

Regulatory Status of Herbal Drugs and Related Substances in Indian Pharmacopoeia (IP)

¹Nitin Rai, ¹Lalit Tiwari and ²Rajeev Kr. Sharma

¹Homoeopathic Pharmacopoeial Laboratory,
Kamla Nehru Nagar,
Ghaziabad-201002, India

²Pharmacopoeial Laboratory for Indian Medicine,
Kamla Nehru Nagar,
Ghaziabad-201002, India

Abstract

The standards are mandatory specifications for the quality control of herbal drugs and related substances. Quality can be ensured with the help of in-house established standards or pharmacopoeial standards. Pharmacopoeial standards are experimentally established and enjoy regulatory status. A pharmacopoeia is a book of standards applicable to drug substances and their dosage forms of common usage in a country. In Indian perspective Pharmacopoeial publications are The Indian Pharmacopoeia, The Ayurvedic Pharmacopoeia of India, The Unani Pharmacopoeia of India, The Siddha Pharmacopoeia of India and Homoeopathy Pharmacopoeia of India. All these pharmacopoeia are part of regulatory frame work under Drugs and Cosmetics Acts, 1940 & Rules their under. Herbal drugs and related substances included in Indian Pharmacopoeia are enumerated in this review.

Key words: Indian Pharmacopoeia, Herbal drugs and related substances.

Introduction

Pharmacopoeia is prepared by recognized authority appointed by the Government of a particular country. In historical perspective, The United States Pharmacopoeia (USP) is exception and published by non-official body. The United States Pharmacopoeia was first published in 1820 under the authority of United States Pharmacopoeial Convention, Inc., an independent, non-profit organization. First British Pharmacopoeia (BP) was published on a later date in 1864 by the General Council of Medicinal Education and Registration of the United Kingdom. In Indian context, the Pharmacopoeia of India is published under the authority of Government of India, Ministry of Health & Family Welfare by Indian Pharmacopoeia Commission, Ghaziabad.

The history of Indian Pharmacopoeia can be traced back to the publication of the Bengal Pharmacopoeia and General Conspectus of Medicinal Plants 1844, generally known as Bengal Pharmacopoeia. The pharmacopoeia was prepared by William Brooke O' shaughnessy and published by order of the Government. This pharmacopoeia focused on indigenous drugs though it included some products mainly from the Edinburgh Pharmacopoeia, some from that of the London and Dublin Colleges. Ever first Pharmacopoeia of India, was prepared under the authority of Her Majesty's Secretary of State for Indian Council and Pharmacopoeia Committee constituted in 1865 and edited by Edward John Waring. The Pharmacopoeia contained the drugs official in

¹* Author for correspondence

the British Pharmacopoeia 1867 and also some selected indigenous drugs. Moodeen Sheriff prepared supplement to the Pharmacopoeia of India 1868 which was published in 1869 from Madras under orders of the Government. It was also subtitled as 'A Catalogue on Indian Synonyms of the Medicinal Plants, Products, Inorganic and Organic Substances included in that work with explanatory and descriptive remarks etc, in fourteen languages'. The Pharmacopoeia of India 1868 passed into oblivion in less than 20 years. The Pharmacopoeia of India 1868 continued to be in use till around 1885. With publication of the British Pharmacopoeia 1885, the Government made this pharmacopoeia the sole authority on all matters relating to pharmacy. In 1990 the Indian and Colonial Addendum to the British Pharmacopoeia 189 was published. With certain minor modifications a Government of India Edition of the Addendum was published in 1991. The prominent articles of the Addendum were incorporated into general body of the British Pharmacopoeia 1914. The British Pharmacopoeia Commission made provision for publication of Supplement or Addendum to take care of local needs. The Indian Pharmacopoeia List 1946 was prepared to serve as an Indian supplement to British Pharmacopoeia 1932. Pharmacopoeia of India 1955 (IP'55) was given official recognition as the First edition. No one ever heard of the 1868 edition of pharmacopoeia of India. Singh (1994) has credit to trace the history of Indian Pharmacopoeia in his publication.

Details of Pharmacopoeial standards on herbal drugs and allied substances are enumerated in this review. Beside publication of Indian Pharmacopoeia, Ayurvedic Pharmacopoeia of India, Unani Pharmacopoeia of India and Homoeopathy Pharmacopoeia of India are luminous Pharmacopoeial publications comprising standards on Medicinal and Aromatic Plants as well as on plant based products (Rai *et al.*, 2012, Tiwari *et al.*, 2013). The herbal drugs and substances included in different editions of Indian Pharmacopoeia published so far are elaborated in foregoing text for their brief historical background and contents in detail-

1. Indian Pharmacopoeial List, 1946 (IPL)

This publication was brought out in 1946. In 1944, the Government of India intended to prepare the material for a list of drugs in use in India which although not included in the British Pharmacopoeia, are of sufficient medicinal value to justify their inclusion in an official pharmacopoeia and also standards to secure uniformity and tests to establish identity and purity. This work was entrusted to Drug Technical Advisory Board. In the wake of this task, a ten member committee was constituted under the chairmanship of noted

scientist Col. Sir R. N. Chopra. The title of the publication reflects the simple enumeration of medicinal entities but it is a compilation of standards. This list of 180 monographs was intended to serve as an Indian Supplement to the British Pharmacopoeia 1932. 100 monographs are exclusively incorporated on Pharmacopoeial standards of Medicinal and Aromatic Plants growing in India and on their galenicals (Anonymous, 1946).

