determine the amount of diethyl ether-soluble extract, and calculate the extract content (%).	otherwise specified, weigh accurately about 2.3 g of the sample for analysis, extract with 70 mL of dilute ethanol in a suitable flask with intermittent shaking for 5 hours, and allow to stand for 16 to 20 hours. Filter, and wash flask and residue with small portions of dilute ethanol until the filtrate measures 100 mL. Evaporate a 50 mL aliquot of filtrate to dryness, dry at 105℃ for 4 hours, and cool in a desiccator (silica gel). Weigh accurately the amount, multiply it by 2, and determine theamount of dilute ethanol-soluble extract. Calculate the extract content (%) with respect to the amount of the sample on the dried basis, obtained under the loss on drying. (2) Water-soluble extract-Proceed as directed in (1), using water instead of dilute ethanol, weigh accurately the amount, multiply by 2, and determine the amount of water-soluble extract. Calculate the extract content (%) with respect to amount of the sample on the dried basis, obtained under the loss on drying. (3) Diethyl ether-soluble extract-Unless otherwise specified, dry the sample for analysis in a desiccator (silica gel) for 48 hours, weigh accurately about 2 g of it, and place in a suitable flask. Add 70 mL of diethyl ether, attach a reflux condenser to the flask, and boil gently on a water bath for 4 hours. Cool, filter, and wash the flask and the residue with small portions of diethyl ether until the filtrate measures 100 mL. Evaporate a 50 mL aliquot of the filtrate to dryness on a water bath, dry in a desiccator (silica gel) for 24 hours, weigh accurately the amount, multiply it by 2, determine the amount of diethyl ether-soluble extract, and calculate the extract content (%).	accurately weight (to the nearest 0.01 g), in a 250~300 ml stoppered conical flash, add accurately 100 ml of water, stopper well. Macerate the drug with shaking for 6 hours and allow to stand for 18 hours. Filter rapidly through a dry filter, transfer accurately 20 ml of filtrate to an evaporating dish, previously dried to constant weight, and evaporate to dryness on a water bath. Dry at 150℃ for 3 hours and allow to cool for 30 minutes in a desiccator. Weigh rapidly and accurately, unless specified otherwise in the monograph, calculate the percentage of water-soluble extractives on the dried basis (%). Hot extraction method: Place 2~4 g of the powdered material, accurately weighted in a 100~250 ml stoppered conical flask, add a accurately 50~100 ml of water, stopper well and weigh, allow to stand for 1 hour. Boil gently under reflux for 1 hour. Allow to cool, take off the flask, stopper well and weigh, add water to restore its original weight, shake well and filter through a dry filter. Place 25 ml of the filter, accurately, in an evaporating dish, previously dried to constant weight, and evaporate to dryness on water bath. Dry at 105℃ for 3 hours and allow to cool for 30 minutes in a desiccator. Weigh rapidly accurately, unless specified otherwise in the monograph, calculate the percentage of water-soluble extractives on the dried basis (%). 2. Determination of Ethanol-soluble Extractives Proceed as directed under determination of water-soluble extractive (hot extraction method should be heating on a water bath), using ethanol or methanol of a strength specified in individual monograph as the solvent instead of water. 3. Determination of volatile ether extractives Place 2-5 g of the powdered material (through No. 4 sieve), accurately weighed, dry for 12 hours in a desiccator with P_2O_5. Place in a Soxhlet's extractor, add a quantity of ehter, boil under reflux for 8 hours, unless specified otherwise in the monograph. Place in a evaporate to dryness. Dry for 18 hours in a desiccator with P_2O_5, weigh accurately, heat to 105℃ slowly, dry at 105℃ to constant weight. The weight loss is the weight of volatile ether extractives.	material, accurately weighed, in a 250-300 ml stoppered conical flask. Add accurately 100.0 ml of water, close well, allow to macerate cold occasionally shaking for 6 hours, then allow to stand fro 18 hours. Filter through a dry filter into a suitable dry flask. Pipette 20 ml of the filtrate to a glass beaker, previously dried to constant mass, and evaporate to dryness in a water bath. Dry the residue at 105℃ for 3 hours and allow to cool for 30 minutes in a desiccator, weigh rapidly to determine the mass of the residue, calculate the percentage of water-soluble extractives with reference to the air-dried drug. Hot extraction method: Unless otherwise specified in the monograph, place about 2.000 g to 4.000 g of the moderately coarse powdered material, accurately weighed, in a 100 ml or 250 ml close conical flask. Add accurately 50.0 or 100.0 ml of water, close well and weigh, allow to stand for 1 hour, then heat under a reflux condenser in a water bath for 1hour, allow to cool, take off the flask, closes well and weigh, add water to restore its original mass, filter though a dry filter into a suitable dry flask. Pipette 25 ml of the filtrate to a glass beaker, previously dried to constant mass, and evaporate to dryness in a water bath. Dry the residue a 105℃ for 3 hours and allow to cool for 30 minutes in a desiccator, weigh rapidly to determine the mass of the residue, calculate the percentage of water-solbule extractives with reference to the air-dried drug. Detrmination of alcohol-solble extractives Process as directed under determination of water-soluble extractives, using ethanol or methanol of strength specified in individual monograph as extraction solvent instead of water.
Essential oil content	**Essential oil content**	**Determination of Volatile Oil**	**DETERMINATION OF VOLATILE OIL IN DRUGS**
The test of essential oil content in crude drugs is performed as directed in the following method: Essential oil determination: Weigh the quantity of the test sample for analysis directed in the monograph in a 1-L hard glass-stoppered flask, and add from 5 to 10 times as much water as the drug. Set up apparatus for essential oil determination in the upper mouth of it, and heat the content of the flask in an oil bath between 130℃ and 150℃ to boiling. The graduated tube of the apparatus is to be previously filled with water to the standard line, and 2.0 mL of xylene is added to the graduated tube. Unless otherwise specified, continue boiling for 5 hours, allow to stand for some time, and open the stopper of the apparatus. Draw off the water slowly until the surface of the oil layer corresponds to the preparation line, and allow it to stand for than 1 hour at ordinary temperature. Then lower the surface of the oil layer to the zero line, and read the volume (mL) of the oil at ordinary temperature. Subtract the volume (mL) of xylene from the volume of the total oil.	The test of essential oil content in crude drugs is performed as directed in the following method: Essential oil determination: Weigh the quantity of the test sample for analysis directed in the monograph in a 1-L hard glass-stoppered flask, and add from 5 to 10 times as much water as the drug. Set up apparatus for essential oil determination in the upper mouth of it, and heat the content of the flask in an oil bath between 130℃ and 150℃ to boiling. The graduated tube of the apparatus is to be previously filled with water to the standard line, and 2.0 mL of xylene is added to the graduated tube. Unless otherwise specified, continue boiling for 5 hours, allow to stand for some time, and open the stopper of the apparatus. Draw off the water slowly until the surface of the oil layer corresponds to the preparation line, and allow it to stand for than 1 hour at ordinary temperature. Then lower the surface of the oil layer to the zero line, and read the volume (mL) of the oil at ordinary temperature. Subtract the volume (mL) of xylene from the volume of the total oil.	