ĀSAVA AND ARIṢṬA

General Description:

Āsavas and *Ariṣṭas* are medicinal preparations made by soaking the drugs, either in coarse powder form or in the form of decoction *(Kaṣāya)*, in a solution of sugar or jaggery, as the case may be, for a specified period of time, during which it undergoes a process of fermentation generating alcohol, thus facilitating the extraction of the active principles contained in the drugs. The alcohol, so generated, also serves as a preservative.

Ariṣṭa

The drugs mentioned in the texts are coarsely (*Yavakūṭa)* powdered and *Kaṣāya* is prepared. The *Kaṣāya* is strained and kept in the fermentation vessel. Sugar, jaggery or honey*, according to the formula, is dissolved, boiled, filtered and added. Drugs mentioned as *Prakṣepa Dravyas* are finely powdered and added. At the end, *Dhātakī Puṣpa,* if included in the formula, should be properly cleaned and added. The mouth of the vessel is sealed. The container is kept either in a special room (Alternatively, in an underground cellar or in a heap of paddy, so as to ensure that for the duration of fermentation, as far as possible, a constant temperatures may impede or accelerate the fermentation).

After the specified period, the lid is removed, and the contents examined to ascertain whether the process of fermentation *(Sandhāna)* has been completed. The fluid is first decanted and then strained after two or three days. When the fine suspended particles settle down, it is strained again and bottled.

Āsavas

The required quantity of water, to which jaggery or sugar as prescribed in the formula is added, is boiled and cooled. This is poured into the fermentation pot, vessel or barrel. Fine powders of the drugs mentioned in the formula are added. The container is covered with a lid and the edges are sealed with clay-smeared cloth wound in seven consecutive layers. The rest of the process is as in the case of *Ariṣṭa.*

If the fermentation is to be carried in an earthen vessel, it should not be new. Water should be boiled first in the vessel. Absolute cleanliness is required during the process. Each time, the inner surface of the fermentation vessel should be fumigated with *Pippalī Cūrṇa* and smeared with ghee

before the liquids poured into it (in large scale manufacture, wooden-vats, porcelain-jars or metal vessels are used in place of earthen vessels.).

The filtered *Āsava* or *Ariṣṭa* should be clear without froth at the top. It should not become sour (*Cukra*). The preparation has the characteristics of aromatic alcoholic odour.

Āsavas and *Ariṣṭas* can be kept indefinitely. They should be kept in well-stoppered bottles or jars.

---

* Honey, where mentioned, should be added as such without being dissolved or boiled.

ABHAYĀRIṢṬA

(AFI, Part-I, 1: 1)

Definition:

Abhayāriṣṭa is a fermented liquid preparation made with the ingredients in the Formulation composition given below. It contains not more than 10 per cent, and not less than 5 per cent of alcohol that is self generated in the preparation over a period of time.

Formulation composition:

1	Abhayā (Harītakī API)	*Terminalia chebula*	P.	4.8 kg
2	Mṛdvīkā (Drākṣā API)	*Vitis vinifera*	Dr. Fr.	2.4 kg
3	Viḍaṅga API	*Embelia ribes*	Fr.	480 g
4	Madhūka Kusuma (Madhūka API)	*Madhuca indica*	Fl.	480 g
5	Jala for decoction	Water		49.152 l
	reduced to			12.288 l
6	Guḍa API	Jaggery		4.8 kg
7	Śvadaṃṣṭrā (Gokṣura API)	*Tribulus terrestris*	Fr.	96 g
8	Trivṛtā (Trivṛt API)	*Operculina turpethum*	Rt.	96 g
9	Dhānya (Dhānyaka API)	*Coriandrum sativum*	Fr.	96 g
10	Dhātakī API	*Woodfordia fruticosa*	Fl.	96 g
11	Indravāruṇī API	*Citrullus colocynthis*	Rt.	96 g
12	Cavya API	*Piper retrofractum*	St.	96 g
13	Madhurikā (Miśreyā API)	*Foeniculum vulgare*	Fr.	96 g
14	Śuṇṭhī API	*Zingiber officinale*	Rz.	96 g
15	Dantī API	*Baliospermum montanum*	Rt.	96 g
16	Mocarasa (Śālmalī API)	*Salmalia malabarica*	Exd.	96 g

Method of preparation:

Take the raw material of pharmacopoeial quality.