2. Pharmacopoeia of India (The Indian Pharmacopoeia) (IP)

Indian Pharmacopoeia has four editions so far. Each edition succeeds the prior edition with deletion and addition of monographs.

i. Pharmacopoeia of India (IP'55)

The First Indian Pharmacopoeia Committee was constituted in November 1948 under the chairmanship of Director General of Health Services viz. Dr. K.C.K.E. Raja (1948-52), Lt. Col. C.K. Lakshmanan (1952-53) and Professor B.N. Ghosh (1953-57). 'Pharmacopoeia of India' or the 'Indian Pharmacopoeia 1955' was published in early 1956. It was first Indian Pharmacopoeia of independent of India. The Indian Pharmacopoeial List 1946 (IPL) served as the nucleus for this first edition. Monographs incorporated in this edition were freely drawn from the British Pharmacopoeia, the United States Pharmacopoeia and the International Pharmacopoeia. This Pharmacopoeia consists of 970 monographs out of which 237 were devoted to Medicinal and Aromatic plants, and its products (Anonymous, 1955). A supplement to this edition was published in 1960 (Anonymous, 1960).

ii. Pharmacopoeia of India, 1966 (IP' 66)

In the second edition of Pharmacopoeia (Pharmacopoeia of India, 1966) several monographs incorporated in the earlier edition and in the supplement were deleted. This Pharmacopoeia consists of 155 monographs on crude drugs and products of plant origin (Anonymous, 1966). Supplement to this edition was published in 1975 (Anonymous, 1976).

iii. Pharmacopoeia of India, 1985 (IP'85)

This third edition of pharmacopoeia was published in two volumes. Volume-I covered the monographs with their Pharmacopoeial titles beginning with alphabet 'A to P' and rest of the monographs 'Q to Z' covered in Volume-II. Out of the 450 monographs only 17 crude drugs of plant origin have been placed in this edition. The addendum to this edition was published in 1989 and 1991

(Anonymous, 1989a and 1991). Drugs used in Indian System of Medicine (Ayurveda, Unani & siddha Systems were taken up separately and only those plant drugs were included which had supporting definitive quality control standards (Anonymous, 1985).

iv. Pharmacopoeia of India, 1966 (IP'96)

This edition of pharmacopoeia was published in 1996 consisting of two volumes covering 1149 monographs. Volume-I comprises the monographs with their Pharmacopoeial titles beginning with alphabet 'A to O' and Volume-II covers the rest of the monographs from 'P to Z'. This edition comprises only 21 monographs on plant origin drugs (Anonymous, 1996).

v. Pharmacopoeia of India, 2007 (IP'07)

This 5th edition of pharmacopoeia was published in 2007 by Indian Pharmacopoeia Commission. This edition consists of three volumes covering 1341 monographs. Volume one comprises General Notices, IPC Structure, Acknowledgment, Introduction and General Chapters. Volume two and three consist of monographs covering A to M and N to Z, respectively. This edition comprises only 58 monographs on plant origin drugs (Anonymous, 2007).

vi. Pharmacopoeia of India, 2010 (IP'10)

6th and current edition of pharmacopoeia was published in 2010 consisting of three volumes covering 1611 monographs. Volume-I comprises the General Notices, Preface, about Indian Pharmacopoeia Commission, Acknowledgment, Introduction and General Chapters and Reference data. Volume two and three consist of monographs covering A to M and N to Z, respectively. This edition comprises only 89 monographs on plant origin drugs (Anonymous, 2010).

Table 1 Monographs on herbal drugs and substances incorporated Indian Pharmacopoeia

Botanical name	Family	Pharmacopial title	Officinal part(s)	Pharmacopoeia
<i>Acacia nilotica</i> (L.) Delile (<i>A. arabica</i> (Lam.) Willd.)	Mimoseae	Acacia	Dried gummy exudation from the stem and branches	IPL, 55, 2007, 2010
<i>Acacia catechu</i> (L.f.) Willd.	Mimoseae	Catechu Nigrum, Black Catechu	Dried extract prepared from the heart wood	IPL, 55, 66

