

# Harmonization of Indian Pharmacopoeial Standards\*

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## Abstract

Drugs & Cosmetics Act & Rules recognise Indian Pharmacopoeia, Ayurvedic Pharmacopoeia of India, Siddha Pharmacopoeia of India, Unani Pharmacopoeia of India and Homoeopathy Pharmacopoeia of India under regulatory frame work. These pharmacopoeias have incorporated a number of monographs which are common in respect of botanical source of drugs but vary in standards. The aim of harmonization of monographs is to arrive at identical requirements for all attributes of a herbal drug notable with the simplification and standardizations of quality control methods. Harmonization of monographs on common herbal drugs (botanical species) in these pharmacopoeias is needed to avoid confusion in varying specifications.

**Keywords:** Pharmacopoeial harmonization, Pharmacopoeial herbal drugs, Drugs and Cosmetics Act & Rules.

## Introduction

India is the only country which recognizes the five pharmacopoeias of different systems of medicine under regulatory frame. In Indian context Indian Pharmacopoeia (IP) is the premier pharmacopoeia having its first edition published in the year 1955 followed by the publication of other pharmacopoeias viz. The Ayurvedic Pharmacopoeia of India (1986), The Unani Pharmacopoeia of India (1998), The Siddha Pharmacopoeia of India (2008) and The Homoeopathy Pharmacopoeia of India (1971). All these Pharmacopoeias provide regulatory standards (under Drugs & Cosmetics Act & Rules) for quality control of drugs of allopathic, ayurvedic, siddha, unani and homoeopathic systems of medicine. All these pharmacopoeias have incorporated the monographs on herbal drugs along with drugs of other natural (animal and mineral–metals) and synthetic origin. To facilitate uniformity in regulatory quality specifications, harmonization of pharmacopoeial standards is timely need when acceptability of herbal drugs is accelerating. Present write-up is based on this rationale.

## Essentiality of Harmonization

Globalization and expansion in international trade present a growing need to develop global quality standards for medicines. As standards are a vital instrument for registration, market surveillance and free movement and trade of medicines among as many countries as possible, harmonization among

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the national pharmacopoeias is essential to avoid confusion in regulation. To facilitate uniformity in regulatory quality specifications, some harmonization of pharmacopoeial standards will be of advantage to all. If past is prologue, one can look to present and former pharmacopoeial monographs as guideposts in any effort for future harmonization.

The details of respective pharmacopoeias published in India and incorporated monographs therein are given in Table 1-5.

Table 1 : Pharmacopoeia of India (IP) editions

Sl. No.	Title	Year of Publication	No. of Monographs on Herbal Drugs
1.	The Pharmacopoeia of India (1 <sup>st</sup> ed)	1955	237
2.	The Pharmacopoeia of India (2 <sup>nd</sup> ed)	1966	155
3.	The Pharmacopoeia of India (3 <sup>rd</sup> ed)	1985	17
4.	Indian Pharmacopoeia (4 <sup>th</sup> ed)	1996	21
5.	Indian Pharmacopoeia (5 <sup>th</sup> ed)	2007a	58
6.	Indian Pharmacopoeia (6 <sup>th</sup> ed)	2010a	89
7.	Indian Pharmacopoeia (7 <sup>th</sup> ed)	2014	123

Table 2 : Ayurvedic Pharmacopoeia of India (API) publications

Sl. No.	Title	Year of Publication	No. of Monographs on Herbal Drugs
1.	The Ayurvedic Pharmacopoeia of India, Pt. I, Vol. I	1986	80
2.	The Ayurvedic Pharmacopoeia of India, Pt. I, Vol. II	1999a	78
3.	The Ayurvedic Pharmacopoeia of India, Pt. I, Vol. III	2001	100
4.	The Ayurvedic Pharmacopoeia of India, Pt. I, Vol. IV	2004	68
5.	The Ayurvedic Pharmacopoeia of India, Pt. I, Vol. V	2006 a	92
6.	The Ayurvedic Pharmacopoeia of India, Pt. I, Vol. VI	2008 a	101
7.	The Ayurvedic Pharmacopoeia of India, Pt. I, Vol. VIII	2008 b	60

Table 3 : Unani Pharmacopoeia of India (UPI) publications

Sl. No.	Title	Year of Publication	No. of Monographs on Herbal Drugs
1.	The Unani Pharmacopoeia of India, Pt. I, Vol. I	1998	45
2.	The Unani Pharmacopoeia of India, Pt. I, Vol. II	2007 b	50
3.	The Unani Pharmacopoeia of India, Pt. I, Vol. III	2007 c	53
4.	The Unani Pharmacopoeia of India, Pt. I, Vol. IV	2007 d	50
5.	The Unani Pharmacopoeia of India, Pt. I, Vol. V	2008 c	52
6.	The Unani Pharmacopoeia of India, Pt. I, Vol. VI	2009	48

Table 4 : Siddha Pharmacopoeia of India (SPI) publications

Sl. No.	Title	Year of Publication	No. of Monographs on Herbal Drugs
1.	The Siddha Pharmacopoeia of India, Pt. I, Vol. I	2008d	73
2.	The Siddha Pharmacopoeia of India, Pt. I, Vol. II	2010b	66

Table 5 : Homoeopathic Pharmacopoeia of India (HPI) publications

Sl. No.	Title	Year of Publication	No. of Monographs on Herbal Drugs
1.	Homoeopathic Pharmacopoeia of India, Vol. I	1971	180
2.	Homoeopathic Pharmacopoeia of India, Vol. II	1974	100
3.	Homoeopathic Pharmacopoeia of India, Vol. III	1978	105
4.	Homoeopathic Pharmacopoeia of India, Vol. IV	1984	107
5.	Homoeopathic Pharmacopoeia of India, Vol. V	1987	114
6.	Homoeopathic Pharmacopoeia of India, Vol. VI	1990	104

Sl. No.	Title	Year of Publication	No. of Monographs on Herbal Drugs
7.	Homoeopathic Pharmacopoeia of India, Vol.VII	1999 b	105
8.	Homoeopathic Pharmacopoeia of India, Vol.VIII	2000	101
9.	Homoeopathic Pharmacopoeia of India, Vol.IX	2006 b	100

An overview of pharmacopoeial monographs on herbal drugs (botanical species) incorporated in these pharmacopoeias reveal that a number of herbal drugs are common in botanical sources. Each pharmacopoeia has its specific format for pharmacopoeial monographs (Table-6) and herbal drugs incorporated in these pharmacopoeias have regulatory specification on that specific format. The review of common monographs of these pharmacopoeias reveals variability in quality specifications in certain cases under regulatory framework. Therefore, harmonization of these monographs, will have desired impetus in follow-up work.