The drug being examined should be pulverized to pass through No.2 or No.3 sieves and then mixed well, unless otherwise specified. Method 1 This method is used for determining volatile oil of which the relative density is less than 1.0. Weigh accurately to the nearest 0.01 g, a quantity of the substance being examined equivalent to 0.5~1.0 ml of volatile oil, into flask A. Add 300~500 ml of water and a few glass beads, shake and mix well. Connect flask A to volatile oil determination tube B and then connect B to reflux condenser C. Add water through the top of reflux condenser C until the graduated tube of B is filled and overflows to flask A. Heat the flask gently in an electric heating jacket or by other suitable means until boiling begins-continue heating for about 5 hours, until the volume of oil does not increase. Stop heating, allow to stand for a few minutes, and open the stopcock at the lower part of B, run off the water layer slowly until the oil layer is 5 mm above the zero mark. Allow to stand for at least 1 hours, open the stopcock again, run off the remaining water layer carefully until the oily layer is just on the zero mark. Read the volume of oil in the graduated portion of the tube and calculate the content of volatile oil, expressed as percentage (ml/g). Method 2 This method is used for determination volatile oils of which the relative density is more than 1.0. Transfer 300 ml of water and a few glass beads to flask A. Connect flask A to volatile oil determination assembly B. Add water through the top of B until the graduated measuring tube of B is filled and water overflows to flask A. Add 1 ml of xylene with pipette andthen connect the reflux condenser C to B. Heat the flask until boiling begins and continue the distillation at a rate that will keep the middle part of the condenser cold. Stop heating after 30 minutes, allow to stand for at least 15 minutes. Read the volume of xylene in the graduate portion of the tube. Carry out the procedure described under Method I. Beginning at the words "Weigh accurately to the nearest 0.01 g...". Subtract the volume of xylene previously from the volume of the oil layer, Subtract the volume of xylene previously from the volume of the oil layer, the remainder is taken to the content of volatile oil in the drug being examined, expressed as percentage (ml/g).	The determination of volatile oil in drugs is carried out by steam distillation in the apparatus described in the Fig 9.2. The distillate is collected in a tube graduated into divisions of 0.05 ml and the aqueous phase is automatically recalculated into the distillation flask. The volume of volatile oil may be measured directly on the graduated tube or xylene may be used to take up the volatile oil to the graduated part of the tube (for the volatile oils the relative density of which is more than 1.0), and then total volume of the mixture of xylene and volatile oil is measured. The content of volatile oil is expressed as a percentage v/m. *Determination of the volatile oils the relative density of which is less than 1.0.* Weigh accurately the nearest 0.01 g, a quantity of the substance being examined passed through sieve No. 2000 equivalent to 0.5-1.0 ml of volatile oil in to the distillation flask. Add 300-500 ml of water and a few pieces of porous earthenware. Connect the distillation flask to the still head A of the apparatus. Add water through the funnel N until it is at the level B. Heat the flask until ebullition begins and adjust the distillation rate 2 to 3 ml per minute unless otherwise prescribed. Determine the rate of distillation by lowering the level of distillation liquid by means of the three-way tap M until the meniscus is level with the lower mark I, J, closing the tap M and simultaneously starting a stop watch. When the level reaches the mark H, stop the watch and note the time. Open the tap M and continue the distillation for 5 hours, unless otherwise prescribed, until the volume of volatile oil stops to increase. Stop heating and after at least 10 minutes read the volume of the oil collector in the graduated tube. *Determination of the volatile oils the relative density of which is more than 1.0.* Connect the distillation flask containing about 300-500 ml of water and a far small pieces of porous earthenware, to the still head A of the apparatus. Add water though the funnel N untie it is at the level B. Introduce 1 ml of xylene R at K by means of a pipette (the tip of which is inserted the lower part of orifice K). Heat the flask until ebullition begins and adjust the distillation rate as the way described under the method for determination of the volatile oils relative density of which is less than 1.0. After 30 minutes discontinue heating and after at least a 10 minutes read the volume of xylene R collected in the graduated tube. Introduce the specified quantity of drug passed the through No. 2000

JP	KP	CP	VP
Essential oil content	Essential oil content	Determination of Volatile Oil	DETERMINATION OF VOLATILE OIL IN DRUGS
			sieve equivalent to 0.5-1.0 ml of volatile oil into the distillation flask. Carry out the distillation at the distillation rate from 2 to 3 ml per minute for 5 hours, unless otherwise prescribed, until the volume of the volatile oil stops to increase. Stop heating and after at least 10 minutes read the volume of the mixture of xylene R and volatile oil. Subtract the volume of xylene R previously observed from the volume of the oily layer. The difference in volume and the quantity of drug are taken to be the content of volatile oil in the drug being examined.
Microscopic examination	Microscopic examination	Microscopical Identification for Crude Drugs and Patent Medicines	MICROSCOPICAL IDENTIFICATION FOR CRUDE DRUGS AND PATENT MEDICINES
(1) Apparatus Use an optical microscope with objective of 10 and 40 magnifications, and an ocular of 10 magnifications. (2) Preparation for microscopic examination (i) Section: To a section an a slide glass add 1 to 2 drops of a mounting agent, and put a cover glass in it, taking precaution against inclusion of bubbles. Usually use a section 10 to 20 mm in thickness. (ii) Powder: Place about 0.1 g of powdered sample in a watch glass containing 2 to 3 drops of a swelling agent, stir well with a small rod preventing inclusion of bubbles, and allow to stand for more than 10 minutes to swell the sample. Smear, using a small glass rod, the slide glass with a small amount of the swollen sample, add 1 drop of the mounting agent, and put a cover glass on it so that the tissue sections spread evenly without overlapping each other, taking precaution against inclusion of bubbles. Unless otherwise specified, use a mixture of glycerin and water (1:1) as mounting agent and swelling agent. (3) Observation of components in the description In each monograph, description is usually given of the outer portion and the inner portion of section in this order, followed by a specification of cell contents. Observation should be made in the same order. In the case of a powdered sample, description is given of a characteristic component or a matter present in large amount, rarely existing matter, and cell contents in this order. Observation should be made in the same order.	(1) Apparatus Use an optical microscope with objective of 10 and 40 magnifications, and an ocular of 10 magnifications. (2) Preparation for microscopic examination (i) Section: To a section an a slide glass add 1 to 2 drops of a mounting agent, and put a cover glass in it, taking precaution against inclusion of bubbles. Usually use a section 10 to 20 mm in thickness. (ii) Powder: Place about 0.1 g of powdered sample in a watch glass containing 2 to 3 drops of a swelling agent, stir well with a small rod preventing inclusion of bubbles, and allow to stand for more than 10 minutes to swell the sample. Smear, using a small glass rod, the slide glass with a small amount of the swollen sample, add 1 drop of the mounting agent, and put a cover glass on it so that the tissue sections spread evenly without overlapping each other, taking precaution against inclusion of bubbles. Unless otherwise specified, use a mixture of glycerin and water (1:1) as mounting agent and swelling agent. (3) Observation of components in the description In each monograph, description is usually given of the outer portion and the inner portion of section in this order, followed by a specification of cell contents. Observation should be made in the same order. In the case of a powdered sample, description is given of a characteristic component or a matter present in large amount, rarely existing matter, and cell contents in this order. Observation should be made in the same order.	Microscopical identification is method with the application of the microscope to identify the characters of tissues, cells or cell contents in sections, powders disintegrated tissues or surface slides of crude drugs and patent medicines. Representative to meet the requirements of identifications for each drugs. The slides of patent medicines are made after appropriate treatment with reference to their different dosage forms. 