Botanical name	Family	Pharmacopial title	Official part(s)	Pharmacopoeia
<i>Aconitum chasmanthum</i> Stapf ex Holmes.	Ranunculaceae	Aconitum, Aconite	Dried root	IPL, 55
<i>Aconitum napellus</i> L.	Ranunculaceae	Aconite	Dried root	IP 66
<i>Justicia adhatoda</i> L. (<i>Adhatoda vasica</i> Nees)	Acanthaceae	Vasaka	Fresh and dried leaves	IPL, 55, 66, 2007, 2010
		Vasaka extract	Dried mature leaves	IP2010
<i>Aegle marmelos</i> (L.) Correa	Rutaceae	Belae freectees, Bacl	Fresh unripe or half ripe fruit	IPL, 55, 66
<i>Allium sativum</i> L.	Alliaceae	Lasuna	Fresh or dried	IP2007, 2010
<i>Aloe barbadensis</i> Mill. (<i>A. vera</i> L.)	Liliaceae	Aloe, Aloes	Dried juice of leave	IPL, 55, 66, 96
<i>Alpinia officinarum</i> Hance	Lingiberaceae	Rasna	Dried Rhizome	IP 66
<i>Alstonia scholaris</i> (L.) R. Br.	Apocynaceae	Alstonia Chhatim	Dried Bark	IP 55
<i>Anamirta paniculata</i> Caelbr	Merispermaceae	Picrotoxinum, Picrotoxin	Seeds	IP 55
<i>Andira araroba</i> Aguiar	Liguminosae	Chrysarobinum, Chrysarobin	Chrysarobin- found in cavitie of trunk	IP 55
<i>Andrographis paniculata</i> (Burm.f.) Wall. ex Nees	Acanthaceae	Kalmegh	Dried aerial parts, stems and leaves	IPL, IP 55, 66, 2007, 2010
		Kalmegh dry extract	Dried aerial parts, stems and leaves	IP2010
<i>Anethum graveolens</i> L.	Apiaceae	Anethum , Dill	Dried ripe fruit	IP55, 66
		Oleum anethi, oil of dill	Oil distilled from	IP55, 66
<i>Arachis hypogaea</i> L.	Leguminosae	Arachis oil, Ground nut oil, Peanut oil, Oleum arachis,	Seed kernels, Fixed oil expressed from the seeds	IP55, 85, 96, 2007, 2010

Botanical name	Family	Pharmacopial title	Officinal part(s)	Pharmacopoeia
<i>Areca catechu</i> L.	Arecaceae	Areca	Dried ripe seed	IPL
<i>Aristolochia indica</i> L.	Aristolochiaceae	Aristolochia	Dried stem and root	IPL
<i>Artemisia annua</i> L.	Asteraceae	Artemisia	Dried leaves or the dried leaves and flowering tops	IP2007, 2010
<i>Artemisia brevifolia</i> Wall. (<i>Artemisia maritime</i> L. forma rubricaula Badhwar)	Asteraceae	Artemisia	Dried immature leaves, flowerheads	IPL, IP 55
<i>Asparagus racemosus</i> Willd.	Liliaceae	Shatavari	Tuberous roots	IP 2007, 2010
<i>Astragalus gummifer</i> Labill.	Leguminosae	Tragacanth, Gum Tragacanth	Gummy exudates from trunk and branches	IP 85, 96, 2007, 2010
<i>Astragalus strobiliferus</i> Royle and some other species	Leguminosae	Yragacantha, yragacantha	Dried gummy exudation obtained by incision	IPL, IP 55
<i>Atropa belladonna</i> L., <i>Atropa acuminata</i> Royle ex. Lindley	Solanaceae	Belladonna dry extract	Extract is obtained from the dried leaf and flowering	IP96, 2007, 2010
		Belladonna Herb, Belladonna Leaf	Leaf and flowering tops	IPL, 55, 96, 2007, 2010
		Belladonna tincture	Tincture obtained from belladonna leaf or roots	IP2010
		Belladonnae radix, belladonna root	Dried root and root stock	IP55

Botanical name	Family	Pharmacopial title	Official part(s)	Pharmacopoeia
<i>Azadirachta indica</i> A. Juss. (<i>Melia azadirachta</i> L.)	Meliaceae	Oleum neem , neem oil	Oil expressed from the seeds	IPL, IP55
		Neem	Dried leaves	IP2010
<i>Bacopa monnieri</i> (L.) Pennell	Scrophulariaceae	Brahmi	Dried whole plant	IP2007, 2010
		Brahmi extract	Dried leaves and stems	IP2010
<i>Berberis aristata</i> DC.	Berberidaceae	Berberis	Dried roots with the bark intact	IPL
		Daruharidra roots	Dried roots	IP2010
		Daruharidra stems	Dried stems	IP2010
<i>Boerhavia diffusa</i> L.	Nyctaginaceae	Punarnava, punarnaba	Fresh or dried plant	IPL, IP55, 66
			Dried root	IP2007, 2010
<i>Boswellia serrata</i> Roxb. ex Colebr.	Burseraceae	Kundururu	Gum, resin	IP2007, 2010
<i>Brassica juncea</i> (L.) Czern. & Coss.	Cruciferac	Sinapis, brown mustard	Dried ripe seed	IPL
		Oleum sinapis expressum, expressed oil of mustard	Expressed oil of mustard obtained by pressure form the seed	IPL, IP55, IPL, IP55, 66
<i>Butea monosperma</i> (Lam.) Taub. (<i>B. frondosa</i> Koen. ex Roxb.)	Leguminosae	Butea semen, butea seed	Seed	IP55
<i>Cannabis sativa</i> L.	Cannabaceae (Cannabinaceae)	Cannabis	Dried flowering tops of the cultivated pistillate plant	IPL, IP55, 66
<i>Capsicum annum</i> L., <i>Capsicum frutescens</i> L.	Solanaceae	Capsicum	Dried ripe fruits	IP55, 66