Wash, dry and powder the ingredients numbered 1 and 3 *(Kvātha Dravya)* of the formulation composition and pass through the sieve number 44 to obtain coarse powder. Wash and clean the ingredient numbered 2 and 4 *(Kvātha Dravya)* of the formulation composition.

Clean, dry and powder the ingredients numbered 7 to 16 *(Prakṣepa Dravya)* of the formulation composition individually and pass through the sieve number 85 to obtain fine powder.

Add specified amount of water to the *Kvātha Dravya,* soak overnight, heat, reduce to one fourth and filter through *muslin cloth* to obtain *Kvātha.*

Add the ingredient number 6 of the formulation composition to the *Kvātha*, allow to dissolve and filter through the muslin cloth.

Transfer the filtrate to a clean container; add *Dhātakī* and other finely powdered *Prakṣepa Dravyas.* Seal the mouth of the container.

Shift the container to the fermentation room and constantly check for the signs of completion of fermentation process.

Filter the fermented material through a clean muslin cloth.

Pack in air tight containers and allow for maturation.

Description:

Clear dark brown liquid without frothing and significant sedimentation; with aromatic odour and bitter taste

Identification:

Thin Layer Chromatography:

Dry 50 ml of the formulation in vacuum to remove the self generated alcohol. Add 50 ml *water* to dissolve the extract and partition successively with n-*hexane* (50 ml x 3), *chloroform* (50 ml x 3) and

ethyl acetate (50 ml x 3). Filter and concentrate the ethyl acetate extract under vacuum and weigh. Dissolve 1 mg of residue in 1 ml of *methanol* and carry out thin layer chromatography.

Apply separately 5 µl of test solution prepared as above and 5 µl of marker solution prepared by dissolving 1 mg of *gallic acid in* 1 ml of *methanol,* on TLC plate. Develop the plate to a distance of 8 cm using *toluene: ethyl acetate: formic acid: methanol* (3 : 3 : 0.8 : 0.2) as mobile phase. After development, allow the plate to dry in air and derivatise with *Natural product reagent* and examine under ultraviolet light (366 nm). It shows spots at R_f 0.41 (blue, corresponding to *gallic acid)* and 0.59 (light blue).

Physico-chemical parameters:

Total phenolic content:	0.2 to 0.3 per cent w/v equivalent to tannic acid,	Appendix 5.1.1
Total solids:	Not less than 17.5 per cent w/v,	Appendix 3.8
Specific gravity (at 25n):	1.01 to 1.12,	Appendix 3.2
pH:	3.6 to 4.2,	Appendix 3.3
Reducing sugars:	Not less than 9.50 per cent w/v,	Appendix 5.1.3
Non-reducing sugars:	Not more than 0.40 per cent w/v,	Appendix 5.1.3
Alcohol content :	6.5 to 10 per cent v/v,	Appendix 3.17
Methanol:	Absent,	Appendix 2.8

Assay :

The formulation contains 0.4 to 0.8 per cent w/v of *gallic acid,* when assayed by following method.