1. Microscopical slides of crude drugs (1) Transverse or Longitudinal Sections Select the observed part of the drug, cut into sections of 10-20 mm in thickness with a razor blade or using sliding microtome after softened. Material may be embedded in hard paraffin before cutting if necessary. Select a flat section on the glass slide, according to different phenomena, treate with glycerol-acetic acid TS, choral hydrate TS or other test solutions 1-2 drops, and cover the cover glass. If necessary, after treat chloral hydrate TS, heat until it is transparent, and then treat with glycerol-ethanol TS or diluent glycerol, cover the cover glass. (2) Slides of Powder Spread a small quantify of the powder, through a seive No. 4, on a slide, and examine after treated with glycerol-acetic acid TS, chloral hydrate TS, or other suitable test solutions, cover the cover glass. (3) Slides of Surface After moistening and softening the materials, cut two parts of about 4 mm^2 of the observed part, place on the glass slide (one for the obverse, the other for the opposite) or tear its epidermis, add suitable test solutions or heat until it is transparent, cover the cover glass. (4) Slides of Disintegrated Tissue The material should be cut into small strips of about 5 mm in length, 2 mm in diameter or pieces of about 1 mm thick before being disintegrated. Potassium hydroxide method can be used parenchyma makes most part of the material or the material with few or scattered woody tissues; chromic-nitric acids method or potassium chlorate method can be used if the material is hard, with the presence of more woody tissues or the woody grouped to lager bundles. ① Potassium Hydroxide Method ② Chromic-Nitric Acids Method ③ Potassium Chlorate Method (5) Slides of Pollen and Spore Grind Pollens, anthers (or small flowers) or sori (soften the dry material inglacial acetic acid) with a glass rod and filter into a centrifugal tube, centrifuge. To the precipitate add 1-3 ml of a freshly prepared mixture of acetic anhydride-sulfuric acid (9:1), heat on a water bath for 2-3 minutes, centrifuge. Wash the precipitate with water twice, place a little on the glass slide, treat with choral hydrate TS, cover the cover glass, or add 1-2 drops of 50% glycerin and 1% phenol, mount in fuchsin-glycerin gelatin. 2. Microscopical slides of preparations including drugs powder 3. Identification of cell wall (1) Lignified cell wall (2) Suberized or Cuticularized Cell Wall (3) Cellulose Cell Wall (4) Siliceous Cell Wall 4. Identification of Cell Content (1) Starch (2) Aleurone (3) Fatty oil, Volatile Oil or Resin (4) Inulin (5) Mucilage (6) Calcium Oxalte Crystals (7) Calcium Carbonate (stalactile) (8) Silicum 5. Microscopical measure It refers to measure the size of cells and cell contents in the microscope	Microscopical identification is a method using a microscope to identify the characters of tissues, cells or cell contents in sections, powders, disintegrated tissues or surface slides of crude drugs and patent medicines. Representative samples are chosen to be identified and slides are prepared to meet the requirements of identification for each drug. The slide of patent medicines are after appropriate treatment with reference ton their different dosage forms. Transverse of longitudinal sections Select a suitable oar of the drug having enough required botanical characteristics as specified below: Stems and small roots: Take a piece with a full sartorial trance verse section. Stems, big roots: Take a piece with a spectral transverse section (showing from the epidermis to the centre). Stem bark: Take a piece with a rectangular transverse section (showing from cork to xylem). Leaves: Take a piece with central vein and part of the lobes on both of its side. Flowers: Take the epiderma or cut transversely every part of the flower. Small fruits and seeds: Take the whole fruit or seed. Big fruits and seeds: Take a part of fruit or seed so that a section of which shows all botanical characteristics. Cut into thin sections with razor bale or using sliding microtome after being softened. Material may be embedded in herd paraffin before cutting if necessary. The section is examined immediately under a microscope unless otherwise specified or after being treated by the following ways: Macerate the section in 5% solution of chloramines TR until it is white, thoroughly wash with water. Macerate the section in a 1% solution of acetic acid R for 2 minutes, thoroughly wash with water. Macerate the section in green iod solution R or methylene blue for 1-5 s. quickly wash with ethanol (60%) R then with water. Macerate the section in carmine 40 solution R untiol it is coloured, wash with water. Slides of powder Spread a small quantity of the powder on a slide, and examine under a microscope after being treated with either water, glycerol, chloral hydrate R, or other suitable test solutions. Slide of surface After moistening and softening the materials (when necessary) out a part or tear its epidermis, add suitable test solutions and examine. Slide of disintegrated tissue Potassium hydroxide method can be used if parenchyma makes most part of the material or the material with a few or scattered woody tissues; chromic-nitric acids method or potassium chlorate method can be used if the material is hard, with the presence of more woody tissues or the woody tissues propped into larger bundles. The material should be cut into small strips or pieces of about 2 mm wide or thick before being disintegrated. a. Potassium hydroside method b. Chromic-nitric acids method c. Potassium chlorate method Pollen and spore slides Grind pollens, anthers, small flowers or sore (soften the dry material in glacial acetic acid R) with a glass rod and filter into a centrifugal tube, centrifuge. To the precipitate add 1 - 3 ml of a freshly prepared mixture of acetic anhydride-sulfuric acid (9:1), heat on a water bath for 2-3 minutes, centrifuge. Wash the precipitate with water twice, add 3-4 drops of glycerine gelatine and examine. Chloral hydrate R may also be used as mount ant for the examination. Measurements of cells and cell contents To measure the sizes of cells and cell contents, etc, under the microscope, ocular micrometer can be used. Place the ocular micrometer in an eyepiece first, then calibrate with a stage micrometer. For the calibration, turn the eyepiece and move the stage micrometer to make the divisions on the two scales parallel and their left "O" lines

JP	KP	CP	VP
Microscopic examination	**Microscopic examination**	**Microscopical Identification for Crude Drugs and Patent Medicines**	**MICROSCOPICAL IDENTIFICATION FOR CRUDE DRUGS AND PATENT MEDICINES**
		with ocular micrometer. (1) Ocular micrometer (2) Stage micrometer (3) Mark of ocular micrometer (4) Measurements	coincide, then look for another coincident lines to the right. Measurements of cells and cell contents The value (μm) of l ocular micrometer division can be calculated on the basis of divisions of the two micrometer scales between the coincident lines. To measure the object, multiply the number of object-measuring divisions of ocular micrometer by the value (μm) of each division. Generally, it is carried out under a high power objective, but a low power objective would be more convenient to measure the length of longer fibres and non-glandular hairs. etc. Record the maximal and minimal values (μm), permitting a few numerical values slightly higher or lower than the values specified in pharmacopoeial requirement. Detection of cell wall *Lignified cell wall* *Suberized or Cuticutarized cell wall* *Cellulose cell wall* *Siliceous cell Wall* Detection of cell contents *Starch* *Aleuronic* *Fatty oil, volatile oil or resin* *Inulin* *Calcium oxalate crystals* *Calcium carbonate* Silicum Insoluble in sulphuric acid Identify the patent medicines made from pulverized drugs, slides for powders are prepared according to the method for powder slides mentioned above; for pills and tablets, ets..., grind 2 -3 pills (tablets) into fine powder, to a small quantity of the sample add drop wise the required test solutions, stair thoroughly to separate the stuck cells and tissues, then carry out the identification method for powder characters, slides of honeyed pills can be prepared directly by picking a little sample, or de-honeyed with hot water for the examination.