Table 6: Format of monographs in different Indian Pharmacopoeias

Sl. No.	Parameters	Unani Pharmacopoeia of India (UPI)	Ayurvedica Pharmacopoeia of India (API)	Siddha Pharmacopoeia of India (SPI)	Homoeopathy Pharmacopoeia of India (HPI)	Indian Pharmacopoeia (IP' 2014)
1.	<b>Pharmacopoeial Title</b>	√	√	√	√	√
2.	<b>Defination-Botanical Name (family),Part used as distribution</b>	√	√	√	Botanical Name, Family, Part used, Distribution are under independent headings	√
3.	<b>Synonyms</b>	√	√	√	√	√
4.	<b>Regional Language Name</b>	√	√	√	Common Names	-
5.	<b>Description</b> Macroscopic Microscopic Powder	√	√	√	Description- Macroscopic Microscopic Powder-independent headings	-
6.	<b>Identity, Purity &amp; Strength</b>	√	√	√	-	-
	Foreign Matter	√	√	√	-	√
	Total Ash	√	√	√	-	√
	Acid insoluble ash	√	√	√	-	√
	Alcohol/ethanol soluble extractive	√	√	√	-	√
	Water soluble Extractive	√	√	√	-	√

Sl. No.	Parameters	Unani Pharmacopoeia of India (UPI)	Ayurvedica Pharmacopoeia of India (API)	Siddha Pharmacopoeia of India (SPI)	Homoeopathy Pharmacopoeia of India (HPI)	Indian Pharmacopoeia (IP' 2014)
7.	Thin Layer Chromatography	√	√	√	In certain monographs	√
8.	<b>Constituents</b>	√	√	√	-	-
9.	Properties and Action (as per system of medicine)	√	√	√	-	Category
10.	Important Formulations	√	√	√	-	-
11.	Therapeutic Uses	√	√	√	-	-
12.	Dose	√	√	√		
13.	Identification	-	-	-	√	Macroscopic Microscopic & TLC
14.	<b>History and authority</b>	-	-	-	√	-
15.	<b>Preparation</b>	-	-	-	√	-
16.	<b>Heavy metals</b>	-	-	-	-	√
17.	<b>Loss on drying</b>	-	-	-	-	√
18.	<b>Microbial contamination</b>	-	-	-	-	√
19.	<b>Assay</b>	-	-	-	-	√
20.	<b>Storage</b>	-	-	-	-	√

Harmonization efforts in the area of pharmacopoeias started long back. World Health Organization was mandated with its Secretariat in 1948. This led to the creation of the International Pharmacopoeia. Pharmacopoeias are country specific and embedded in their respective national or regional regulatory environment. Prospective harmonization is easier in comparison to retrospective harmonization which is difficult to achieve. But present pharmacopoeial standards (pharmacopoeial texts and reference standards) subject to harmonization needs to be viewed within a long-term perspective.

Harmonization as a word covers many individual realities. The pharmacopoeias have found that prospective harmonization of yet-to-be-adopted monographs or reference standards is easier to achieve than retrospect harmonization of existing monographs that differ. Variability existing in monographs arose out of different laboratory practices and environments and different time frame of development of respective pharmacopoeia. Pharmacopoeial Discussion Group (PDG) (WHO) has defined harmonization of a pharmacopoeial monographs or general chapter as – “A pharmacopoeial general chapter or other pharmacopoeial document is harmonized when a

substance or preparation tested by the harmonized procedure yields the same results and the same accept/reject decision is reached”.

Forward harmonization is a concept agreed upon by the members of the forerunner of the PDG, the British, European, Japanese and U.S. pharmacopoeias. It means selection of methods that would be acceptable well into the future that any pharmacopoeia can retain any meaningful standard even if not adopted by the others and that harmonization does not inhibit unilateral progress on the part of any pharmacopoeia. Although agreed to, this has been difficult to achieve.

### Pharmacopoeial Standardization

Pharmacopoeial standardization strategies for herbal drugs are the general definition of the plant as the active material, whether or not the active constituents are known. This concept has substantial implications. When an expiration date is assigned before which reliable performance can be expected, identity, purity and strength tests must support the definition. Pharmacopoeial monographs intrinsically are shelf-life standards, so one can expect that the pharmacopoeial monographs will select technology that will exclude definitively decomposed botanical materials.

### Description-Macroscopic and Microscopic

Description comprises pharmacognostic studies in respect of macroscopic and microscopic details of entire drug and details of cellular components of powdered drug. The first challenge is pharmacognostic description. The sine qua non for a herbal drug is identification. These are many monographs in different pharmacopoeias complete botanical description by the language of pharmacognosy is elaborated. But for the pharmacopoeias to harmonize on pharmacognostics, they face a significant challenge. It only needs diagnostic characteristics. The standard is unenforceable if industry and regulators cannot obtain analysts with the correct training to interpret a botanical description accurately.

### Botanical Reference Standards

Botanical reference materials are critical aspect of identification, for both botanical and histological parameters and for regulatory specifications. For the pharmacopoeias, the harmonization challenge is in availability of compatible reference materials so that comparison against two different reference materials does not confuse the issue in any one quality control laboratory.

### Purity and Strength

In pharmacopoeias certain general quality parameters would be expected to apply to most if not all (e.g., Total ash, acid-insoluble, water-soluble extractive, alcohol soluble extractive as-because sand or other mineral contents of drugs are a predictable in occurrence).

But eventual harmonization of these general quality characteristics is a reasonable expectation.

### Assays

Quantitative determination of active ingredients or characteristic markers may be inescapable for certain preparations and plant materials.

### Other Specifications

Limits on water and volatiles contents are also covered in some of the monographs in pharmacopoeias. Other specific herbal drug also herbal require tests for bitterness or tannins; hemolytic activity tests for saponins; or some functionality testing, such as for swelling and foaming index. There will be difficulty in harmonization on these less frequently standardized parameters.

### Chromatographic Finger-Printing

Thin-layer chromatography is for use in a wide variety of circumstances. Chromatography the active constituents of the herbal markers. Characteristic and quantifiable plant constituents to be used in quality control when actives are uncertain or not found. One can verify markers as characteristic or that a pattern of active ingredients is characteristic, by examination of a fairly large number of batches of that authentic herbal drug from more than one source. Authentic specimens will be inescapable for comparison because of the known variation in chromatographic finger printing.

### Heavy Metals

Tests for heavy metals are also required to be harmonized. It is difficult to harmonize the application of specific tests for elements, such as cadmium or lead, when instruments such as inductively coupled plasma or atomic absorption are to be used. Although toxicity-based limits is the proper way to establish specifications.

## Pesticide Residue

Herbal drugs resourced through cultivation, pesticides are ubiquitous. During postharvest treatment use of pesticides leads to contamination, so analysis for toxic residues when a drug is to be ingested is an issue of analysis to ensure the level of pesticides residue.

WHO has recommended a list of about 42 pesticides to be minimally tested in herbal drugs. WHO suggested that there be: (1) a list of pesticides not to be used in the cultivation of herbs for medicinal use; and (2) a list of those pesticides to be favored in this regard. This would greatly reduce the combinations to be coped with in the analytical laboratories worldwide in determining the absence of unwanted quantities of pesticide residues.

## Microbial Limits

The need for the absence of pathogens, such as *Salmonella*, *E. coli* and *Pseudomonas* etc. are mendatory. The application of limits for molds also is an area in which there will be differences of opinion. Some people would test strictly by chemical means for aflatoxins, and others would take the more general microbiologic approach.

Harmonization of pharmacopoeial monographs may be achieved by the decision of the expert committees/pharmacopoeial committees of each pharmacopoeia. The implementation of harmonization monographs will also depend upon their legal requirement need for translation and publication schedule. Harmonization did not completed until the text become official in all the pharmacopoeia having common monographs. The harmonized monographs are also subject of revision but not to done unilaterally. The revision should be necessitated with appropriate reason and should be taken up nothing other pharmacopoeia simultanesouly. Table 7 Pharmacopoeia in Indian Context.