Estimation of gallic acid: Dissolve 1 mg of *gallic acid* in 1ml of *methanol.*

Apply 1.0 to 8.0 µl of (5 data point) of *gallic acid* solution prepared under Thin layer chromatography on TLC plate and develop the plate to a distance of 8 cm using *toluene: ethyl acetate: formic acid: methanol* (3 : 3 : 0.8 : 0.2) as mobile phase. Derivatise the plate with *Natural product reagent* and dry in a current of cold air and scan in the TLC scanner at a wavelength of 366 nm. Note the peak areas under

curve for the peak corresponding to *gallic acid and* prepare the calibration curve by plotting peak area *vs.* concentration of *gallic acid.*

Dry about 50 ml, of the formulation accurately measured, in vacuum to remove the self generated alcohol. Add 50 ml *water* to dissolve the extract and partition successively with n-*hexane* (50 ml x 3), *chloroform* (50 ml x 3) and *ethyl acetate* (50 ml x 3). Filter and concentrate the ethyl acetate extract under vacuum and weigh accurately. Dissolve about 1 mg, accurately weighed, residue in 1 ml of *methanol* taken from a graduated pipette. Apply 5 µl of the test solution on TLC plate. Develop, dry and scan the plate as described in preceding paragraph for calibration curve of *gallic acid.* Calculate the amount of *gallic acid* in the test solution from the calibration curve of *gallic acid.*

Other requirements:

Microbial limit:	Appendix 2.4
Aflatoxins:	Appendix 2.7

Storage: Store in a cool place in tightly closed amber coloured bottle, protect from light and moisture.

Therapeutic uses: *Arśa* (piles), *Udara* (diseases of abdomen), *Mūtravibandha* (retention of urine), *Agnimāndya* (digestive impairment); *Varcovibandha* (constipation).

Dose: 15 — 30 ml orally with equal amount of water after meals twice a day.

AMṚTĀRIṢṬA

(AFI, Part-I, 1:2)

Definition:

Amṛtāriṣṭa is a fermented liquid preparation made with the ingredients in the Formulation composition given below. It contains not more than 10 per cent, and not less than 5 per cent of alcohol that is self generated in the preparation over a period of time.

Formulation composition:

1	Amṛtā (Guḍūcī API)	*Tinospora cordifolia*	St.	4.8 kg
2	Bilva API	*Aegle marmelos*	St. Bk.	480 g
3	Śyonāka API	*Oroxylum indicum*	St. Bk.	480 g
4	Gambhārī API	*Gmelina arborea*	St. Bk.	480 g
5	Pāṭalā API	*Stereospermum suaveolens*	St. Bk.	480 g
6	Agnimantha API	*Premna mucronata*	St. Bk.	480 g
7	Śālaparṇī API	*Desmodium gangeticum*	Pl.	480 g
8	Pṛṣniparṇī API	*Uraria picta*	Pl.	480 g
9	Bṛhatī API	*Solanum melongena* var. *Indicum*	Pl.	480 g
10	Kaṇṭakārī API	*Solanum surattense*	Pl.	480 g
11	Gokṣura API	*Tribulus terrestris*	Pl.	480 g
12	Jala for decoction	Water		49.152 l
	reduced to			12.288 l
13	Guḍa API	Jaggery		14.4 kg
Prakṣepa Dravyas:				
14	Ajājī (Śveta Jīraka API)	*Cuminum cyminum*	Fr.	768 g
15	Raktapuṣpaka (Parpaṭa API)	*Fumaria parviflora*	Pl.	96 g
16	Saptacchada (Saptaparṇa API)	*Alstonia scholaris*	St. Bk.	48 g

17	Śuṇṭhī API	*Zingiber officinale*	Rz.	48 g
18	Marica API	*Piper nigrum*	Fr.	48 g
19	Pippalī API	*Piper longum*	Fr.	48 g
20	Nāgakeśara API	*Mesua ferrea*	Stmn.	48 g
21	Abda (Mustā API)	*Cyperus rotundus*	Rz.	48 g
22	Kaṭvī (Kaṭukā API)	*Picrorrhriza kurroa*	Rz.	48 g
23	Prativiṣā (Ativiṣā) API)	*Aconitum heterophyllum*	Rt.	48 g
24	Vatsabīja (Indrayava API)	*Holarrhena antidysenterica*	Sd.	48 g

Method of preparation:

Take the raw material of pharmacopoeial quality.

Wash, dry and powder the ingredients numbered 1 to 11 *(Kvātha Dravya)* of the formulation composition individually and pass through the sieve number 44 to obtain coarse powder.