Arsenic Limit Test	**Arsenic Limit Test**	**Limit Test for Arsenic**	**LIMIT TESTS FOR IMPURITIES (ARSENIC)**
The Arsenic Limit Test is a limit test of arsenic contained in drugs. The limit is expressed in terms of arsenic (III) trioxide (As_2O_3). In each monograph, the permissible limit for arsenic (as As_2O_3) is described in terms of ppm in parentheses. Preparation of the test solution Unless otherwise specified, proceed in the following. (1) Method 1 Weigh the amount of the sample direct in the monograph, add 5 mL of water, dissolve by heating if necessary, and designate the solution as the test solution. (2) Method 2 Weigh the amount of the sample directed in the monograph, add 5 mL of sulfuric acid except in the cases that the samples are inorganic acids. Add 10 mL of sulfurous acid solution, transfer to a small beaker, and evaporate the mixture on a water bath until it is free from sulfurous acid is reduced to about 2 mL in volume. Dilute with water to make 5 mL, and designate it as the test solution. (3) Method 3 Weigh the amount of the sample directed in the monograph, and place it in a crucible of platinum, quartz or porcelain. Add 10 mL of a solution of magnesium nitrate hexahydrate in ethanol(95)(1 in 50), ignite the ethanol, and heat gradually to incinerate. If carbonized material still remains by this procedure, moisten with a small quantity of nitric acid, and ignite again to incinerate. After cooling, add 3 mL of hydrochloric acid, heat on a water bath to dissolve the residue, and designate it as the test solution.	The Arsenic Limit Test is a limit test of arsenic contained in drugs. The limit is expressed in terms of arsenic (III) trioxide (As_2O_3). In each monograph, the permissible limit for arsenic (as As_2O_3) is described in terms of ppm in parentheses. Preparation of the test solution Unless otherwise specified, proceed in the following. (1) Method 1 Weigh the amount of the sample direct in the monograph, add 5 mL of water, dissolve by heating if necessary, and designate the solution as the test solution. (2) Method 2 Weigh the amount of the sample directed in the monograph, add 5 mL of sulfuric acid except in the cases that the samples are inorganic acids. Add 10 mL of sulfurous acid solution, transfer to a small beaker, and evaporate the mixture on a water bath until it is free from sulfurous acid is reduced to about 2 mL in volume. Dilute with water to make 5 mL, and designate it as the test solution. (3) Method 3 Weigh the amount of the sample directed in the monograph, and place it in a crucible of platinum, quartz or porcelain. Add 10 mL of a solution of magnesium nitrate hexahydrate in ethanol(95)(1 →50), ignite the ethanol, and heat gradually to incinerate. If carbonized material still remains by this procedure, moisten with a small quantity of nitric acid, and ignite again to incinerate. After cooling, add 3 mL of hydrochloric acid, heat on a water bath to dissolve the residue, and designate it as the test solution.	Method 1 (Gutzeit's method) Apparatus A is a 100 ml conical flask with standard ground joint : B is a standard hollow ground glass stopper connected to glass conduit C (external diameter 8.0 mm, internal diameter 6.0 mm), the total length of B and C is about 180 mm. D is a plastic screw, the upper part of which has an aperture 6.0 mm in diameter and the lower part of which has an aperture 8.0 mm in diameter; E is a plastic screw cap which has an aperture 6.0 mm in diameter. A wad of lead acetate cotton wool weighting about 60 mg is packed into tube C to a depth of about 60∽80 mm. A disc of mercuric bromide test paper is placed between the contacting surfaces of D and E. Arsenic standard stain Place 2 ml of standard arsenic solution, accurately measured, in flask A, add 5 ml of hydrochloric acid and 21 ml water. Then add 5 ml of potassium iodide TS and 5 drops of acid stannous chloride TS, allow to stand at room temperature for 10 minutes and add 2 g of zinc granules. Insert the stopper B and conduit C into the mouth of flask A and immerse the flask in a water bath at 25∽40℃ for 45 minutes. Remove the mercuric bromide test paper. Procedure Transfer the preparation prepared as described under individual monographs to flask A and proceed as described under Arsenic standard stain, beginning with the wards "Then add 5 ml of potassium iodide TS …". Any stain produced is not more intense than the standard stain. Method 2 (Silver diethyldithiocarbamate method) Apparatus A is a 100 ml conical flask with standard ground joint; B is a standard hollow ground glass stopper connected to glass conduit C (at one end, the external diameter is 8.0 mm and the internal diameter is 6.0 mm; the other end is in length of 180 mm, in external diameter of 4 mm and in internal diameter of 1.6 mm, the internal diameter of sharp end is 1 mm). D is a glass tube with flat bottom (length 180 mm, internal diameter 10 mm, and with a graduation at 5.0 ml). A wad of cotton wool previously moistened with lead acetate TS and dried weighing about 0.1 g is packed into conduit C to a depth of about 80 mm, and measure 3 ml of silver diethyldithiocarbamate TS in tube D. Standard arsenic reference solution Transfer 2 ml of arsenic standard solution as described under Method I	Use Method A unless otherwise directed in the monograph Method A The Apparatus consists of a 100 ml conical flask closed with ground-glass stopper through which passes a glass tube about 200 mm long and 5 mm in internal diameter. The lower part of the tube is drawn to an in internal diameter of 1 mm. 15 mm from its tip there is a lateral orifice 2 to 3 mm in diameter. When the tube is in position in the stopper the lateral orifice should be at least 3 mm below the lower surface of the stopper. The upper end of the tube has a perfectly flat, ground surface at right angles to the axis of the tube. A second glass tube of the same internal diameter and 30 mm long, with a similar flat ground surface, is placed in contact with the first and held in position by two spiral springs. *Procedure* : Into the longer tube insert 50 to 60 mg of lead acetate cotton R, Between the flat surfaces of the 2 tubes place a disc or a small square of mercury (II) bromide paper R large enough to cover the orifice of the tube, hold the 2 tubes in position by two spiral springs. In the conical flask dissolve or dilute the prescribed quantity of the substance being examined n sufficient water to produce 25 ml. Add 15 ml of hydrochloric acid R, 0.1 ml of tin (II) chloride solution As TR and 5 ml of a 20% solution of potassium iodide R. Allow to stand for 15 minutes and add 5 g of arsenic-free zinc R. Immediately assemble the two parts of the apparatus and immerse the flask in a water bath at a temperature such that a uniform evolution of gas is maintained. Prepare a standard at the same time and in the same manner using 1 ml of arsenic standard solution (1 ppm As) in place of the substance being examined and diluted to 25 ml with water. After not less than 2 hours compare the stains produced on the mercury (II) bromide papers. Any stain produced on the paper of the test flask is not more intense than that of the standard. Method B Add the prescribed quantity of the substance being examined to a test tube containing 4 ml of hydrochloric acid R and about 5 mg of potassium iodide R and add 3 ml of hydrophosphite solution R. Heat the mixture on a water bath for 15 minutes, shaking occasionally. Prepare a standard at the same time and in the same manner using 0.5 ml of arsenic standard solution (1 ppm As) in place of the substance being

JP	KP	CP	VP
Arsenic Limit Test	**Arsenic Limit Test**	**Limit Test for Arsenic**	**LIMIT TESTS FOR IMPURITIES (ARSENIC)**
(4) Method 4 Weigh the amount of the sample directed in the monograph. and place it in a crucibleof platinum, quartz or porcelain. Add 10 mL of a solution of magnesium nitrate hexahydrate in ethanol (95)(1 in 10), burn the ethanol, heat gradually, and ignite to incinerate. If carbonized material still remains by this procedure, moisten with a small quantity of nitric acid, and ignite again to incinerate in the same manner. After cooling, add 3 mL of hydrochloric acid, heat on a water bath to dissolve the residue, and designate it as the test solution. (5) Method 5 Weigh the amount of the sample directed in the monograph, add 10 mL of N,N-dimethylform-amide, dissolve by heating if necessary, and designate the solution as the test solution.	(4) Method 4 Weigh the amount of the sample directed in the monograph. and place it in a crucible of platinum, quartz or porcelain. Add 10 mL of a solution of magnesium nitrate hexahydrate in ethanol (1→10), burn the ethanol, heat gradually, and ignite to incinerate. If carbonized material still remains by this procedure, moisten with a small quantity of nitric acid, and ignite again to incinerate in the same manner. After cooling, add 3 mL of hydrochloric acid, heat on a water bath to dissolve the residue, and designate it as the test solution. (5) Method 5 Weigh the amount of the sample directed in the monograph, add 10 mL of N,N-dimethylform-amide, dissolve by heating if necessary, and designate the solution as the test solution.	to flask A, accurately measured, add 5 ml of hydrochloric acid and 21 ml of water. Then add 5 ml of potassium iodide TS and 5 drops of acid stannous chloride TS, allow to stand at room temperature for 10 minutes and add 2 g of zinc granules. Connect conduit C into flask A immediately, and allow the evolved arsine to enter tube D. Immerse the flask A in a water bath at 25∽40℃ for 45 minutes. Remove tube D, add chloroform to the graduation, mix well. Procedure Transfer the test preparation prepared as described under individual monographs to flask A and proceed as described under standard arsenic reference solution beginning with the words "Then add 5 ml of potassium iodide TS …". Compare the above two solution against a white background. Any colour produced by the preparation is not more intense than produced by the standard arsenic reference solution. If necessary, determine the absorbance at the wavelength of 510 nm, with a suitable spectrophoto-meter or colorimeter, using silver diethyldithiocarbamate TS as the blank.	examined. Compare the colour produced in the test solution with that in the standard solution. Any colour produced in the test solution is not more intese than that obtained in the standard solution.