Botanical name	Family	Pharmacopial title	Official part(s)	Pharmacopoeia
<i>Carica papaya</i> L.	Caricaceae	Papain, Papainum	Juice of the unripe fruits	IPL, IP 55, 66, 96, 2007, 2010
<i>Carum carvi</i> L.	Apiaceae	Caraway, carum	Dried ripe fruits	IP55
		Oleum cari, oil of caraway	Oil distilled from dried ripe fruits	IP55, 66
<i>Carum copticum</i> Benth	Apiaceae	Oleum ajowan, ajowan oil	Oil from the fruits, distilled	IPL, IP55, 66
<i>Cassia senna</i> L.; <i>Cassia acutifolia</i> Delile; <i>Cassia angustifolia</i> Vahl.	Leguminosae	Sennae folium, senna leaf	Dried leaflets	IP55, 66, 85, 96, 2007, 2010
		Sennae fructus, senna fruit	Dried ripe fruit, Pod	IP55, 66, 85, 96, 2007, 2010
		Senna dry extract	Leaves or pods	IP2010
		Senna tablets		IP2010
<i>Cassia fistula</i> L.	Leguminosae	Cassia fructus, cassia fruit	Dried ripe fruit	IP 55, 66
<i>Centella asiatica</i> L.	Apiaceae	Mandukaparni	Dried aerial parts	IP2007, 2010
<i>Cephaelis ipecacuanha</i> A. Rich	Rubiaceae	Ipecac tincture	Roots and rhizomes	IP2010
		Ipecacuanha	Dried root or rhizome	IP55, IP66
<i>Cyamopsis tetragonolobus</i> L.	Leguminosae	Guar gum	Powder of the endosperm of seeds	IP66, 85, 96, 2007, 2010
<i>Chenopodium album</i> L.	Chenopodiaceae	Oleum chenopodii, oil of chenopodium	Oil distilled with stem from the fresh flowering and fruiting plants, excluding roots	IPL, IP55, 66
<i>Chrysanthemum cinerariifolium</i> (Trevir.) Vis.	Asteraceae	Pyrethrum	Dried, closed, half open or open flower	IPL, IP55, 66
<i>Cinchona ledgeriana</i> (Howard) Bern. Moens ex Trimen	Rubiaceae	Cinchona pebrifuge	Bark	IPL, IP55, 66

Botanical name	Family	Pharmacopial title	Officinal part(s)	Pharmacopoeia
<i>Cinnamomum camphora</i> (L.) Nees & Ebern	Lauraceae	Camphor	Leaves	IP55, 66
<i>Cinnamomum cassia</i> (L.) Blume	Lauraceae Lauraceae	Oleum cassiae, oil of cassia	Volatile distilled with steam from the leaves and twigs	IPL, IP55, 66
		Cinnamomum cassia, cassia cinnamon	Dried stem bark	IPL, IP55, 66
		Oleum cinnamomi folii, cinnamon leaf oil	Oil distilled from the leaves	IPL, IP55, 66
<i>Cinnamomum zeylanicum</i> Nees.	Lauraceae	Cinnamomum, cinnamon	Dried inner bark of the shoots of coppiced tree	IP55, 66
		Oleum cinnamomi, oil of cinnamon	Oil distilled from inner bark of the shoot	IP55, 66
<i>Citrullus colocynthis</i> (L.) Schard	Cucurbitaceae	Colocynthis, colocynth	Dried pulp of the fruit	IP55
<i>Citrus aurantii</i> L.	Rutaceae	Oleum aurantic floris, oil of orange flower	Oil of flower obtained by distillation with water from the fresh blossom	IPL
<i>Citrus aurantium</i> var. <i>bigaradia</i> Hook f.	Rutaceae	Oleum aurantii floris, oil of orange flower	Oil obtained by distillation with water from the fresh blossoms of the bitter orange tree	IP55
<i>Citrus lemon</i> (L.) Burm f.	Rutaceae	Oleum limonis, oil of lemon	Oil expressed from fresh lemon peel	IP55, 66
<i>Citrus lemon</i> (L.) Burm., <i>Citrus medica</i> L. var <i>limon</i> L., <i>Citrus limon</i> (L) Burm f.	Rutaceae	Fresh lemon peel, Limonis cortex, lemon peel	Outer part of the ripe or nearly ripe	IPL, IP55, 66

Botanical name	Family	Pharmacopial title	Officinal part(s)	Pharmacopoeia
<i>Citrus</i> sp.	Rutaceae	Pectinum, pectin	Purified carbohydrate product obtained from the dilute acid extract of the inner portion of the rind of citrus fruits	IPL, IP55, 66
<i>Claviceps purpurea</i> (Friex) Tulasne	Hypocreaceae	Ergota, ergot	Dried sclerotium developed on ryeplant (secale cereal Linn)	IPL, IP55, 66
<i>Cocos nucifera</i> L.	Arecaceae	Coconut oil	Fat obtained by expression from the kernels of fruit	IPL, IP2010
<i>Coleus forskohlii</i> Briq.	Labiatae	Coleus	Whole or cut dried roots	IP2007, 2010
		Coleus dry extract	Roots	IP2010
<i>Colohicum luteum</i> Baker	Liliaceae	Colchici cormus	Fresh corn collected before flowering season or the same deprived of its coats, sliced transversely and dried at a temp not exceeding 65	IPL, IP55
		Colchici semen, colochicum seed	Dried ripe seed	IPL
<i>Commiphora molmol</i> Engl.	Burseraceae	Myrrha, myrrh	Oleo gum resin obtained from the stem	IP55
<i>Commiphora wightii</i> (Arnott) Bhandari	Burseraceae	Guggul Resin	Oboresin exudation	IP 96, 2007, 2010
		Gugulipid	Oleoresin exudation	IP2007, 2010
		Gugulipid tablets	Oleoresin exudation	IP2007, 2010