Clean, dry and powder the ingredients numbered 14 to 24 *(Prakṣepa Dravya)* of the formulation composition individually and pass through the sieve number 85 to obtain fine powder.

Add specified amounts of water to the *Kvātha Dravya*, soak overnight, heat, reduce to one fourth and filter through *muslin cloth* to obtain *Kvātha.*

Add the ingredient number 13 of the formulation composition to the *Kvātha*, allow to dissolve and filter through the muslin cloth.

Transfer the filtrate to a clean container; add the finely powdered *Prakṣepa Dravyas* and seal the mouth of the container.

Shift the container to the fermentation room and constantly check for the signs of completion of fermentation process.

Filter the fermented material through a clean muslin cloth.

Pack in air tight containers and allow for maturation.

Description:

Clear, dark brown liquid without frothing and significant sedimentation; with astringent taste

Identification:

Thin Layer Chromatography:

Dry 50 ml of the formulation in vacuum to remove the self generated alcohol. Add 50 ml *water* to dissolve the extract and partition successively with n-*hexane* (50 ml x 3), *chloroform* (50 ml x 3) and *ethyl acetate* (50 ml x 3). Filter and concentrate the ethyl acetate extract under vacuum and weigh. Dissolve 20 mg of residue in 1 ml of *methanol.*

Apply separately 2 µl of solution prepared in preceding paragraph and 5µl of marker solution of *luteolin* and *apigenin* prepared by dissolving 0.5 mg of *luteolin* and 0.1 mg of *apigenin* in 1 ml of *methanol* separately on TLC plate and develop the plate to a distance of 8 cm using *toluene: ethyl: acetic acid* (5 : 4 : 1) as mobile phase. After development, allow the plate to dry in air and derivatise with *Natural product reagent*, dry and examine under ultraviolet light (366 nm). It shows major spots at R_f 0.27 (brillient blue), 0.41 (orange, corresponding to luteolin), 0.52 (brilliant blue) and 0.66 (light blue, corresponding to apigenin).

Physico-chemical parameters:

Total phenolic content:	0.080 to 0.103 per cent w/v equivalent to tannic acid,	Appendix 5.1.1
Total solids:	Not less than 25.0 per cent w/v,	Appendix 3.8
Specific gravity (at 25^0):	1.05 to 1.20,	Appendix 3.2
*p*H*:*	3.40 to 4.40,	Appendix 3.3
Reducing sugars:	Not less than 16 per cent w/v,	Appendix 5.1.3
Non-reducing sugars :	Not more than 0.80 per cent w/v,	Appendix 5.1.3
Alcohol content :	5 to 8 per cent v/v,	Appendix 3.17
Methanol:	Absent,	Appendix 2.8

Assay:

The formulation contains 0.01 to 0.07 per cent w/v of *luteolin* when assayed by the following method:

Estimation of luteolin: Apply separately 1.0 to 8.0 µl (5 data point) of standard solution of *luteolin* prepared under thin layer chromatography, on TLC plate and develop the plate to a distance of 8 cm using *toluene: ethyl acetate: acetic acid* (5 : 4 : 1). Derivatise the plate with *Natural product reagent* and dry in a current of cold air and scan in the TLC scanner at a wavelength of 366 nm. Record the peak area under curve and plot the calibration curve for the peak corresponding to *luteolin* by plotting the peak area *vs.* concentration of *luteolin.*

Dry about 50 ml, accurately measured, of the formulation in vacuum to remove the self generated alcohol. Add 50 ml *water* to dissolve the extract and partition successively with n-*hexane* (50 ml x 3), *chloroform* (50 ml x 3) and *ethyl acetate* (50 ml x 3). Filter and concentrate the ethyl acetate extract under vacuum and weigh. Dissolve about 20 mg, accurately weighed, residue in 1 ml of *methanol* taken from a graduated pipette.