Table 7 : Herbal Drugs monographs on common botanical sources in different Pharmacopoeias of India

Botanical Name (as specified in Pharmacopoeial Monograph)	Pharmacopoeial / Monograph Title	Morphological Part specified as drug	Regulatory / Pharmacopoeial References
<i>Abrus precatorius</i> L.	Gunja	Seed	API- I
	Kunrimani		SPI-I
	Jequirity		HPI-IX
<i>Abrus precatorius</i> L.	Gunja	Root	API- II
	Ghongchi		UPI-IV



Botanical Name (as specified in Pharmacopoeial Monograph)	Pharmacopoeial / Monograph Title	Morphological Part specified as drug	Regulatory / Pharmacopoeial References
<i>Acacia leucophloea</i> Willd.	Arimeda	Stem bark	API- II
	Kath		UPI-VI
<i>Acacia nilotica</i> (L.) Willd. ex Del.	Samagh-e-Arabi	Gum	UPI-VI
	Acacia		IP-2014
<i>Acalypha fruticosa</i> Forsk.	Laghu haritamanjari	Root	API- VI
	Cinni ver		SPI-II
<i>Acalypha indica</i> L.	Harita manjari	Whole plant	API- VI
	Kuppaimeni camulam		SPI-II
	<i>Acalypha indica</i>		HPI-VIII
<i>Achyranthes aspera</i> L.	Apamarga	Whole plant	API- II
	Nayuruvic camulam		SPI-I
<i>Achyranthes aspera</i> L.	Apamarga	Root	API- III
	Chirchita		UPI-IV
<i>Aconitum chasmanthum</i> stapf	Vatsanabha	Root	API- II
	Aconiturn, Aconite		IP- 55
	Beesh		UPI-IV
<i>Aconitum heterophyllum</i> Wall ex.	Atees Shireen	Root	UPI-I
	Ativisa		API- I
	Ativitayam		SPI-I
<i>Acorus calamus</i> L.	Vaca	Rhizome	API- II
	Waj Turki		UPI-V
<i>Adhatoda vasica</i> Nees	Arusa	Leaf	UPI-VI
	Vasa		API- I
	Vasaka		IP- 2014
	<i>Justicia adhatoda</i>		HPI-I
<i>Aegle marmelos</i> (L.) Corr.	Vilva ver	Root	SPI-I
	Bilva		API- III
<i>Aegle marmelos</i> (L.) Correa	Belae fructus, Bael	Fruit Pulp	IP- 66
	<i>Aegle marmelos</i>		HPI-VI
	Belgiri		UPI-I
	Bilva		API- I

Botanical Name (as specified in Pharmacopoeial Monograph)	Pharmacopoeial / Monograph Title	Morphological Part specified as drug	Regulatory / Pharmacopoeial References
<i>Aerva lanata</i> (L.) Juss. ex Schult.	Cirupilaic camulam	Whole plant	SPI-I
	Pattura		API- V
	Yavasaka		API- II
	Seer (Lahsan)		UPI-V
	Vellaippuntu		SPI-II
	Allium sativum		HPI-I
	Lasuna		IP- 2014
<i>Aloe barbadensis</i> Mill.	Kanyasara	Dried juice of leave	API- I
	Sibr		UPI-I
	Aloe, Aloes		IP-96
<i>Alpinia galanga</i> Willd.	Kulanjana	Rhizome	API- V
	Perarattai		SPI-I
	Khulanjan		UPI-II
<i>Alstonia scholaris</i> (L.) R. Br.	Alstonia; Chhatim	Bark	IP- 55
	Saptaparna		API- I
	Alstonia scholaris		HPI-IV
<i>Alternanthera sessilis</i> (L.) R.Br.,ex DC.	Ponnankani	Whole plant	SPI-I
	Matsyaksi		API- II
<i>Althaea officinalis</i> L.	Bekh khatmi	Root	UPI-V
	Khatmi		API- V
	Althea officinalis		HPI-VII
<i>Althaea officinalis</i> L.	Khatmi	Seed	API- V
	Tukhme Khatmi		UPI-V
<i>Amomum subulatum</i> Roxb.	Heel Kalan	Seed	UPI-IV
	Sthulaela		API- II
<i>Anacyclus pyrethrum</i> DC	Akarakarabha	Root	API- II
	Aaqarqarha		UPI-II
	Akkarakaram		SPI-II
<i>Andrographis paniculata</i> Nees	Andrographis paniculata	Whole plant/ Dried aerial parts, stem and leaves	HPI-I
	Kalmegh		IP- 2014

Botanical Name (as specified in Pharmacopoeial Monograph)	Pharmacopoeial / Monograph Title	Morphological Part specified as drug	Regulatory / Pharmacopoeial References
<i>Anethum graveolens</i> L.	Anethum, Dill	Fruit	IP- 66
	Shibt		UPI-V
<i>Anethum sowa</i> Kurz Roxb. ex Flem	Tukhm-e-Soya	Seed/ Fruit	UPI-VI
	Satahva		API- II
<i>Angelica archangelica</i> L.	Canda	Root	API- V
	Angelica archangelica		HPI-IX
<i>Apium graveolens</i> L.	Coraka	Root	API- V
	Karaphsa		API- VI
<i>Apium graveolens</i> L.	Tukhm-e-Karafs	Seed /Fruit	UPI-II
	Apium graveolens		HPI-II
<i>Aquilaria agallocha</i> Roxb.	Agaru	Heart wood	API- IV
	Ood Hindi		UPI-VI
<i>Areca catechu</i> L.	Areca	Seed	IPL
	Fufal		UPI-I
	Puga		API- I
	Areca catechu		HPI- IX
<i>Aristolochia bracteolata</i> Lam.	Atutintappalai ilai	Leaf	SPI-II
	Kitamari		API- VI
<i>Aristolochia indica</i> L.	Aristolochia	Root	IP- 55
	Isvari		API- III
	Zarawand Hindi		UPI-V
<i>Artemisia martima</i> Linn ( <i>A. brevifolia</i> Wall.)	Artemisia	Flower head	IP- 55
	Cina		HPI- IX
<i>Asparagus racemosus</i> Willd.	Tannirvittan kilanku	Tuberous Root	SPI-II
	Satavari		API- IV
	Satawar		UPI-VI
<i>Asteracantha longifolia</i> Nees	Kokilaksa	Whole plant	API- II
	Hygrophilla sfinosa		HPI-IX
<i>Asteracantha longifolia</i> Nees	Kokilaksa	Seed	API- II
	Talmakhana		UPI-III

Botanical Name (as specified in Pharmacopoeial Monograph)	Pharmacopoeial / Monograph Title	Morphological Part specified as drug	Regulatory / Pharmacopoeial References
<i>Azadirachta indica</i> (L.) A. Juss	Veppilai	Leaf	SPI-II
	Neem		UPI-IV
	Neem		IP- 2014
	Nimba		API- II
<i>Azadirachta indica</i> A. Juss.	Azadirachta indica	Fresh Bark/ Stem Bark	HPI- VIII
	Neem		UPI-IV
	Veppam pattai		SPI-I
	Nimba		API- II
<i>Azadirachta indica</i> A. Juss.	Veppam palam	Fruit	SPI-I
	Neem		UPI-V
	Nimba		API- V
<i>Azadirachta indica</i> A. Juss.	Veppam pu	Flower	SPI-I
	Neem		UPI-V
	Nimba		API- V
<i>Azadirachta indica</i> A.Juss.	Neem	Root bark	UPI-V
	Nimba		API- V
<i>Bacopa monnieri</i> (L.) Penn. (Wettst)	Brahmi	Whole plant	API- II
	Pirammi valukkai		SPI-I
	Brahmi,		IP- 2014
	Bacopa monnieri		HPI-IX
	Jal Brahmi		UPI-IV
<i>Balsamodendron caudata</i> Mauch.	Amragandhi-gugglu	Leaf	API- VI
	Cenkiluvai ilai		SPI-II
<i>Barringtonia acutangula</i> (Linn) Gaertn.	Samander Phal	Fruit	UPI-VI
	Nicula		API- III
<i>Benincasa hispida</i> (Thunb.) Cogn.	Kusmanda	Fruit	API- IV
	Pucinik kay		SPI-II
<i>Berberis aristata</i> DC	Daruharidra	Stem	API- II
	Darhald		UPI-IV
<i>Berberis aristata</i> DC.Var. <i>aristata</i> .	Maramancal	Stem	SPI-I
	Daruharidra		IP- 2014