Botanical name	Family	Pharmacopial title	Officinal part(s)	Pharmacopoeia
<i>Copernicia cerifera</i> Mart.	Areaceae	Carnauba Wax	Leaves	IP96
<i>Coriandrum sativum</i> L.	Apiaceae	Coriander oil, Oleum coriandri, oil of coriander	Fruits, Oil distilled with steam from the	IP55, 66, 2010
		Coriandrum, coriander	Dried ripe fruits	IP55
<i>Crocus sativus</i> L.	Iridaceae	Crocus	Dried stigma	IPL, IP55
<i>Cuminum cyminum</i> L.	Apiaceae	Oleum cumini, oil of cumin	Oil form the fruits	IPL, IP55
		Cuminum, cumin	Ripe fruit	IPL, IP55
<i>Curcuma longa</i> L.	Zingiberaceae	Haridra, Curcuma, turmeric	Dried and fresh Rhizomes	IP55, 66, 2007, 2010
		Haridra dry extract	Dried Rhizomes	IP2010
<i>Cymbopogon citrates</i> Stapf., <i>Cymbopogon flexuosees</i> Stapf.	Gramineae	Oleum graminis citrati, oil of lemon grass	Oil distilled from plant	IPL, IP55, 66
<i>Datura metel</i> L., <i>Datura metel</i> var. <i>fastuosa</i> Safford	Solanaceae	Datura herba, datura herb, Datura semina, datura seed	Dried leaves and flowering parts	IP55, 66
<i>Datura stramonium</i> L.	Solanaceae	Stramonium	Dried leaves and flowering tops.	IP55, 66
<i>Derris ferruginea</i> Benth	Papilionaceae	Derris	Dried rhizome and root	IPL, IP55
<i>Digitalis purpurea</i> L.	Scrophulariaceae	Digitalis folium, digitalis leaf	Leaf, rapidly dried at a temperature of about 60° as soon as possible after collection.	IP55, 66

Botanical name	Family	Pharmacopial title	Officinal part(s)	Pharmacopoeia
<i>Dryopteris odontoloma</i> (Moore) C.Chr.	Aspidiaceae	Filix mas, male fern	Rhizome and frond bases.	IP55, 66
<i>Eclipta alba</i> (L.) Hassk.	Asteraceae	Bhringraj	Dried whole plant	IP2007, 2010
<i>Elettaria cardamomum</i> Maton var. <i>minuscula</i> Burkill	Lingiberaceae	Cardamon fruit	Dried or nearly ripe fruit	IP66, 55
<i>Embelia ribes</i> Burm.	Myrsinaceae	Vidang	Dried ripe fruit	IP66
<i>Emblica officinalis</i> Gaertn.	Euphorbiaceae	Amalaki	Dried fruits pericarp	IP2007, 2010
		Amla juice powder	Spray drying cold pressed juice of fresh fruits	IP2010
<i>Ephedra gerardiana</i> (Wall) Stapf.	Ephedraceae	Ephedra	Dried stem	IPL, IP55, 66
<i>Erythroxylon coca</i> L.	Erythroxylaceae	Cocaina, cocaine	Cocaine (C17 H21 O4 N)- an alkaloid obtained from the leaves.	IP55
<i>Eucalyptus globulus</i> Labill., <i>Eucalyptus fruticetorum</i> F.Muell. ex Miq., <i>Eucalyptus smithii</i> F. Muell. ex. R. T. Baker	Myrtaceae	Oleum eucalypti, oil of eucalyptus, Eucalyptus oil	Oil distilled from the fresh leaves	IP85, 96, 2007, 2010
<i>Eugenia caryophyllata</i> Thunberg	Mystaceae	Oleum caryophylli, oil of clove	Dried flower bud oil distilled	IP55, 66
		Caryophyllum, clove	Dried flower bud	IP55, 66
<i>Eupatorium ayapana</i> Vent, <i>Eupatorium triplinerve</i> Vahl	Asteraceae	Ayapana, ayapan	Dried leaves	IPL, IP55, 66