Apply 2 µl on TLC plate and carry out thin layer chromatography. Develop, dry and scan the plate as described in preceding paragraph for calibration curve of *luteolin.*

Calculate the amount of *luteolin* in the test solution from the calibration curve of *luteolin.*

Other requirements:

Microbial limit:	Appendix 2.4
Aflatoxins:	Appendix 2.7

Storage: Store in a cool place in tightly closed amber coloured bottle, protect from light and moisture.

Therapeutic uses: All types of *Jvara* (fever).

Dose: 15 — 30 ml orally with equal amount of water after meals twice a day.

ARAVINDĀSAVA

(AFI, Part-I, 1: 4)

Definition:

Aravindāsava is a fermented liquid preparation made with the ingredients in the Formulation composition given below. It contains not more than 10 per cent, and not less than 5 per cent of alcohol that is self generated in the preparation over a period of time.

Formulation Composition:

1	Aravinda (Kamala API)	Nelumbo nucifera	Fl.	16 g
2	Uśīra API	*Vetivera zizanioides*	Rt.	16 g
3	Kāśmarī (Gambhārī API)	*Gmelina arborea*	Fr.	16 g
4	Nīlotpala (Utpala API)	*Nymphaea stellata*	Fl.	16 g
5	Mañjiṣṭhā API	*Rubia cordifolia*	Rt.	16 g
6	Balā API	*Sida cordifolia*	Rt.	16 g
7	Māṃsī (Jaṭāmāṃsī API)	*Nardostachys jatamansi*	Rz.	16g
8	Elā (Sūkṣmailā API)	*Elettaria cardamomum*	Sd.	16 g
9	Ambuda (Mustā API)	*Cyperus rotundus*	Rz.	16 g
10	Śārivā (Śveta Sārivā API)	*Hemidesmus indicus*	Rt.	16 g
11	Śivā (Harītakī API)	*Terminalia chebula*	P.	16 g
12	Bibhītaka API	*Terminalia bellirica*	P.	16 g
13	Vacā API	*Acorus calamus*	Rz.	16 g
14	Dhātrī (Āmalakī API)	*Emblica officinalis*	P.	16 g
15.	Śaṭī API	*Hedychium spicatum*	Rz.	16 g
16	Śyāmā (Trivṛt API)	*Ipomoea turpethum*	Rt.	16 g
17.	Nīlinī (Nīlī API)	*Indigofera tinctoria*	Rt.	16 g
18.	Paṭola API	*Trichosanthes dioica*	Lf. / Pl.	16 g
19.	Parpaṭa API	*Fumaria parviflora*	Pl.	16 g

20	Pārtha (Arjuna API)	*Terminalia arjuna*	St. Bk.	16 g
21	Madhūka API	*Madhuca indica*	Fl.	16 g
22.	Madhuka (Yaṣṭī API)	Glycyrrhiza glabra	Rt.	16 g
23.	Murā API	*Selinium tenuifolium*	Rt.	16 g
24.	Drākṣā API	*Vitis vinifera*	Dry Fr.	320 g
25.	Dhātakī API	*Woodfordia fruticosa*	Fl.	256 g
26.	Jala	Water		8.19 l
27.	Śarkarā API	Sugar		1.6 kg
28.	Mākṣika (Madhu API)	Honey		0.8 kg

Method of Preparation:

Take the raw materials of Pharmacopoeial quality.

Wash, dry and powder the ingredients numbered 1 to 23 of the formulation composition individually and pass through the sieve number 44 to obtain coarse powder.

Wash and clean the ingredients numbered 24 and 25 of the formulation composition.

Add specified amount of water to the ingredient number 27 of the formulation composition, allow to dissolve and filter through the *muslin cloth.*

Transfer the filtrate to a clean container; add *Madhu, Drākṣā, Dhātakī* and coarsely powdered other drugs. Seal the mouth of the container.

Shift the container to the fermentation room and constantly check for the signs of completion of fermentation process.

Filter the fermented material through a clean muslin cloth.

Pack in air tight containers and allow for maturation.