Botanical Name (as specified in Pharmacopoeial Monograph)	Pharmacopoeial / Monograph Title	Morphological Part specified as drug	Regulatory / Pharmacopoeial References
<i>Betula utilis</i> D.Don	Bhojpatr	Stem Bark	UPI-V
	Bhurjah		API- V
<i>Boerhaavia diffusa</i> L.	Mukkirattaic camulam	Whole plant	SPI-I
	Punarnava (Rakta)		API- I
	Boerhaavia diffusa		HPI-I
<i>Boerhaavia diffusa</i> Linn.	Punarnava	Root	IP- 2014
	Raktapunarnava		API- III
<i>Bombax ceiba</i> L.	Salmali	Stem bark	API- III
	Sembhal		UPI-V
<i>Borago officinalis</i> L.	Gaozaban	Leaf	UPI-II
	Borago officinalis		HPI-VIII
<i>Boswellia serrata</i> Roxb.	Kundura Dry	Exud.	IP- 2014
	Kunduru		API- IV
<i>Brassica camperstris</i> L.	Sarson	Seeds	UPI-V
	Sarsapa		API- III
<i>Buchanania lanzan</i> Spreng.	Chironji	Seeds	UPI-IV
	Priyala		API- II
<i>Butea monosperma</i> (Lam.) Kuntze. Syn. <i>Butea frondosa</i> Koeing ex Roxb.	Murukkan vitai	Seed	SPI-II
	Palas Papra		UPI-VI
	Palasa		API- V
	Palas Papra		UPI-II
<i>Butea monosperma</i> (Lam.) Kuntze	Murukkam pu	Flower	SPI-II
	Gul Tesu		UPI-V
	Palasa		API- V
<i>Butea monosperma</i> (Lam.) Kuntze.	Palasa	Stem Bark	API- II
	Palas		UPI-V
<i>Butea monosperma</i> (Lam.) Kuntze.	Palasa	Gum	API- IV
	Samagh-e-Dhak		UPI-VI
<i>Caesalpinia bonduc</i> (L.) Roxb.	Karanjwa	Seed	UPI-V
	Lata-karanja		API- V
<i>Calamus rotang</i> L.	Pirappan Kilanku	Rhizome	SPI-II
	Vetra		API- VI

Botanical Name (as specified in Pharmacopoeial Monograph)	Pharmacopoeial / Monograph Title	Morphological Part specified as drug	Regulatory / Pharmacopoeial References
<i>Calotropis procera</i> (Ait.) R. Br.	Aak	Leaf	UPI-I
	Arka		API- I
<i>Camellia sinensis</i> Linn. Kuntze.	Tea, Thea , Cha,	Leaf	IP- 55
	Thea chinesis		HPI-V
<i>Cannabis sativa</i> L.	Cannabis	Flowering tops	IP- 66
	Cannabis sativa		HPI-I
<i>Cannabis sativa</i> L.	Kanca	Leaf	SPI-I
	Qinnab		UPI-I
	Vijaya		API- I
	Cannabis indica		HPI-I
<i>Capparis spinosa</i> L.	Himsra	Root	API- V
	Kibr		UPI-V
<i>Cardiospermum halicacabum</i> L.	Habbul-ul- Qilqil	Seed	UPI-V
	Karnasphota		API- V
<i>Careya arborea</i> Roxb.	Bai khumbi	Seed	UPI-V
	Kumbhikah		API- V
<i>Carica papaya</i> L.	Eranda karkati	Fruit	API- VI
	Carica papaya		HPI-VIII
<i>Carum carvi</i> L.	Caraway, Carum	Fruit	IP- 55
	Krsnajiraka		API- I
	Carum carvi		HPI-VIII
	Zeera Siyah		UPI-I
<i>Cassia angustifolia</i> Vahl.	Sennac folium	Leaf	IP- 66
	Senna		HPI-III
	Sana		UPI-I
	Svarnapatri		API- I
<i>Cassia fistula</i> L.	Aragvadha	Fruit	API- I
	Carakkonrai puli		SPI-I
	Amaltas Sonhali; Cassia fistula		IP- 2014
	Khiyar Shambar		UPI-I
<i>Cassia fistula</i> L.	Aragvadha	Stem bark	API- V
	Konraippattai		SPI-II

Botanical Name (as specified in Pharmacopoeial Monograph)	Pharmacopoeial / Monograph Title	Morphological Part specified as drug	Regulatory / Pharmacopoeial References
<i>Cassia senna</i> L.	Nilavakai ilai	Leaf	SPI-II
	Senna leaf, Cassia leaf; Cassia angustifolia		IP- 2014
<i>Cassia tora</i> L. Syn. <i>Cassia obtusifolia</i> Linn.	Prapunnada	Seed	API- III
	Panwar		UPI-II
<i>Cedrus deodara</i> (Roxb.) Loud.	Devadaru	Heart wood	API- IV
	Tevataruk kattai		SPI-II
	Deodar		UPI-VI
<i>Celastrus paniculatus</i> Willd.	Jyotismati	Seed	API- II
	Malkangni		UPI-IV
	Valuluvai		SPI-I
<i>Centella asiatica</i> (L.) Urban	Mandukaparni	Whole plant	API- IV
	Hydrocotyle asiatica		HPI-I
<i>Chondodendron tomentosum</i> Ruiz et. Pavon.	Palladium	Root	HPI-V
	Pareira brava		HPI-III
<i>Cinchona officinalis</i> L.	Kanakana	Bark	UPI-III
	<i>Cinchona officinalis</i>		HPI-I
<i>Cinnamomum cassia</i> Blume. Syn. <i>Cinnamomum aromaticum</i> Nees & Eberm.	Qirfa	Leaf	UPI-III
	Ilavankap pattiri		SPI-I
<i>Cinnamomum zeylanicum</i> Blume.	Darusita Taila	Oil	API- VI
	Oleum cinnamomi		IP- 66
<i>Cinnamomum zeylanicum</i> Blume.	Darchini	Bark	UPI-I
	Tvak		API- I
	Cinnamomm		HPI-II
	Cinnamomum		IP- 66
<i>Cissus quadrangularis</i> L.	Asthisrnkhala	Aerial part	API- VI
	Pirantai		SPI-II
<i>Citrullus colocynthis</i> (L.) Schard.	Colocynthis	Fruit Pulp	IP- 55
	Arruttumatti		SPI-I
	Colocynthis		HPI-I
	Shahm-e-Hanzal		UPI-VI

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<i>Citrullus colocynthis</i> Schrad.	Hanzal	Root	UPI-IV
	Indravaruni		API- II
<i>Citrus limon</i> (L.) Burm.f.	Nimbu	Fruit	API- IV
	Turanj		UPI-III
	Limonis cortex		IP- 55
<i>Claviceps purpurea</i> (Fries) Tul.	Prepared Ergot	Whole fungus	IP- 2014
	Secale cornutum		HPI-I
<i>Clerodendrum phlomidis</i> L.	Agnimantha	Root	API- III
	Baharangi		UPI-VI
<i>Clerodendrum serratum</i> (L.) Moon	Bharangi	Root	API- III
	Cirutekku		SPI-II
<i>Clitoria ternatea</i> L.	Aparajita	Root	API- II
	Kakkana ver		SPI-I
<i>Coccinia grandis</i> (L.) Voigt	Bimbi	Stem	API- VI
	Kovai tantu		SPI-II
<i>Coccinia grandis</i> (L.) Voigt	Bimbi	Leaf	API- VI
	Kovai ilai		SPI-II
<i>Cocos nucifera</i> L.	Coconut oil	Endos.	IP- 2014
	Narikela		API- III
<i>Coldenia procumbens</i> L.	Ceruppataic camulam	Whole plant	SPI-II
	Tripaksi		API- VI
<i>Commiphora wightii</i> (Arn.) Bhand.	Guggulu	Exudate	API- I
	Guggul Resin		IP- 2014
	Muqil		UPI-I
<i>Corallocarpus epigaeus</i> Benth. ex Hook.f.	Akacakarutan kilanku	Tuber root / Rhizome	SPI-II
	Sukanasa		API- VI
<i>Coriandrum sativum</i> L.	Dhanyaka	Fruit	API- I
	Kishneez		UPI-I
	Kottumalli vitai		SPI-I
<i>Crocus sativus</i> L.	Crocus	Style & Stigma	IP- 55
	Kunkuma		API- IV
	Kunkumap pu		SPI-II
	Crocus sativus		HPI-II
	Zafran		UPI-VI