Botanical name	Family	Pharmacopial title	Official part(s)	Pharmacopoeia
<i>Ferula narthex</i> Boiss, <i>Ferula foetida</i> Regel	Apiaceae	Asafoetida	Oleo gum resin obtained by incision, from the living rhizome and root	IPL, IP 55
<i>Foeniculum panmorium</i> DC., <i>Foeniculum vulgare</i> Mill.	Apiaceae	Oleum poeniculi, oil of fenne	Volatile oil distilled with steam from the dried ripe fruits	IPL, IP55
<i>Foeniculum vulgare</i> Mill	Apiaceae	Foeniculum, Fennel, Saunf	Dried ripe fruit	IP55, 66, 2010
<i>Trianthema portulacastrum</i> L.	Aizoaceae	Punarnava, Punarnaba	Leaves, fresh dried plant	IPL
<i>Garcinia cambogia</i> (Gaertn.) Desr. (<i>Garcinia gummi-gutta</i> (L.) Roxb.)	Clusiaceae	Garcinia	Dried deseeded fruit	IP2007, 2010
		Garcinia aqueous extract	Fruit rinds with water as calcium salts	IP2010
<i>Garcinia indica</i> (Thouars) Choisy	Clusiaceae	Oleum garcinae, kokum butter	Solid fat expressed from the seeds.	IP55, 66
<i>Gaultheria fragrantissima</i> Wall.	Ericaceae	Oleum gaultheriae, oil of gaultheriae	Oil distilled from the fresh plant	IPL, IP55
<i>Gelidium amansii</i> Lam.	Rhodophyceae	Agar	Dried gelatinous substance	IP55, 66
<i>Glycyrrhiza glabra</i> L.	Leguminosae	Glycyrrhiza, Liquorice, Yasti	Dried, peeled, or unpeeled root and stolon	IP55, 66, 96, 2007, 2010
		Yasti dried extract	Dried unpeeled roots and stolons	IP2010
<i>Gossypium herbacea</i> L.	Malvaceae	Purified cotton	Hairs of the seed	IPL
<i>Gossypium</i> L.	Malvaceae	Absorbent cotton, Absorbent cotton wool	Seed coat	IP85, 96

Botanical name	Family	Pharmacopial title	Officinal part(s)	Pharmacopoeia
Grains of Barley, cholam or wheat	---	Malt extract	Extraction malted grains of cereals	IP2007, 2010
<i>Gymnema sylvestre</i> R.Br.	Apocynaceae	Gudmar	Dried mature leaves	IP2007, 2010
<i>Hedychium spicatum</i> Sm.	Zingiberaceae	Shati	Dried rhizomes	IP2007, 2010
<i>Hemidesmus indicus</i> (L.) R. Br. ex Schult..	Apocynaceae	Hemidesmus, Anantmula	Dried roots	IP55, 2010
<i>Holarrhena antidysenterica</i> Wall.	Apocynaceae	Kurchi	Dried stem bark free from attached bark	IPL, IP55, 66
<i>Hordeum vulgare</i> L.	Gramineae	Maltum, malt	Grain partially germinated artificially, and containing amylolytic enzyme	IPL
<i>Hydnocarpus kurzii</i> (King) Warb., <i>Hydnocarpus laurifolia</i> (Dennst.) Sleumer, <i>Hydnocarpus wightiana</i> Blume	Flacourtiaceae	Pleum chaulmoograe, chaulmoogra oil Oleum hydnocarpi hydnocarpus oil	Fatty oil obtained by cold expression from the fresh ripe seeds	IPL , IP55, 66
<i>Hyoscyamus muticus</i> L., <i>Hyoscyamus niger</i> L.	Solanaceae	Hyoscyamus	Dried leaves and flowing tops	IPL, IP55, 66
<i>Ipomoea nil</i> (L.) Roth (<i>Ipomoea hederacea</i> Jacq.)	Convolvulaceae	Kaladana	Dried seeds	IPL, IP55
<i>Ipomoea orizabensis</i> (Pelletan) Ledeb. ex Steud.	Convolvulaceae	Ipomoea	Dried roots	IP55

Botanical name	Family	Pharmacopial title	Officinal part(s)	Pharmacopoeia
<i>Operculina turpethum</i> (L.) Silva Manso (<i>Ipomoea turpethum</i> (L.) R. Br.)	Convolvulaceae	Yurpethum, yurpeth	Dried roots	IPL
<i>Juniperus macropoda</i> Boiss.	Cuperaceae	Oleum juniperi, oil of juniper	Volatile oil distilled with steam from the dried ripe berries.	IPL
<i>Zingiber officinale</i> Roscoe	Zingiberaceae	Ginger, Gingiber	Rhizome- scraped to remove the dark outer skin, and dried in seed	IP55, 66
<i>Linum usitatissimum</i> L.	Linaceae	Linum, Linseed	Dried ripe seed	IP55, 66
<i>Liquidambar orientalis</i> Mill.	Altingiaceae	Styrax pracparatus	Balsam obtained from the wounded trunk	IP55
<i>Lobelia nicotianaefolia</i> Heyne.	Campanulaceae	Lobelia	Dried Aerial parts	IPL, IP55, 66
<i>Linum usitatissimum</i> L.	Linaceae	Oleum lini, linseed oil	Fixed oil expressed from the ripe seeds	IP55, 66
<i>Lycopodium clavatum</i> L.	Lycopodiaceae	Lycopodium	Spores	IPL
<i>Mangifera indica</i> L.	Anacardiaceae	Amra	Dried stem bark	IP2007, 2010
<i>Melaleuca leucadendron</i> L.	Myrtaceae	Oleum cajuputic, oil of cajuput	Oil distilled from the fresh leaves and twigs	
<i>Mentha arvensis</i> L.	Labiatae	Oleum redinae, pudina oil	Oil distilled from aerial part	IPL, IP55
<i>Mentha piperita</i> L., <i>Mentha arvensis</i> var. <i>piperascens</i>	Labiatae	Peppermint oil	Aerial parts	IP 96, 2007, 2010