Description:

Clear light brown liquid without frothing and significant sedimentation; with aromatic odour and acrid taste

Identification:

Thin Layer Chromatography:

Dry 50 ml of the formulation in vacuum to remove the self generated alcohol. Add 50 ml *water*, shake and partition successively with n-*hexane* (50 ml x 3), *chloroform* (50 ml x 3) and *ethyl acetate* (50 ml x 3). Filter and concentrate the ethyl acetate extract under vacuum and weigh. Dissolve 20 mg of residue in 1 ml of *methanol* and carry out the thin layer chromatography.

Apply 20 µl on TLC plate and develop the plate to a distance of 8 cm using *toluene: ethyl acetate: formic acid: methanol* (3 : 3 : 0.8 : 0.2) as mobile phase. After development, allow the plate to dry in air and derivatise with *Natural product reagent*, dry and examine under ultraviolet light (366 nm). It shows major spots at 0.48 (dark blue), 0.59 (light blue) and 0.65 (light blue).

Physico-chemical parameters:

Total phenolic content:	Not less than 0.05 per cent w/v equivalent to tannic acid,	Appendix 5.1.1
Total solids:	10 to 20 per cent w/v,	Appendix 3.8
Specific gravity (at 25^0):	1.0 to 1.1	Appendix 3.2
*p*H*:*	3.0 to 4.5	Appendix 3.3
Reducing sugars :	3.5 to 5.5 per cent w/v,	Appendix 5.1.3
Non-reducing sugars :	Not more than 1.0 per cent w/v,	Appendix 5.1.3
Alcohol content :	5 to 10 per cent v/v,	Appendix 3.17
Methanol:	Absent,	Appendix 2.8

Other Requirements:

Microbial limit:	Appendix 2.4
Aflatoxins:	Appendix 2.7

Storage: Store in a cool place in tightly closed amber coloured bottle, protected from light and moisture.

Therapeutic Uses: Agnimāndya (digestive impairment); Kārśya (emaciation); Balakṣaya (loss of strength / immunity); Sarva Bāla Roga (all children diseases); Grahadoṣa (certain psychotic syndrome); Āyuṣya (life prolonging)

Dose: 3 to 12 ml orally with equal amount of water after meals twice a day over one year of age and 10 to 20 drops up to one year, 2-3 times a day.

AŚOKĀRIṢṬA

(AFI, Part-I, 1:5)

Definition:

Aśokāriṣṭa is a fermented liquid preparation, made with the ingredients in Formulation composition given below. It contains not more than 10 per cent, and not less than 5 per cent of alcohol that is self generated in the preparation over a period of time.

Formulation composition:

1	Aśoka API	*Saraca asoca*	St. Bk.	4.800 kg
2	Jala for decoction	Water		49.152 l
	reduced to			12.288 l
3	Guḍa API	Jaggery		9.6 kg
	Prakṣepa Dravya:			
4	Dhātakī API	*Woodfordia fruticosa*	Fl.	768 g
5	Ajājī (Śveta Jīraka API)	*Cuminum cyminum*	Fr.	48 g
6	Mustaka (Mustā API)	*Cyperus rotundus*	Rz.	48 g
7	Śuṇṭhī API	*Zingiber officinale*	Rz.	48 g
8	Dārvī (Dāruharidrā) API)	*Berberis aristata*	St.	48 g
9	Utpala API	*Nymphaea stellata*	Fl.	48 g
10	Harītakī API	*Terminalia chebula*	P.	48 g
11	Bibhītaka API	*Terminalia belerica*	P.	48 g
12	Āmalakī API	*Emblica officinalis*	P.	48 g
13	Āmrāsthi (Āmra API)	*Mangifera indica*	Enm.	48 g
14	Jīraka (Śveta Jīraka API)	*Cuminum cyminum*	Fr.	48 g
15	Vāsā API	*Adhatoda vasica*	Rt.	48 g
16	Candana (Śveta Candana API)	*Santalum album*	Ht. Wd.	48 g

Method of preparation:

Take the raw materials of pharmacopoeial quality.