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<i>Croton tiglium</i> L.	Habb-us-Salateen	Seeds	UPI-IV
	Jayapala		API- II
	Nervalam		SPI-I
<i>Cucumis melo</i> L. var. <i>utilissimus</i> Duthie & Fuller	Ervaru	Seed	API- II
	Kakri		UPI-IV
<i>Cucumis sativus</i> L.	Khayar	Seed	UPI-V
	Trapusam		API- V
	Vellari vitai		SPI-II
<i>Cuminum cyminum</i> L.	Cirakam	Fruit	SPI-I
	Svetajiraka		API- I
	Cuminum, Cumin		IP- 55
<i>Curculigo orchioides</i> Gaertn.	Nilap panaik kilanku	Tuber root / Rhizome	SPI-II
	Talamuli		API- IV
<i>Curcuma amada</i> Roxb.	Amba Haldi	Rhizome	UPI-V
	Amra-haridra		API- V
<i>Curcuma longa</i> L.	Haridra	Rhizome	API- I
	Mancal		SPI-I
	Curcuma longa		HPI-V
	Haridra		IP- 2014
	Zard Chob		UPI-I
<i>Curcuma zedoaria</i> Rosc.	Karcura	Rhizome	API- IV
	Kiccalik kilanku		SPI-II
<i>Cymbopogon martinii</i> (Roxb.) Wats	Izkhar	Whole plant	UPI-V
	Rohisa		API- V
<i>Cynodon dactylon</i> (L.) Pers.	Doob	Root	UPI-IV
	Durva		API- III
<i>Cynodon dactylon</i> (L.) Pers.	Durva	Whole plant	API- IV
	Cynodon dactylon		HPI-II
<i>Cyperus rotundus</i> L.	Musta	Rhizome	API- III
	Saad Kufi		UPI-V
<i>Dalbergia sissoo</i> Roxb.	Sheesham	Heart wood	UPI-V
	Simsapa		API- III

Botanical Name (as specified in Pharmacopoeial Monograph)	Pharmacopoeial / Monograph Title	Morphological Part specified as drug	Regulatory / Pharmacopoeial References
<i>Datura metel</i> L. Syn. <i>D. alba</i> L.	Dhattura	Seed	API- III
	Dhattura		UPI-IV
<i>Desmodium gangeticum</i> DC.	Salaparni	Root	API- III
	Desmodium gangeticum		HPI-VI
<i>Digitalis purpurea</i> L.	Digitalis folium	Leaf	IP- 66
	Digitalis purpurea		HPI- VII
<i>Eclipta alba</i> (L.) Hassk.	Bhrngaraja	Whole plant	API- II
	Bhringraj, Eclipta alba		IP- 2014
	Eclipta alba		HPI-IX
	Bhangra		UPI-IV
<i>Elaeocarpus sphaericus</i> (Gaertn). K.Schum	Rudraksa	Seed	API- IV
	Uttiratcam		SPI-II
<i>Elettaria cardamomum</i> (L.) Maton.	Elam	Fruit	SPI-II
	Heel Khurd		UPI-I
	Suksmaila		API- I
<i>Embelia ribes</i> Burm, f.	Vidanga	Fruit	IP- 2014
	Embelia ribes		HPI- IX
	Baobarang		UPI-I
	Vaivitankam		SPI-I
	Vidanga		API- I
<i>Emblica officinalis</i> Gaertn. Syn. <i>Phyllanthus emblica</i> L.	Aamla	Dried fruit	UPI-I
	Amalaki		API- I
	Emblica officinalis		HPI-VIII
	Amalaki		IP- 2014
<i>Enicostemma axillare</i> (Lam.) A. Raynal	Nahi	Whole plant	API- VI
	Vellarukuc camulam		SPI-II
<i>Ephedra gerardiana</i> (Wall) Stapf.	Ephedra	Stem	IP- 66
	Ephedra vulgaris		HPI-VII
<i>Eucalyptus globulus</i> Labill.	Tailaparna	Leaf	API- V
	Eucalyptus globulus		HPI-II

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<i>Eucalyptus globulus</i> Labill.	Tailapar'a Taila	Eucalyptus oil	API- VI
	Eucalyptus oil		IP-2014
<i>Eugenia caryophyllata</i> Thunb.	Eugenia caryophyllata	Flower bud	HPI-VIII
	Caryophyllum		IP- 66
<i>Fagonia cretica</i> L.	Dhanvayasah	Whole plant	API- V
	Shukai		UPI-V
<i>Ferula asafoetida</i> Linn./ <i>Ferula foetida</i> Regel Syn., <i>Ferula narthex</i> , Boiss <i>Ferula foetida</i> Regel.	Asafoetida	Oleo-Gum-Resin	HPI-I
	Hilteet		UPI-I
	Hingu		API- I
	Perunkayam		SPI-I
	Asafoetida		IP- 55
<i>Ficus bengalensis</i> Linn.	Ficus indica	Aerial root	HPI-VI
	Nayagrodha Jata		API- IV
	Reesh-e-Bargad		UPI-VI
<i>Ficus hispida</i> L.	Kath Gular	Root	UPI-IV
	Phalgu		API- III
<i>Ficus racemosa</i> L.	Attip pattai	Bark	SPI-I
	Post-e-Gular		UPI-I
	Udumbara		API- I
<i>Foeniculum vulgare</i> Mill.	Misreya	Fruit	API- I
	Foeniculum vulgare		HPI-VIII
	Compu		SPI-I
	Saunf		IP- 2014
<i>Fumaria parviflora</i> Lam.	Parpata	Whole plant	API- IV
	Shahtara		UPI-VI
<i>Gaultheria fragrantissima</i> Wall.	Gandhapura Patra Taila	oil	API- VI
	Oleum gaultheriae		IP- 55
<i>Glinus lotoides</i> L.	Ciruceruppataic camulam	Whole plant	SPI-II
	Usandi		API- VI
<i>Glycyrrhiza glabra</i> L.	Asl-us-Soos	Stolon & Root	UPI-I
	Atimaturam		SPI-I
	Yasti		API- I
	Yasti		IP- 2014

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<i>Gossypium herbaceum</i> L.	Karpasa	Seed	API- I
	Pambadana		UPI-I
<i>Gymnema sylvestre</i> R. Br.	Ciru kuruncan ver	Root	SPI-I
	Mesasrangi		API- V
	Gurmar		UPI-V
<i>Gymnema sylvestre</i> R.Br.	Gymnema sylvestris	Leaf	HPI-I
	Mesasrangi		API- V
	Gudmar		IP- 2014
	Gurmar Buti		UPI-II
<i>Hedychium spicatum</i> Ham. ex Smith	Sati	Rhizome	API- I
	Shati		IP- 2014
<i>Hemidesmus indicus</i> (L.) R. Br.	Nannari	Root	SPI-I
	Anantmula		IP- 2014
	Hemidesmus indicus		HPI-VIII
	Sveta Sariva		API- I
<i>Hibiscus abelmoschus</i> L.	Abelmoscus	Seed	HPI- IX
	Kasturilatika		API- IV
<i>Holarrhena antidysenterica</i> (Roth) A.DC.	Kutaja	Stem bark	API- I
	Kurchi		IP- 66
	Holarrhena antidysenterica		HPI-I
<i>Hordeum vulgare</i> L.	Jao	Fruit	UPI-VI
	Yava		API- II
<i>Hydnocarpus pentandra</i> (Buch.-Ham.) Oken	Tuvaraka	Seed	API- VI
	Nirati muttu		SPI-II
<i>Hyoscyamus niger</i> L.	Ajawain Khurasani	Seed	UPI-V
	Kurocani omam		SPI-I
	Parasika Yavani		API- V
<i>Illicium verum</i> Hook f.	Takkola	Fruit/Seed	API- VI
	Illicium anisantum		HPI-III
<i>Indigofera tinctoria</i> L.	Avuri	Whole plant	SPI-I
	Nili		API- III