Botanical name	Family	Pharmacopial title	Officinal part(s)	Pharmacopoeia
<i>Mentha</i> sps.	Labiatae	Oleum menthac, oil of menthe, Mentha oil	Volatile oil distilled with steam from various species	IP55, 66, 85, 96, 2007, 2010
<i>Myristica fragrans</i> Houtt.	Myristicaceae	Oleum myristicae, oil of nutmeg	Volatile oil distilled with stem from the dried kernels of the ripe seed	IP55, 66
		Nutmeg, myristica	Dried kernels of seeds	IP55, 66
<i>Myroxylon balsamum</i> (L.) Harms	Leguminosae	Tolu balsam, Balsam of Tolu, Balsamum folutanum, Bals, Tolu	Solid or semisolid balsam from trunk	IP55, 66, 96, 2007, 2010
<i>Nardostachys jatamansi</i> DC.	Valerianaceae	Jatamansi	Dried rhizome	IP66
<i>Ocimum sanctum</i> L.	Labiatae	Tulasi	Leaves	IP2007, 2010
		Tulasi dry extract	Leaves	IP2010
<i>Oryza sativa</i> L.	Gramineae	Perpolitones 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.	IPL
<i>Papaver somniferum</i> L.	Papaveraceae	Opium Powder	Dried powder	IP 85, 96, 2007, 2010
		Opium , Raw opium	Latex obtained by incision from the unripe capsules of, dried or partly dried by heat or spontaneous evaporation	IP55, 66, 85, 96, 2007, 2010

Botanical name	Family	Pharmacopial title	Officinal part(s)	Pharmacopoeia
<i>Phyllanthus amarus</i> Schum. & Thom.	Euphorbiaceae	Bhuiamla	Dried aerial parts	IP2007, 2010
<i>Picroena quassioides</i> Benth.	Simarubaceae	Quassia	Stem wood	IPL, IP55
<i>Picrorhiza kurroa</i> Royle ex Benth.	Scrophulariaceae	Kutki, Picrorhiza	Dried roots	IPL, IP55, 66, 2007, 2010
<i>Pilocarpus microphyllus</i> Stapf and other species of <i>Pilocarpus</i>	Rutaceae	Pilocarpini nitras, pilocarpine nitrate	Leaves	IP55
<i>Pimpinella anisum</i> L.	Apiaceae	Oleum anisi, oil of anise, Anisum, anise	Dried ripe fruit	IP55, 66
<i>Pinus roxburghii</i> Sarg. (<i>Pinus longifolia</i> Roxb. ex Lamb.)	Pinaceae	Colophonium, colophony	Solid residue left after distilling the volatile oil from the oleo-resin.	IPL, IP55
		Oleum terebinthinae	Oil distilled from the oleo resin turpentine and rectified	IPL, IP66
		Pix liquida, Tar	Bituminous liquid obtained from the wood, by destructive distillation	IPL, IP55, 66
<i>Piper longum</i> L.	Piperaceae	Pippali small	Fruiting spike	IP2007,2010
<i>Piper nigrum</i> L.	Piperaceae	Maricha	Unripe fruits	IP2007,2010
<i>Piper retrofractum</i> Vahl, <i>Piper latifolium</i> L. f.	Piperaceae	Pippali large	Fruiting spikes	IP2007,2010
<i>Plantage ovata</i> Forsk	Plantaginaceae	Ispaghula, ishabgul, Ispaghula husk	Dried seed, coats of seed	IPL, IP55, 66, 2007, 2010
<i>Podophyllum hexandrum</i> Royle	Berberidaceae	Podophyllum	Dried rhizome and root	IP55

Botanical name	Family	Pharmacopial title	Officinal part(s)	Pharmacopoeia
<i>Polygala chinensis</i> L.	Polygalaceae	Chinensis	Dried root	IPL, IP55
<i>Psoralea corylifolia</i> L.	Leguminosae	Psoraleae frecotus, psoralea fruits	Ripe fruits	IP55
		Psoraleae semina, psoralea seeds	Seeds	IPL
<i>Pterocarpus marsupium</i> Roxb.	Papilionaceae	Kino	Juice obtained from incision in the trunks heated to boiling and evaporated to olryness.	IPL, IP55
<i>Quillaja saponaria</i> Molina and other species of <i>Quillaja</i>	Rosaceae	Quillaia	Dried inner bark	IP55, 66
<i>Rauwolfia serpentina</i> Bentham ex. Kurz	Apocynaceae	Sarpagandha, Rauwolfia	Dried roots	IPL, IP55, 66, 2007, 2010
		Sarpagandha powder	Dried roots	IP2010
		Sarpagandha tablet	Dried roots	IP2010
<i>Rheum emodi</i> Wall.	Polygonaceae	Rheum, rhubark	Dried rhizome and root	IPL, IP55, 66
<i>Ricinus communis</i> L.	Euphorbiaceae	Oleum ricini, castor oil	Seed, Fixed oil obtained by cold expression	IP55, 66, 96, 2007, 2010
<i>Ricinus communis</i> L.	Euphorbiaceae	Hydrogenated castor oil	Seeds	IP2007, 2010
<i>Rosmarinus officinalis</i> L.	Labiatae	Oleum rosmarini, oil of rosemary	Oil distilled from flowing plant	IP55
<i>Rubia cordifolia</i> L.	Rubiaceae	Manjistha	Dried stem	IP2007, 2010
<i>Saraca indica</i> L.	Leguminosae	Ashoka, ashok	Dried stem bark	IP55, 66
<i>Sasamum indicum</i> L.	Pedaliaceae	Oleum sesami, sesame oil	Fixed oil expressed from the seeds	IP55, 66