Wash, dry and powder the ingredient numbered 1 *(Kvātha Dravya)* of the formulation composition and pass through the sieve number 44 to obtain coarse powder.

Clean, dry and powder the ingredients numbered 5 to 16 *(Prakṣepa Dravya)* of the formulation composition individually and pass through the sieve number 85 to obtain fine powder.

Add specified amount of water to the *Kvātha Dravya*, soak overnight, heat, reduce to one fourth and filter through *muslin cloth* to obtain *Kvātha.*

Add the ingredient number 3 of the formulation composition to the *Kvātha*, allow to dissolve and filter through the muslin cloth.

Transfer the filtrate to a clean container; add *Dhātakī* and other finely powdered *Prakṣepa Dravyas.*

Seal the mouth of the container.

Shift the container to the fermentation room and constantly check for the signs of completion of fermentation process.

Filter the fermented material through a clean *muslin cloth.*

Pack in air tight containers and allow for maturation.

Description:

Clear, dark brown liquid without frothing and significant sedimentation;; with astringent taste

Identification:

Thin Layer Chromatography:

Dry 50 ml of the formulation in vacuum to remove the self generated alcohol. Add 50 ml *water* to dissolve the extract and partition successively with n-*hexane* (50 ml x 3), *chloroform* (50 ml x 3) and

ethyl acetate (50 ml x 3). Filter and concentrate the ethyl acetate extract under vacuum and weigh. Dissolve 20 mg of residue in 1 ml of *methanol* and carry out thin layer chromatography.

Apply 5 µl of test solution prepared as above on TLC plate and 2µl each of marker solutions prepared by dissolving 1 mg each of *gallic acid and kaempferol* in 1 ml each of *methanol* separately, on TLC plate and develop the plate to a distance of 8 cm using *toluene: ethyl acetate: acetic acid* (5 : 4 : 1) as mobile phase. After development, allow the plate to dry in air and derivatise with *Natural product reagent* and examine under ultraviolet light (366 nm). It shows spots at R_f 0.09 (yellow), 0.32 (blue, corresponding to *gallic acid*), 0.52 (creamish white) and 0.64 (light green, corresponding to *kaempferol*).

Physico-chemical parameters:

Total phenolic content:	0.061 to 0.083 per cent w/v equivalent to tannic acid,	Appendix 5.1.1
Total solids:	Not less than 11.0 per cent w/v,	Appendix 3.8
Specific gravity (at 25^0):	1.02 to 1.12,	Appendix 3.2
*p*H*:*	3.5 to 4.5,	Appendix 3.3
Reducing sugars:	Not less than 5.50 per cent w/v,	Appendix 5.1.3
Non-reducing sugars:	Not more than 1.00 per cent w/v,	Appendix 5.1.3
Alcohol content:	5 to 10 per cent v/v,	Appendix 3.17
Methanol:	Absent,	Appendix 2.8

Assay:

The formulation contains 0.06 to 0.7 per cent w/v *gallic acid,* when assayed by the following method.

Estimation of gallic acid : Apply 1.0 to 8.0 µl of (5 data point) *gallic acid* solutions prepared under thin layer chromatography on TLC plate and develop the plate to a distance of 8 cm using *toluene: ethyl acetate: acetic acid* (5 : 4 : 1) as mobile phase. Derivatise the plate with *Natural product reagent* and dry in a current of cold air and scan in the TLC scanner at a wavelength of 366 nm. Note the area under

curve for the peaks corresponding to *gallic acid* and prepare the calibration curve by plotting peak area *vs.* concentration of *gallic acid.*

Dry about 50 ml, accurately by measured formulation in vacuum to remove the self generated alcohol. Add 50 ml *water* to dissolve the extract and partition successively with n-*hexane* (50 ml x 3), *chloroform* (50 ml x 3) and *ethyl acetate* (50 ml x 3). Filter and concentrate the ethyl acetate extract under vacuum and weigh. Dissolve about 20 mg, accurately weighed, residue in 1 ml of *methanol* taken from a graduated pipette. Apply 5 µl of the test solution on TLC plate. Develop, dry and scan the plate as described above for calibration curve of *gallic acid.* Calculate the amount of *gallic acid in* the test solution from the calibration curve of *gallic acid.*

Other requirements:

Microbial limit:	Appendix 2.4
Aflatoxins:	Appendix 2.7

Storage: Store in a cool place in tightly closed amber coloured bottle, protect from light and moisture.