Heavy Metals Limit Test	**Heavy Metals Limit Test**	**Limit Test for Heavy Metals**	**LIMIT TESTS FOR IMPURITIES (HEAVY METALS)**
The Heavy Metals Limit Test is a limit test of the quantity of heavy metals contained as impurities in drugs. The heavy metals are the metallic inclusions that are darkened with sodium sulfide TS in acidic solution, as their quantity is expressed in terms of the quantity of lead (Pb). In each monograph, the permissible limit for heavy metals (as Pb) is described in terms of ppm in parentheses. Preparation of test solutions and control solutions Unless otherwise specified, test solution and control solution are prepared as directed in the following: (1) Method 1 Place an amount of the sample, directed in the monograph, in Nessler tube. Dissolve in water to make 40 mL. Add 2 mL of dilute acetic acid and water to make 50 mL, and designate it as the test solution. The control solution is prepared by placing the volume of Standard Lead Solution directed in the monograph in a Nessler tube, and adding 2 mL of dilute acetic acid and water to make 50 mL. (2) Method 2 Place an amount of the sample, directed in the monograph, in a quartz or porcelain crucible, cover loosely with a lid, and carbonize by gentle ignition. After cooling, add 2 mL of nitric acid and 5 drops of sulfuric acid, heat cautiously until white fumes are no longer evolved, and incinerate by ignition between 500℃ and 600℃. Cool, add 2 mL of hydrochloric acid, evaporate to dryness on a water bath, moisten the residue with 3 drops of hydrochloric acid, add 10 mL of hot water, and warn for 2 minutes. Then add 1 drop if phenolphthalein TS, add ammonia TS dropwise until the solution develops a pale red color, add 2 mL of dilute acetic acid, filter if necessary, and wash with 10 mL of water. Transfer the filtrate and washing to a Nessler tube, and add water to make 50 mL. Designate it as the test solution. The control solution is prepared as follows: Evaporate a mixture of 2 mL of nitric acid, 5 drops of sulfuric acid and 2 mL of hydrochloric acid on a water bath, further evaporate to dryness on a sand bath, and moisten the residue with 3 drops of hydrochloric acid. Hereinafter, proceed as directed in the test solution, then add the volume of Standard Lead Solution directed in the monograph and water to make 50mL. (3) Method 3 Place an amount of the sample, directed in the	The Heavy Metals Limit Test is a limit test of the quantity of heavy metals contained as impurities in drugs. The heavy metals are the metallic inclusions that are darkened with sodium sulfide TS in acidic solution, as their quantity is expressed in terms of the quantity of lead (Pb). In each monograph, the permissible limit for heavy metals (as Pb) is described in terms of ppm in parentheses. Preparation of test solutions and control solutions Unless otherwise specified, test solution and control solution are prepared as directed in the following: (1) Method 1 Place an amount of the sample, directed in the monograph, in Nessler tube. Dissolve in water to make 40 mL. Add 2 mL of dilute acetic acid and water to make 50 mL, and designate it as the test solution. The control solution is prepared by placing the volume of Standard Lead Solution directed in the monograph in a Nessler tube, and adding 2 mL of dilute acetic acid and water to make 50 mL. (2) Method 2 Place an amount of the sample, directed in the monograph, in a quartz or porcelain crucible, cover loosely with a lid, and carbonize by gentle ignition. After cooling, add 2 mL of nitric acid and 5 drops of sulfuric acid, heat cautiously until white fumes are no longer evolved, and incinerate by ignition between 500℃ and 600℃. Cool, add 2 mL of hydrochloric acid, evaporate to dryness on a water bath, moisten the residue with 3 drops of hydrochloric acid, add 10 mL of hot water, and warn for 2 minutes. Then add 1 drop if phenolphthalein TS, add ammonia TS dropwise until the solution develops a pale red color, add 2 mL of dilute acetic acid, filter if necessary, and wash with 10 mL of water. Transfer the filtrate and washing to a Nessler tube, and add water to make 50 mL. Designate it as the test solution. The control solution is prepared as follows: Evaporate a mixture of 2 mL of nitric acid, 5 drops of sulfuric acid and 2 mL of hydrochloric acid on a water bath, further evaporate to dryness on a sand bath, and moisten the residue with 3 drops of hydrochloric acid. Hereinafter, proceed as directed in the test solution, then add the volume of Standard Lead Solution directed in the monograph and water to make 50mL. (3) Method 3 Place an amount of the sample, directed in the	The Term "heavy metals" refers to those metals that react with thioacetamide or sodium under the specified conditions to produce a coloured compound. Method 1 Unless otherwise specified, use two 25 ml Nessler cylinders. To cylinder A add the specified volume of lead standard solution and 2 ml of acetate BS (pH 3.5). dilute with water or other solvent as specified under individual monographs to 25 ml. To cylinder B add 25 ml of the test preparation containing a quantity of the substance being examined as specified under individual monographs. If the original test preparation is coloured, its colour can be matched by the addition of a few drops of dilute caramel solution or other suitable solution to cylinder A. To each cylinder add 2 ml of thioacetamide TS and mix well, allow to stand for 2 minutes, compare the colour produced by viewing down the vertical axis of the cylinder against a white background. The colour produced in cylinder B is not more intense than that produced in cylinder A. If the colour cannot be matched by the addition of caramel solution, duplicate the quantity of the substance being examined and the regent, add water or other solvent as specified under individual monographs to produce 30 ml of test preparation. Divide the test preparation into two equal portions and transfer to Nessler cylinder A and B. To cylinder B add sufficient water or other solvent as specified under individual monograph to produce 25 ml. To cylinder A add 2 ml of thioacetamide TS, mix well in porosity. To cylinder A add the prescribed volume of lead standard solution and dilute with water of other solvent as specified under individual monographs to produce 25 ml. Then add 2 ml of thioacetamide TS to cylinder B and 2 ml of water to cylinder A and compare the colour as described above. If the substance being examined contains a ferric salt which interferes the test, 0.5∽1.0 g of ascorbic acid should be added to each cylinder. Unless otherwise specified, evaporate the same quantity of the same reagents to dryness in a porcelain dish. Dissolve the residue in 2 ml of acetate buffer (pH 2.5) and 15 ml of water. Transfer the solution to a Nessler cylinder, add the specified quantity of lead standard solution and water to 25 ml. The solution is used as reference solution for the test solution which is prepared by using more than 1.0 ml of hydrochloric acid or equivalent amount of dilute hydrochloric acid, 2 ml of ammonia TS orby treating with other regents. Method 2 Unless otherwise specified, use the residue obtained from the Determination of residue on Ignition, add 0.5 ml of nitric acid, evaporate to dryness, heat until nitrous oxide fumes are no longer evolved (or alternatively, ignite a quantity of the substance being examined in crucible until thoroughly charred, cool, moisten the residue with 0.5∽1.0 ml of sulfuric acid, ignite at a low temperature until sulfurous acid fumes are no longer evolved, add 0.5 ml of nitric acid, evaporate to dryness, heat until nitrous oxide fumes are no longer evolved and ignite at 500∽600℃ until the incineration is complete). Cool, add 2 ml of hydrochloric acidevaporate to dryness on a water bath, add 15 ml of water, followed by ammonia TS dropwise until the solution is neutral to phenolphthalein IS, then add 2 ml of acetate BS (pH 3.5) and warm to effect dissolution. Transfer the resulting solution to Nessler cylinder B, dilute with water to 25 ml and produced as described under method I. The reference	Use one of the following methods as prescribed in the monograph. Method 1 To 12 ml of the prescribed solution in a tube, add 2 ml of acetate buffer pH 3.5 and mix. Add 1.2 ml of thioacetamide solution R, mix immediately and allow to stand for 2 minutes. Prepare a standard solution in the same manner using a mixture of 10 ml of either lead standard solution (1 ppm Pb) or lead standard solution (2 ppm Pb), as prescribed, and 2 ml of the solution being examined. Compare the colour produced in the test solution with