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<i>Indigofera tinctoria</i> L.	Avuri ver	Root	SPI-I
	Nili		API- II
<i>Ipomoea digitata</i> L.	Badari kand	Root	UPI-V
	Kshiravidari		API- V
<i>Jasminum officinale</i> L.	Jati	Leaf	API- III
	Chanbeli		UPI-IV
<i>Juglans regia</i> L.	Akhrot	Fruit Kernal / Cotyledon	UPI-IV
	Aksoda		API- II
<i>Juniperus communis</i> L.	Abhal	Fruit	UPI-IV
	Juniperus communis		HPI-II
<i>Lawsonia inermis</i> L. Syn. <i>Lawsonia alba</i> Lam.	Madayanti	Leaf	API- IV
	Hina		UPI-II
<i>Lens culinaris</i> Medic.	Adas	Seed	UPI-VI
	Masura		API- III
<i>Linum usitatissimum</i> L.	Atasi	Seed	API- I
	Katan		UPI-I
	Linum, Linseed.		IP- 66
	Linum usitatissimum		HPI-IX
<i>Litsea chinensis</i> Lam.	Meda Lakri	Stem Bark	UPI-V
	Medasakah		API- V
<i>Luffa acutangula</i> (Linn.) Roxb.	Luffa amara	Fruit	HPI-VI
	Laffa acutangula		HPI-IX
<i>Lycopodium clavatum</i> L.	Lycopodium	Spore	IPL
	Lycopodium clavatum		HPI-I
<i>Mallotus philippinensis</i> Muell. Arg.	Kamila	Glands & Hair of fruit /Fruit	UPI-I
	Kampilla		API- I
<i>Mangifera indica</i> L.	Aam	Stem Bark	UPI-IV
	Amra		IP- 2014
	Amra		API- III
	Mangifera indica		HPI-VII
<i>Melia azedarach</i> L.	Bakayin	Stem bark	UPI-III
	Mahanimba		API- IV

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<i>Mentha viridis</i> L.	Nana pudina	Aerial part	UPI-V
	Pudinah		API- V
<i>Mesua ferrea</i> L.	Nagakesar	Stamen	IP- 2014
	Narmushk		UPI-IV
	Nagakesara		API- II
<i>Michelia champaca</i> L.	Canpakap pu	Flower	SPI-II
	Champaka		API- IV
<i>Momordica charantia</i> L.	Karavallaka	Fruit	API- II
	Karela		UPI-IV
	Momordica chirantia		HPI-VIII
<i>Monochoria vaginalis</i> Presl.	Indivara	Rhizome	API- VI
	Cenkalanirk kilanku		SPI-II
<i>Moringa oleifera</i> Lam.	Sehjana	Leaf	UPI-V
	Sigru		API- II
<i>Moringa oleifera</i> Lam.	Murunkaip pattai	Stem bark	SPI-II
	Sigru		API- IV
<i>Mucuna pruriens</i> (L.) DC.	Punaikkali vitai	Seed	SPI-II
	Konch		UPI-II
	Kaunch		IP- 2014
<i>Musa paradisiaca</i> Linn.	Musa safientum	Flower	HPI-IX
	Kadali		API- IV
<i>Musa paradisiaca</i> L.	Kadali	Rhizome	API- III
	Kela		UPI-IV
	Valaik kilanku		SPI-II
<i>Myrica esculenta</i> Buch. Ham ex D.Don	Kaiphala	Fruit	UPI-IV
	Katphala		API- III
<i>Myrica esculenta</i> Buch. -Ham. ex D.Don.	Katphala	Stem bark	API- III
	Kaiphala		UPI-IV
	Kaifal		UPI-II
<i>Myristica fragrans</i> Houtt.	Jauzbuwa	Dried seed/ Aril Kernel	UPI-I
	Bisbasa		UPI-VI
	Catikkai		SPI-I
	Jatiphala		API- I
	Nutmeg, Myristica		IP- 66
	Nux moschata		HPI-I

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<i>Nardostachys jatamansi</i> DC.	Jatamansi	Rhizome	IP- 66
	Sumbul-ut-Teeb		UPI-I
	Jatamansi		API- I
<i>Nelumbo nucifera</i> Gaertn.	Kamala	Flower	API- II
	Tamarai malar		SPI-I
<i>Nelumbo nucifera</i> Gaertn.	Kamala	Rhizome	API- III
	Tamaraik kilanku		SPI-I
<i>Nerium indicum</i> Mill.	Dafli/Dafla	Root	UPI-IV
	Karavira		API- III
<i>Nerium indicum</i> Mill.	Karavira	Leaf	API- I
	Kaner		UPI-I
<i>Nigella sativa</i> L.	Kalonji	Seeds	UPI-I
	Karuncirakam		SPI-I
	Upakuncika		API- I
<i>Ocimum sanctum</i> L.	Rehan	Leaf	UPI-V
	Tulasi		API- II
<i>Ocimum sanctum</i> L.	Rehan	Whole plant/ Whole plant excluding root	UPI-V
	Tulasi		API- II
	Ocimum sanctum		HPI-I
<i>Onosma bracteatum</i> Wall.	Goazaban	Dried Leaf/ Aerial part	UPI-V
	Gojihva		API- III
<i>Operculina turpethum</i> (L.) Silva Manso	Trivrit	Root	API- III
	Turbud		UPI-V
<i>Oryza sativa</i> L.	Perpolitiones oryzae, Rice polishing	Fine flaky per carp and seed coat frag ments, the embryo, aleurone layer, and outer adhering cells of starchy endosperm of grain/ Fruit	IPL
<i>Oryza sativa</i> L.	Sali		API- III

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<i>Oxalis corniculata</i> L.	Cangeri	Whole plant	API- III
	Puliyarai		SPI-II
<i>Pandanus odoratissimus</i> Roxb.	Ketaki	Stilt Root	API- VI
	Talai vilutu		SPI-II
<i>Papaver somnifera</i> L.	Khaskhaash	Seed	UPI-II
	Kacakaca		SPI-I
	Khakhasa		API- V
<i>Parmelia perlata</i> (Huds.) Ach.	Saileya	Lichen	API- III
	Charela	Lichen	UPI-V
<i>Peristrophe bicalyculata</i> (Retz.) Nees	Kakajangha	Seed	API- V
	Kakjangha		UPI-V
<i>Phoenix dactylifera</i> L.	Khajur	Fruit	UPI-VI
	Kharjura		API- IV
	Periccu		SPI-II
<i>Phyla nodiflora</i> (L.) Greene	Jalapippali	Whole plant	API- V
	Potutalai		SPI-I
<i>Phyllanthus amarus</i> Schum. & Thom.	Bhuiamla,	Dried aerial parts / Whole plant	IP- 2014
	Kilkkai nellic camulam		SPI-I
<i>Physalis alkekengi</i> L.	Kakanaja	Fruit	API- V
	Kaknaj		UPI-V
<i>Picrorhiza kurroa</i> Royle ex Benth.	Katuku rokini	Root	SPI-I
	Kutki		IP- 2014
<i>Picrorhiza kurroa</i> Royle ex Benth.	Kutki	Rhizome	UPI-IV
	Picrorhiza		IP- 66
	Katuka		API- II
<i>Pilocarpus jaborandi</i> Holmes. <i>Pilocarpus microphyllus</i> Stapf and other species of <i>Pilocarpus</i>	Jaborandi	Leaf	HPI-II
	Pilocarpini nitras		IP- 55
<i>Pimpinella anisum</i> L.	Anisuna	Fruit	API- V
	Anisum, Anise		IP- 66
	Anisoon		UPI-II
	Pimpinella anisum		HPI-VIII