Botanical name	Family	Pharmacopial title	Officinal part(s)	Pharmacopoeia
<i>Saussurea lappa</i> Clarke	Asteraceae	Saussurea	Dried roots	IPL, IP55, 66
<i>Sorghum vulgare</i> L.	Graminae	Maltum, malt	Grains-partially germinated artificially, and containing amylyolytic	IPL
<i>Strophanthus gratus</i> Franch	Apocynaceae	Ouabainum, ouabain	Seeds, wood	IP55
<i>Strychnos nux-vomica</i> L.	Loganiaceae	Nux-vomina	Dried ripe seed	IP55, 66
<i>Styrax paralleloneurum</i> Perkins; <i>Styrax benzoin</i> Dryland, <i>Styrax tonkinensis</i> Gaib	Styraceae	Benzoinum, Benzoin	Balsamic resin obtained from the incised stem.	IP55, 66, 96
<i>Swertia chirata</i> Buch. Ham.	Gentianaceae	Chirata	Dried plant with flowers.	IPL, IP55, 66
<i>Syzigium aromaticum</i> (L.) Merr. & L.M. Perry., <i>Eugenia caryophyllus</i> (Spreng.) Bull. and Harr.	Myrtaceae	Clove oil	Dried flower buds	IP 96, 2007, 2010
<i>Syzigium aromaticum</i> (L.) Merr. & L.M. Perry.	Myrtaceae	Lavang	Dried flower buds	IP2010
<i>Terminalia arjuna</i> (Roxb) Wight & Arn	Combretaceae	Arjuna	Dried stem bark	IP2007, 2010
		Arjuna dry extract	Extract of stem bark	IP2010
<i>Terminalia bellrica</i> (Gaertn.) Roxb.	Combretaceae	Bhibhitaki	Dried fruit pericarp	IP2007, 2010
		Bhibhitaki aqueous extract	Fruit with water	IP2010
<i>Terminalia chebula</i> Retz.	Combretaceae	Haritaki aqueous extract	Dried fruit pericarp	IP2010

Botanical name	Family	Pharmacopial title	Officinal part(s)	Pharmacopoeia
<i>Terminalia chebula</i> Retz.	Combretaceae	Haritaki, Myrobalanum, Myrobalan	Dried fruits obtained in two forms, viz the semi-mature fruits and the young fruits of smaller size	IPL, IP55, 66, 2007, 2010
<i>Theabroma cacao</i> L.	Sterculiaceae	Oleum theomatis, oil of theobroma	Solid fat, expressed from the roasted seeds	IP55
<i>Tinospora cordifolia</i> Miers.	Menispermaceae	Tinospora	Dried stem with bark intact/ Dried mature pieces of stem	IPL, IP2007, 2010
<i>Trachyspermum ammi</i> Mill.	Apiaceae	Ajwain	Dried fruits	IP2010
<i>Tribulus terrestris</i> L.	Zygophyllaceae	Gokhru	Dried fruits	IP2007, 2010
<i>Trigonella foenum-graecum</i> L.	Fabaceae	Methi	Dried, ripe seeds	IP2010
<i>Triticum sativum</i> L.	Graminae	Maltum, malt	Grain- partially germinated artificially and containing amyolytic enzymes.	IPL, IP66
<i>Urginea indica</i> Kunth	Liliaceae	Urginea	Bulb divested of its dry membranous outer scales, cut into slices and dried	IP55, 66
<i>Valeriana wallichii</i> DC., <i>Valeriana officinalis</i> L.	Valerianaceae	Valeriana, valerian	Dried rhizome	IP55, 66
<i>Vernonia anthelmintica</i> Willd.	Compositae	Vernonia	Fresh dried seed with the glandular hairs.	IPL

Botanical name	Family	Pharmacopial title	Official part(s)	Pharmacopoeia
<i>Withania somnifera</i> (L.) Dunal	Solanaceae	Ashwagandha, Withania radix	Dried mature roots	IP55, 66, 2007, 2010
		Ashwagandha dry extract	Extract obtained by extracting roots	IP2010
<i>Zea mays</i> L., <i>Oryza sativa</i> L., <i>Triticum aestivum</i> L., <i>Solanum tuberosum</i> L., <i>Manihot utilissima</i> Pohl.	Poaceae, Graminae, Solanaceae, Euphorbiaceae	Amylum, Starch	Caryopsis and Rhizome, Starch-obtained from grains and the tubers	IP55, 66, 85, 96, 2007, 2010
<i>Zingiber officinale</i> Roscoe.	Zingiberaceae	Sunthi	Whole or cut scraped or unscraped, dried rhizomes	IP2007,2010
		Sunthi extract	Dried rhizome	IP2010

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