that in the standard solution. Any brown colour produced in the test solution is not more intense than that obtained in the standard solution. The standard solution exhibits aslightly brown colour when compared to a blank solution prepared by traeting in the same manner a mixture of 10 ml water and 2 ml of the solution being examined. Method 2 Disolve the specified quantity of the substance being examined in an organic solvent containing a minimum percentage of water, such as 1, 4-dioxan R or acetone R containing 15% of water. Carry out Method 1 but prepare the lead standard solution by diluting lead standard solution (100 ppm Pb) with the solvent used to prepare the test solution to contain 1 or 2 ppm of Pb, as specified. Method 3 Place the prescribed quantity (usually not more than 2 g) of the substance being examined in a silica crucible. Add 4 ml of a 25% solution of magnesium sulphate in 2 N sulphuric acid R. Mix using a fine glass rod and heat cautiously. If the mixture is liquid, evaporate gently to dryness on a water bath. Progressively heat to ignition, not allowing the temperature to exceed 800℃, and continue heating until a white or at most greyish residue is produced. Allow to cool, moisten the residue with 0.2 ml of 2 N sulphuric acid R, evaporate, ignition again and allow to cool. The total period of ignition must not exceed 2 hours. Dissolve the residue using two 5 ml quantities of 2 N hydrochloric acid R. Add 0.1 ml of phenolphthalein solution I and concentrated ammonia solution R dropwise until a pink colour is produced. Cool, add glacial acetic acid R until the solution is decolorized and add a further 0.5 ml. Filter if necessary and dilute the solution to 20 ml with water. To 12 ml of the resulting solution in a tube, add 2 ml of acetate buffer pH 3.5 and mix. Add to 1.2 ml of thioacetamide solution R, mix immediately and allow to stand for 2 minutes. Compare the colour produced in the test solution with that in a standard solution prepared simultaneously in the same manner. Any colour producedin the test solution is not more intensethan that obtained in the standard solution. Method 4 Mix the prescribed quantity of the substance being examined with 0.5 g of magnesium oxide R in a silica crucible. Ignite to dull red heat until a homogeneous white or greyish white mass is produced. If after 30 minutes of ignition the mixture remains coloured, allow to cool, mix with a fine glass rod and repeat the ignition. If necessary, repeat the operation. Finally heat at 800℃ for about 1 hour. Dissolve the residue using two 5 ml quantities of 5 N hydrochloric acid solution R and carry out the procedure described under Method 3 beginning at the word "Add 0.1 ml of phenolphthalein solution I...". To prepare the standard solution place the prescribed volume of lead standard solution (10 ppm Pb) in a silica crucible, add 0.5 g of magnesium oxide R and mix. Dry the mixture in an oven at 100℃ to 105℃, ignite as described above.

JP	KP	CP	VP
Heavy Metals Limit Test	Heavy Metals Limit Test	Limit Test for Heavy Metals	LIMIT TESTS FOR IMPURITIES (HEAVY METALS)
monograph, in quartz or porcelain crucible, heat cautiously, gently at first, and then increase the heat until incineration is completed. After cooling, add 1 mL of aqua regia, evaporate to dryness on a water bath, moisten the residue with 3 drops of hydrochloric acid, add 10 mL of hot water, and warm for 2 minutes. Add 1 drop of phenolphthalein TS, add ammonia TS dropwise until the solution develops a pale red color, add 2 mL of dilute acetic acid, filter if necessary, wash with 10 mL of water, transfer the filtrate and washings to a Nessler tube, and add water to make 50 mL. Designate it as the test solution. The control solution is prepared as follows: Evaporate 1 mL of aqua regia to dryness on a water bath. Hereinafter, proceed as directed for the test solution, and add the volume of Standard Lead Solution directed in the monograph and water to make 50 mL. (4) Method 4 Place an amount of the sample, directed in the monograph, in a platinum or porcelain crucible, mix with 10 mL of a solution of magnesium nitrate hexahydrate in ethanol (95) (1 in 10), fire the ethanol to burn, and carbonize by gradual heating. Cool, add 1mL of sulfuric acid, heat carefully, and incinerate by ignition between 500℃ and 600℃. If a carbonized substance remains, moisten with a small amount of sulfuric acid, and incinerate by ignition. Cool, dissolve the residue in 3 mL of hydrochloric acid, evaporate on a water bath to dryness, wet the residue with 3 drops of hydrochloric acid, add 10 mL of water, and dissolve by warming. Add 1 drop of phenolphthalein TS, add ammonia TS dropwise until a pale red color develops, then add 2 mL of dilute acetic acid, filter if necessary, wash with 10 mL of water, transfer the filtrate and the washing to Nessler tube, add water to make 50 mL, and use this solution as the test solution. The control solution is prepared as follows: Take 10 mL of a solution of magnesium nitrate hexahydrate in ethanol (95) (1 in 10), and fire the ethanol to burn. Cool, add 1 mL of sulfuric acid, heat carefully, and ignite between 500℃ and 600℃. Cool, and add 3 mL of hydrochloric acid. Hereinafter, proceed as directed in the test solution, then add the volume of Standard Lead Solution directed in the monograph and water to make 50 mL.	monograph, in quartz or porcelain crucible, heat cautiously, gently at first, and then increase the heat until incineration is completed. After cooling, add 1 mL of aqua regia, evaporate to dryness on a water bath, moisten the residue with 3 drops of hydrochloric acid, add 10 mL of hot water, and warm for 2 minutes. Add 1 drop of phenolphthalein TS, add ammonia TS dropwise until the solution develops a pale red color, add 2 mL of dilute acetic acid, filter if necessary, wash with 10 mL of water, transfer the filtrate and washings to a Nessler tube, and add water to make 50 mL. Designate it as the test solution. The control solution is prepared as follows: Evaporate 1 mL of aqua regia to dryness on a water bath. Hereinafter, proceed as directed for the test solution, and add the volume of Standard Lead Solution directed in the monograph and water to make 50 mL. (4) Method 4 Place an amount of the sample, directed in the monograph, in a platinum or porcelain crucible, mix with 10 mL of a solution of magnesium nitrate hexahydrate in ethanol (95) (1 in 10), fire the ethanol to burn, and carbonize by gradual heating. Cool, add 1mL of sulfuric acid, heat carefully, and incinerate by ignition between 500℃ and 600℃. If a carbonized substance remains, moisten with a small amount of sulfuric acid, and incinerate by ignition. Cool, dissolve the residue in 3 mL of hydrochloric acid, evaporate on a water bath to dryness, wet the residue with 3 drops of hydrochloric acid, add 10 mL of water, and dissolve by warming. Add 1 drop of phenolphthalein TS, add ammonia TS dropwise until a pale red color develops, then add 2 mL of dilute acetic acid, filter if necessary, wash with 10 mL of water, transfer the filtrate and the washing to Nessler tube, add water to make 50 mL, and use this solution as the test solution. The control solution is prepared as follows: Take 10 mL of a solution of magnesium nitrate hexahydrate in ethanol (95) (1 in 10), and fire the ethanol to burn. Cool, add 1 mL of sulfuric acid, heat carefully, and ignite between 500℃ and 600℃. Cool, and add 3 mL of hydrochloric acid. Hereinafter, proceed as directed in the test solution, then add the volume of Standard Lead Solution directed in the monograph and water to make 50 mL. (5) Method 5 Unless otherwise specified, in the monograph, place 0.3 g of extract or 1.0 g of fluidextract in a platinum or porcelain crucible, evaporate to dryness on a water bath, incinerate by ignition between 500℃ and 600℃. Cool, dissolve the residue in 3 mL of hydrochloric acid by warming, filter and wash the residue 5 mL of water two times. Transfer the filtrate and washings to a Nessler tube, add 1 drop of phenolphthalein TS, add ammonia TS dropwise until a pale red color develops, then add 2 mL of dilute acetic acid, and add water to make 50 mL, Designate it as the test solution. The control solution is prepared as follows: add 3 mL of hydrochloric acid. Hereinafter, proceed as directed in the test solution, then add 3.0 mL of Standard Lead Solution and water to make 50 mL.	preparation should be prepared as follows. Place the same quantify of the same regents used for the preparation of test solution in a porcelain dish and evaporate to dryness, heat gently and dissolve in 2 ml of acetate BS (pH 3.5) and 