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<i>Pinus gerardiana</i> Wall.	Nikocaka	Kernel	API- VI
	Maghz-e-Chilghoza		UPI-VI
<i>Pinus longifolia</i> Roxb.	Colophonium	Exudate	IP- 55
	Sarala		API- V
<i>Pinus roxburghii</i> Sargent.	Sanobar	Root	UPI-V
	Sarala		API- III
<i>Piper betle</i> L.	Nagavalli	Leaf	API- III
	Verrilai		SPI-II
	Tambol		UPI-VI
<i>Piper cubeba</i> L.	Kababchini	Fruit	UPI-I
	Kankola		API- I
	Valmilaku		SPI-I
	Cubeba officinalis		HPI-III
<i>Piper longum</i> L.	Pippali	Fruit	API- IV
	Tippili		SPI-I
	Pippali		IP- 2014
<i>Piper nigrum</i> L.	Marica	Fruit	API- III
	Milaku		SPI-I
	Filfil Siyah		UPI-IV
	Maricha		IP- 2014
	Piper nigrum		HPI-III
<i>Pistacia lentiscus</i> L.	Mastagi	Resin	UPI-V
	Rumi Mastagi		API- V
<i>Plantago ovata</i> Forsk. Syn. <i>Plantago ispaghol</i> Roxb.	Ispaghula Husk	Seed	IP- 2014
	Aspaghhol		UPI-II
<i>Plumbago zeylanica</i> L.	Citrakah	Root	API- I
	Sheetraj Hindi		UPI-I
<i>Polygonatum cirrhifolium</i> Royle	Mahameda	Root & Rhizome/ Rhizome	API- V
	Meda		API- VI
<i>Pongamia pinnata</i> (L.) Pierre.	Punkan verpattai	Root bark	SPI-I
	Karanj		UPI-IV
	Karanja		API- II

Botanical Name (as specified in Pharmacopoeial Monograph)	Pharmacopoeial / Monograph Title	Morphological Part specified as drug	Regulatory / Pharmacopoeial References
<i>Pongamia pinnata</i> (L.) Pierre	Punkam vittu	Seed	SPI-I
	Karanj		UPI-I
	Karanja		API- I
<i>Pongamia pinnata</i> L. Pierre.	Karanj	Leaf	UPI-IV
	Karanja		API- II
<i>Pongamia pinnata</i> L. Pierre.	Karanj	Root	UPI-IV
	Karanja		API- II
<i>Pongamia pinnata</i> L. Pierre.	Karanja	Stem Bark	API- II
	Karanj		UPI-IV
<i>Portulaca oleracea</i> L.	Khurfa	Whole plant	UPI-IV
	Kozuppa		API- II
<i>Prosopis cineraria</i> Druce	Sami	Leaf	API- VI
	Vanni ilai		SPI-II
<i>Prunus amygdalus</i> Batsch. <i>var. amara</i> DC.	Badam Shireen	Seed	UPI-II
	Amygdalus amara		HPI-III
<i>Psoralea corylefolia</i> L.	Psoraleae semina	Seeds	IPL
	Psoralea corylifolia		HPI-I
<i>Psoralea corylifolia</i> L.	Babchi	Fruit	UPI-I
	Bakuci		API- I
	Karpokarici		SPI-I
	Bakuci		IP- 2014
<i>Pterocarpus marsupium</i> Roxb.	Asana	Heart wood	API- I
	Vijayasara		IP- 2014
<i>Pterocarpus santalinus</i> L.	Sandal surkh	Heart Wood	UPI-V
	Cencantanak kattai		SPI-II
	Raktacandana		API- III
<i>Punica granatum</i> L.	Anar	Leaf	UPI-II
	Dadima		API- IV
<i>Punica granatum</i> L.	Anar	Seed	UPI-VI
	Anardana		UPI-II
	Dadima		API- II

Botanical Name (as specified in Pharmacopoeial Monograph)	Pharmacopoeial / Monograph Title	Morphological Part specified as drug	Regulatory / Pharmacopoeial References
<i>Punica granatum</i> L.	Dadima	Fresh fruit	API- IV
	Matulam palam		SPI-II
<i>Punica granatum</i> L.	Dadima	Fruit rind	API- IV
	Matulam palat tol		SPI-II
<i>Quercus infectoria</i> Oliv.	Macikkay	Gall	SPI-II
	Mayakku		API- IV
	Mazoo		UPI-III
<i>Quillaja saponaria</i> Molina	Quillaia	Bark	IP- 66
	Quillaya saponaria		HPI-VI
<i>Raphanus sativus</i> L.	Turb	Seeds	UPI-V
	Mulaka		API- III
<i>Raphanus sativus</i> L.	Turb	Root	UPI-V
	Mulaka		API- II
	Raphanus sativus		HPI-V
<i>Rauwolfia serpentina</i> Benth. ex Kurze.	Rauwolfia serpentina	Root	HPI-I
	Rauwolfia		IP- 66
	Sarpagandha		API- V
	Asrol		UPI-V
<i>Rheum emodi</i> Wall	Rheum, Rhubark	Dried rhizome & root / Root	IP- 66
	Rewardchini		UPI-II
<i>Ricinus communis</i> L.	Bed Anjeer	Seeds	UPI-IV
	Eranda		API- III
	Ricinus communis		HPI-III
<i>Rosa centifolia</i> L.	Gul-e-Surkh	Flowers	UPI-IV
	Satapatrika		API- III
<i>Rubia cordifolia</i> L.	Majeeth	Stem	UPI-IV
	Manjistha		API- III
	Manjistha		IP- 2014
<i>Saccharum officinarum</i> L.	Iksu	Stem	API- II
	Karumpu		SPI-II
<i>Salvadora persica</i> L.	Pilu	Fruit	API- V
	Pilu		UPI-V

Botanical Name (as specified in Pharmacopoeial Monograph)	Pharmacopoeial / Monograph Title	Morphological Part specified as drug	Regulatory / Pharmacopoeial References
<i>Santalum album</i> L.	Cantanak kattai	Heart wood	SPI-II
	Svetacandana		API- III
	Sandal Safaid		UPI-VI
<i>Saraca indica</i> L.	Ashoka, Ashok	Dried stem bark/ Bark	IP- 66
	Janosia ashoka		HPI-I
<i>Saussurea lappa</i> C.B. Clarke	Kustha	Root	API- I
	Qust		UPI-I
	Saussurea		IP- 66
<i>Semecarpus anacardium</i> L.	Baladur	Fruit	UPI-IV
	Bhallataka		API- II
	Cerankottai		SPI-II
<i>Sesamum indicum</i> L.	Ellu	Seed	SPI-II
	Tila		API- IV
<i>Sesbania sesban</i> (L.) Merr.	Jayanti	Leaf	API- II
	Karuncempai ilai		SPI-I
<i>Sisvambrium irio</i> L.	Khubkalan	Seed	API- V
	Khaksi		UPI-V
<i>Smilax china</i> L.	Madhusnuhi	Tuber root / Rhizome	API- V
	Parankic cakkai		SPI-I
	Chob chini		UPI-V
<i>Smilax ornata</i> Hook. f.	Sarsaparilla		HPI-III
<i>Solanum nigrum</i> L.	Kakamaci	Whole plant	API- II
<i>Solanum nigrum</i> L.	Mako	Whole plant / Whole plant with fruit including root	UPI-IV
	Solanum nigrum		HPI-II
<i>Solanum surattense</i> Burm.f.	Kantakari	Whole plant	API- I
	Kantan kattiric camulam		SPI-I
	Solanum xanthocarpum		HPI-VI
<i>Strophanthus gratus</i> (Wall. et Hook.) Franchet	Strophanthus gratus	Seed/ Seeds & wood	HPI-VIII
	Ouabainum, Ouabain		IP- 55

Botanical Name (as specified in Pharmacopoeial Monograph)	Pharmacopoeial / Monograph Title	Morphological Part specified as drug	Regulatory / Pharmacopoeial References
<i>Strychnos nuxvomica</i> L.	Azaraqī	Seed	UPI-II
	Etti vitai		SPI-II
	Visamusti		API- IV
	Nux vomica		HPI-I
	Nux-vomina		IP- 66
<i>Strychnos potatorum</i> L.	Kataka	Seed	API- IV
	Terran kottai		SPI-II
<i>Swertia chirata</i> Buch. (Ham.)	Chirata	Dried plant with flowers/ Whole plant/ Whole plant excluding root	IP- 66
	Chiraita		UPI-I
	Kiratatikta		API- I
	Swertia chirata		HPI-VIII
<i>Symplocos racemosa</i> Roxb.	Lodh Pathani	Stem bark	UPI-I
	Lodhra		API- I
<i>Syzygium aromaticum</i> (L.) Merr. & L.M. Perry.	Lavang	Flower bud	IP- 2014
	Ilavankam		SPI-I
	Lavanga		API- I
	Quranful		UPI-I
<i>Syzygium aromaticum</i> (Linn.) Merr. and Perry	Clove bud oil	Flower bud	IP- 2014
	Lavanga Taila		API- VI
<i>Syzygium cuminii</i> (L.) Skeels	Jamun	Seeds	UPI-IV
	Jambu		API- II
	Syzygium jambolanum		HPI-I
	Jamun		UPI-IV
<i>Syzygium cuminii</i> (L.) Skeels	Jambu	Stem bark	API- II
	Naval pattai		SPI-II
<i>Tamarindus indica</i> L.	Cinca	Fruit pulp	API- IV
	Puliyam palam		SPI-II
	Tamar Hindi		UPI-VI
<i>Taxus baccata</i> L.	Sthauneya	Leaf/ Twig	API- III
	Taxus baccata		HPI-III

Botanical Name (as specified in Pharmacopoeial Monograph)	Pharmacopoeial / Monograph Title	Morphological Part specified as drug	Regulatory / Pharmacopoeial References
<i>Terminalia arjuna</i> (Roxb) Wight & Arn	Arjuna	Stem bark	API- II
	Arjuna,		IP- 2014
	Marutam pattai		SPI-I
	Arjun		UPI-IV
	Terminalis arjuna		HPI-I
<i>Terminalia belerica</i> (Gaertn.) Roxb.	Tanrikkai	Fruit	SPI-I
	Balela		UPI-I
	Bibhitaka		API- I
	Bhibhitaki		IP- 2014
<i>Terminalia chebula</i> Retz	Terminalia chebula	Fruit	HPI-II
	Halela Zard		UPI-I
	Haritaki		IP- 2014
	Haritaki		API- I
	Katukkai		SPI-I
<i>Tinospora cordifolia</i> (Willd) Miers	Gilo	Stem	UPI-I
	Guduchi		IP- 2014
	Guduchi		API- I
	Cintil tantu		SPI-I
	Tinospora cordifolia		HPI-II
<i>Trachyspermum ammi</i> (L.) Sprague	Yavani	Fruit	API- I
	Omam		SPI-II
	Ajwain		UPI-VI
	Ajwain		IP- 2014
<i>Tribulus terrestris</i> L.	Khar-e-Khasak Khurd	Fruit	UPI-I
	Nerunci mul		SPI-I
	Gokhru		IP- 2014
	Goksura		API- I
<i>Tribulus terrestris</i> L.	Goksura	Whole plant	API- VI
	Neruncil camulam		SPI-II
	Tribulus terrestris		HPI-I
<i>Tribulus terrestris</i> L.	Goksura	Root	API- I
	Nerunci ver		SPI-I
	Visala		API- V

Botanical Name (as specified in Pharmacopoeial Monograph)	Pharmacopoeial / Monograph Title	Morphological Part specified as drug	Regulatory / Pharmacopoeial References
<i>Trigonella foenum-graecum</i> L.	Hulba	Seed	UPI-II
	Hulba		UPI-IV
	Methi		IP- 2014
	Vantayam		SPI-I
	Methi		API- II
<i>Valeriana officinalis</i> L. or <i>Valeriana wallichii</i> DC	Valerian Root,	Dried whole or cut underground parts (rhizome, roots and stolons)	IP- 2014
	Valerians officinalis		HPI-II
	Tagar		UPI-I
	Tagara		API- I
<i>Vateria indica</i> L.	Raal	Exud.	UPI-VI
	Sarja		API- IV
<i>Vetiveria zizanioides</i> (L.) Nash	Vetti ver	Root	SPI-II
	Usira		API- III
	Khas		UPI-IV
<i>Vigna unguiculata</i> (L.) Walp.	Kollu	Seed	SPI-I
	Kulattha		API- I
	Kulthi		UPI-I
<i>Vitex negundo</i> L.	Nirgundi	Leaf	API- III
	Nocci ilai		SPI-II
	Sambhalu		UPI-V
<i>Vitex negundo</i> L. Syn. <i>Vitex bicolor</i> Willd.	Sanbhalu	Fruits	UPI-III
	Renuka		API- V
<i>Vitis vinifera</i> L.	Angoor	Fruits/dried fruit	UPI-VI
	Maweez Munaqqa		UPI-IV
	Tiratcai		SPI-II
<i>Withania somnifera</i> (L.) Dunal	Ashwagandha	Root	IP- 2014
	Amukkara		SPI-I
	Asvagandha		API- I
	Asgand		UPI-I
	Withania somnifera		HPI- VIII

Botanical Name (as specified in Pharmacopoeial Monograph)	Pharmacopoeial / Monograph Title	Morphological Part specified as drug	Regulatory / Pharmacopoeial References
<i>Xeromphis spinosa</i> (Thunb) Keay	Mainphal	Fruit	UPI-I
	Madana		API- I
<i>Zingiber officinale</i> Rosc.	Adrak	Rhizome	UPI-IV
	Ardraka		API- II
	Cukku		SPI-I
	Inci		SPI-I
	Zanjabeel		UPI-I
	Zingiber		HPI-II
	Sunthi		API- I
	Ginger, Zingiber		IP- 66

Abbreviations: IP-Indian Pharmacopoeia, API-Ayurvedic Pharmacopoeia of India, SPI-Siddha Pharmacopoeia of India, UPI- Unani Pharmacopoeia of India and HPI-Homoeopathy Pharmacopoeia of India.

The role of herbal drugs is rather complex one from a regulatory standpoint. A fair number of herbal drugs which are commonly used in Ayurvedic, Siddha, Unani, Homoeopathic and modern system of medicine, have been incorporated in respective Indian pharmacopoeias. These herbal drugs (common in botanical specification / source) fall within more than one pharmacopoeia and required to be harmonized with the monographs in other pharmacopoeias. The quality of herbal drugs are always prime issue and dealt with regulatory provisions of pharmacopoeial monographs. The harmonized pharmacopoeial monographs will be yardstick to ensure the quality, safety and efficacy of herbal drugs without any ambiguity.

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