15 ml of water, transfer to the Nessler cylinder A and add the specified volume of standard lead solution, dilute with water to 25 ml. Method 3 Unless otherwise specified, dissolve a quantity of the substance being examined in 5 ml if sodium hydroxide TS and 20 ml of water. Transfer the solution to a Nessler cylinder, add 5 drops of sodium sulphide TS and mix well the colour produced is not more intense than of a referencepreparation containing the specified volume of lead standard solution and treated in the same manner. Method 4 Apparatus The filter holder is compared of tightly sealed upper and lower parts with screw thread, washer, filter A is the upper cap part pf the filter holder the entrance may be fitted with a 50 ml syringe; B is joint : C is washer (external diameter is 10 mm, internal diameter is 6 mm) : D is filter membrane with 10 mm in diameter and 3.0 mm of porosity, soaked in water for more than 24 hours before use; E is auxiliary filter plate made of No.3 sintered glass filter plate with 10 mm in diameter and 1 mm in thickness; F is the lower part of the filter holder, the exit is fitted with a suitable rubber tube. Lead standard stain Measure accurately a quantity of lead standard solution to a small beaker, dilute to 10 ml with water or other solvent as and 1.0 ml of thioacetamide TS, mix well, allow to stand for 10 minutes. Transfer to a filter holder with a 50 ml syringe and filter it on applying an even pressure (filter rate is about 1 ml per minute), then place the filter membrane on a piece of filter paper and dry it. Procedure Transfer 10 ml of the test preparation prepared as described under individual monographs and proceed as described under Lead standard stain, beginning with the words "add 2 ml of acetate BS (pH 3.5)". Any stain produced is not more intense than the standard stain. If the test preparation is coloured or turbid, filter membrane is contaminated, replace it with another filter membrane and repeat the filtration until the filter membrane remains uncontaminated. Proceed as described under Lead standard stain, beginning at the words "add 2 ml of acetate BS (pH 3.5)", using 10 ml of filtrate, and compare the stain as described above.	Dissolve the residue using two 5 ml quantities of 5 N hydrochloric acid solution R and carry out the procedure described under Method 3 from the substance "Add 0.1 ml of phenolphthalein solution I..." and use a mixture of 10 ml of the above treated lead standard solution and 2 ml of the test solution. Method 5 Use a membrane filter holder, the dimensions of which are shown in Figure, fitted with a 50 ml syringe. The membrane filter disk (C) is made of a suitable material with a nominal pore diameter of 3 μm and protectedby a prefilter (B) that is made of borosilicate glass wire. Dissolve the prescribed quantity of the substance being examined in 30 ml of water unless otherwise specified in the monograph. Filter the solution applying an even pressure. Dismantle the holder and check that the membrane filter remains uncontaminated; if necessary replace the membrane filter and repeat the filtration. To the whole filtrate, or the prescribed volume of the filtrate, add 2 ml of acetate buffer pH 3.5 and add to 1.2 ml of thioacetamide solution R, mix and allow to stand for 10 minutes. Invert the order of the filters, and filter the solution applying slow and even pressure. Remove the membrane filter is not move intense than that obtained by standard which is treated using the prescribed volume of lead standard solution (1 ppm Pb) in the same manner from the sentence "Add 2 ml of acetate buffer pH 3.5...".
		General Quality Control Method for Crude Drugs	
		General quality control method for crude drugs includes the "Description", "Identification", "Tests", "Determination of Extractives" and "Assay" of crude drugs. A scheme for the examination of crude	

JP	KP	CP	VP
		General Quality Control Method for Crude Drugs	
		drugs is outlined below. 1. Carry out the method for sampling of crude drugs to take the drugs being examined. 2. Use a reference drug concerned which complies with the requirements specified under individual monograph to verify the result of tests or assays of a crude drug. 3. If the crude drugs being examined are broken, they should comply with the general requirement, except that described under "Description" in the monograph concerned. 4. "Description" consists of the form, size, colour, surface characters, texture, cut surface or fracture characters, odour and taste. 5. Identification indicates the methods for the examination of the identify of crude drugs, consisting of the traditional experiential, microscopic, physical and chemical methods. 6. Tests refers to test for the purity of crude drugs, such as the content of water, ash or foreign matter. 7. Determination of extractive refers to determine the content of soluble substances in crude drugs extracted with water or other solvents. 8. Assay refers to examine the crude drugs quantitively with chemical, physical or biological methods, including the determination of volatile oils, the content of active principles and potency by biological assay.	
		The Processing of Crude Drugs	**THE PROCESSING OF CRUDE DRUGS**
		Processing of crude drugs is to make the crude drugs into small processed pieces through processing procedures such as cleaning, cutting and stir-baking, so that to obtain the processed drugs fulfilling the requirements of therapy, dispensing and making preparations thus assuring the safety and efficacy of the drugs. The water used for processing should be unpolluted drinking water. Unless specified otherwise, the processing should meet the following requirements. 1. Cleaning The crude drugs after cleaning are called "clean crude drugs". Clean crude drugs should be used in cutting, processing, dispensing or compounding. The crude drugs can be cleaned with the method of sorting, winnowing, washing, sifting, cutting, scraping, paring, rejecting, brushing, rubbing and grinding, soaking, rinsing etc. to reach the quality standard on the basis of specific conditions. 2. Cutting Unless cutted in fresh or dry form, the crude drugs should be moistened to soft for cutting, it is better to keep moisten than to soak in water to prevent the elimination of active principles, the crude drugs should be treated separately and appropriately according to their size, diameter and hardness, nothing the temperature, quantity of water and duration of treatment. The drugs should be dried in time after cutting. The crude drugs may be cut into slices, sections, pieces and slivers, etc. Their size and thickness are generally as follows. *Slices* Less than 0.5 mm in thickness for very thin slices, 1-2 mm in thickness for thin slices; more than 2-4 mm in thickness for thick slices. Sections or segments 10-15 mm in length. *Pieces* Cubes of 8-12 mm. *Slivers* 2-3 mm in width for barks; 5-10 mm in width for leaves. The crude drugs other than those treated by cutting are usually treated by pounding. 3. Roasting and Broiling Unless specified otherwise, the general methods and requirments are as follows. (1) Stir-baking (2) Scalding (3) Calcing (4) Carbonizing (5) Steaming (6) Boiling (7) Stewing (8) Blanching in boiling water (9) Processing with wine (10) Processing with vinegar (11) Processing with solt-water (12) Stir-baking with ginger juice (13) Stir-baking with honey (14) Stir-baking with oil (15) Frost-like powder (16) Levigating (17) Roast	In traditional Vietnamese medicine, the medicaments used by oral administration are always to undergo stages of processing. *Preprocessing* (preliminary processing): The preprocessing aims at removing parts that are not indented for medicinal use (rootlets, cores, roots, stones...) or stabilising the crude drugs right away at the beginning (exposure to sunlight, drying, sulphuration...). Thus, after preprocessing the initial materials are obtained and called "raw drugs" that however have to comply with certain requirements of quality standard. *Complex-processing* (processing): This is more complicated process with a view to reducing toxicity, adverse and side effects or changing therapeutic categories, increasing channel tropism and still affecting very often the active ingredient structure and effects of the crude drugs to be processed. Thus, after complex-processing the materials with officinal meaning are obtained and called "processed drugs", complying with the requirement of therapy. Aqueous methods (water-processing) *Washing* *Soaking* *Wrapping up* *Levitating* Thermal methods (fire-processing) *Stir-baking* *Simple stir-baking* *Stir-baking with gentle heat* *Stir-baking to yellowing* *Stir-baking to yellowing and laying down on the ground* *Stir-baking to yellowing with darkened fractures* *Stir-bakint with nature presevation (Stir-baking to darkening)* *Stir-baking to carbonizing* *Stir-baking with liquid excipients* *Stir-baking with wine* *Stir-baking with vineger (processing with vineger)* *Stir-baking with honey* *Stir-baking with ginger juice* *Stir-baking with ginger loses* *Stir-baking with milk* *Stir-baking with rice-washing water* *Stir-baking with urine* *Stir-baking with black-bean water* *Stir-baking through an intermediary* *Stir-baking in a sand-bath* *Stir-baking in a bath of powdered talc or clam-shell* *Broiling* *Burning with ethanol* *Calcinating* Drying *Drying in a stove at normal pressure* *Drying over a cooking fire or charcoal oven*

JP	KP	CP	VP
		The Processing of Crude Drugs	**THE PROCESSING OF CRUDE DRUGS**
			Aqueous-thermal methods **Stewing** ***Steaming*** ***Boiling*** ***Quenching***
		Determination of Tanninoids	**DETERMINATION OF TANNINOIDS IN HERBAL DRUGS**
		This experiment should be processed without illumination. **Preparation of reference solution** **Place 50 ml reference substance solution of gallic acid, accurately measured, in 100 ml brown measuring flask, dissolve and dilute to volume with water. Place 5 ml, accurately measured, in 50 ml brown measuring flask, dilute to volume with water, shake well (0.05 g gallic acid per ml).** **Preparation of standard curve** **Place 1.0 ml, 2.0 ml, 3.0 ml, 4.0 ml 5.0 ml reference substance solution, in 25 ml brown measuring flask, add 1 ml phosphotungstomolybdic acid respectively, then add 11 ml, 10 ml, 9 ml, 8 ml, 7 ml water respectively, dilute to volume with 29% sodium carbonate, shake well. With corresponding reagents as blank, measure the absorbance at 760 nm according to the Ultraviolet Spectrophotometry and Colourimetry. Draw the standard curve with the absorbance as ordinate and concentration as abscissa.** **Preparation of test solution** **Place a quantity of the powdered material (according to the prescription under the individual monograph), accurately weighed, in a 250 ml brown measuring flask, add 150 ml water, stand overnight, treat with ultrasound for 10 minutes, allow to cool, dilute to volume with water, shake well, keep standing (for solids depositing), filter and throw away the first 50 ml of filtrate. Place 20 ml of the filtrate, accurately measured, in 100 ml brown measuring flask, dilute to volume with water.** **Procedure** **Total phenol** **Place 2 ml solution being examined, accurately measured, into 25 ml brown measuring flask. Follow the steps in preparation of standard curve, from "add 1 ml phosphotungstomolybdic acid", add 10 ml water, measure the absorbance according to the method and calculate the content of gallic acid in the test solution using the standard curve.** **Non-adsorbed polyphenol** **Place 25 ml solution being examined, accuratly measured, in 100 ml stoppered conical flask, previously added 0.6 g casein, and stopper well. Stay at 30℃ for 1 hour on a water bath, shake well, then allow to cool, filter and throw away the frontal filtrate. Place 2 ml of the filtrate, accurately measured, in 25 ml brown measuring flask. Follow the steps in Preparation of standard curve, from "add 1 ml phosphotungstomolybdic acid", add 10 ml water, measure the absorbance and calculate the content of gallic acid in the solution being examined using the standard curve. Use this following formula to calculate the content of tannnin in the test solution.** **Total tannin = (Total phenol) - (Non-adsorbed polyphenol)**	**Weigh accurately a quantity of powdered crude drug (passed through a N0 355 sieve) containing about 1g of tannoids. Place in a conical flask, add 150 ml of water and heat on a bath for 30 minutes. Allow to cool, transfer the mixture to a 250 ml volumetric flask. Dilute to volume with water, filter and use the filtrate as the test solution.** **Determination of total water-soluble extractives** **Take accurately 25 ml of the test solution, evaporate to dryness, dry the residue at 105℃ for 3 hours. Weigh (T1 g).** **Determination of water-soluble extractives not bound with hide powder** **To 100 ml of the test solution, measured accurately, add 6 g of dry hide powder R. Shake well fore 15 minutes and filter, Take accurately 25 ml of the filtrate, evaporate to dryness, dry the residue at 105℃ for 3 hours. Weigh (T2 g).** **Determination of water-soluble extractives of hide powder** **To 100 ml of water, measured accurately, add 6 g of dry hide powder (R). Shake well fore 15 minutes and filter, Take accurately 25 ml of the filtrate, evaporate to dryness, dry the residue at 105℃ for 3 hours. Weigh (T0 g). Calculate the percentage of tanninoids in herbal drugs from the expression:** **(T1-T2+T0) x 10/a x100** **where:** **a is the mass taken (in g) of the drug being examined, calculated on the dried basis.**
		Determination of Cineol	**DETERMINATION OF CINEOLE IN THE VOLATILE OIL**
		Carry out the method for gas chromatography. **Chromatographic system and system suitability** **Pack a column with 7:3 (g/g) of 10.0% polyethylene glycol (PEG)-20M and 2.0% silicon (OV-17), with PEG at the end of injection; maintain the column temperature 110±5℃; the number of theoretical plate of the column is not less than 2500, calculated with reference to cineol; the resolution factor of the peaks of cineol and its neighbouring impurities should meet the requirement.** **Determination of the correction factor** **Dissolve a quantity of cyclihexanone, accurately weighed, in *n* -hexane to make a solution containing 50 mg per ml as the internal standard. Weigh accurately about 100 mg of cineol CRS to a 10 ml volumetric flask, add accurately 2 ml of the internal standard solution, dilute with *n* -hexane to volume, shake well, inject 1 ml of the solution to the column for 3-5 times, and calculate the correction factor by the average area of peaks.** **Preparation and determination of the test solution** **Weigh accurately about 100 mg of the sample to a 10 ml volumetric flask, add accurately 2 ml of the internal standard solution, dilute with *n* -hexane to volume, shake well, use it as the test solution. Inject 1 ml of the solution to the column and calculate the content of cineol.**	**Weigh 3.00g of the sample, recently dried with anhydrous sodium sulphate R, into a dry test tube and add 2.10g of melted o-cresol. Place the tube in the apparatus for the determination of freezing point and allow to cool, stirring continuously. When crystallisation takes place there is a small rise in temperature; note the highest temperature reached (t1). Remelt the mixture on a water bath ensuring that the temperature douse not exceed t1 by more than 5℃ and place the tube in the apparatus maintained at a temperature 5℃ below t1. When recrystallisation takes place, or when the temperature of the mixture has fallen 3℃ below t1, stair continuously, note the highest temperature at which the mixture freezes (t2). Repeat the operation until the tow highest values obtained for t2 not differ by more than 0.2℃. If super cooling occurs, induce crystallisation by the addition of small crystal of a complex consisting of 3.00 g of cineol and 2.10 g of melted o-cresol. If t2 is below 27.4℃, repeat the determination after the addition of 5, 10g of the complex. Determine the percentage (m/m) of cineole correspondent to the freezing point (2) from the Table, obtaining intermediate values by interpolation. If 5.10g of the cineol o-cresol complex was added, calculate the percentage m/m of cineole from the expression 2 (A-50), where A is the value corresponding to a freezing point of t2 taken from the Table.**

Acknowledgments

We are grateful to Dr. Chen Ken and Dr. Choi Seung-Hoon (Regional Adviser of Traditional Medicine, WPRO) for special advice and suggestions to the Sub-Committee 1. We are also grateful to the heads of EWGs for coordinating each EWG and preparing comparative tables, and express special thanks to all FHH members for their wholehearted assistance of our work.

A part of this work was financially supported by a Health and Lavour Sciences Research Grant formulations for “Studies on evaluating the effectiveness, ensuring the safety and international harmonization of crude drugs and Kampo formulations”, “Studies on evaluating effectiveness, ensuring the safety and reconsideration of the 210 Kampo formulations for OTC drugs” and “Studies on international harmonization of herbal medicine in pharmacopoeias” from the Ministry of Health Labour and Welfare of Japan.