Therapeutic uses: Asṛgdara Rujā (dysmenorrhoea); Yonirujā (pain in female genital tract); Śvetapradara (leucorrhoea); Jvara (fever); Raktapitta (bleeding disorders); Arśa (piles); Mandāgni (dyspepsia); Arocaka (tastelessness); Meha (polyuria); Śotha (inflammation).

Dose: 15 — 30 ml orally with equal amount of water after meals twice a day.

AŚVAGANDHĀDYARIṢṬA

(AFI, Part-1, 1:6)

Definition:

Aśvagandhādyariṣṭa is a fermented liquid preparation made with the ingredients in the Formulation composition given below. It contains not more than 10 per cent, and not less than 5 per cent of alcohol that is self generated in the preparation over a period of time.

Formulation composition:

1	Aśvagandhā API	*Withania somnifera*	Rt.	2.4 kg
2	Musalī API	*Chlorophytum tuberosum*	Rt.	960 g
3	Mañjiṣṭhā API	*Rubia cordifolia*	Rt.	480 g
4.	Harītakī API	*Terminalia chebula*	P.	480 g
5	Haridrā API	*Curcuma longa*	Rz.	480 g
6	Dāruharidrā API	*Berberis aristata*	St.	480 g
7	Madhuka (Yaṣṭī API)	*Glycyrrhiza glabra*	Rt.	480 g
8	Rāsnā API	*Pluchea lanceolata*	Rt./Lf.*	480 g
9	Vidārī API	*Pueraria tuberosa*	Rt. Tr.	480 g
10	Pārtha (Arjuna API)	*Terminalia arjuna*	St. Bk.	480 g
11	Mustaka (Mustā API)	*Cyperus rotundus*	Rz.	480 g
12	Trivṛt API	*Ipomoea turpethum*	Rt.	480 g
13	Anantā (Śveta sārivā API)	*Hemidesmus indicus*	Rt.	384 g
14	Śyāmā (Kṛṣṇa sārivā API)	*Cryptolepis buchanani*	Rt.	384 g
15	Śveta Candana API	*Santalum album*	Ht. Wd.	384 g
16	Rakta Candana API	*Pterocarpus santalinus*	Ht. Wd.	384 g
17	Vacā API	*Acorus calamus*	Rz.	384 g
18	Citraka API	*Plumbago zeylanica*	Rt.	384 g

19	Jala for decoction	Water		98.304 l
	reduced to			12.288 l
	Prakṣepa Dravyas			
20	Mākṣika (Madhu API)	Honey		14.4 kg
21	Dhātakī API	*Woodfordia fruticosa*	Fl.	768 g
22	Śuṇṭhī API	*Zingiber officinale*	Rz.	96 g
23	Marica API	*Piper nigrum*	Fr.	96 g
24	Pippalī API	*Piper longum*	Fr.	96 g
25	Tvak API	*Cinnamomum zeylanicum*	St. Bk.	192 g
26	Elā (Sūkṣmailā API)	*Elettaria cardamomum*	Sd.	192 g
27	Patra (Tejapatra API)	*Cinnamomum tamala*	Lf.	192 g
28	Priyaṅgu API	*Callicarpa macrophylla*	Fl.	192 g
29	Nāgakeśara API	*Mesua ferrea*	Stmn.	96 g

* Actual part used in the formulation.

Method of preparation:

Take the raw materials of pharmacopoeial quality.

Wash, dry and powder the ingredients numbered 1 to 18 *(Kvātha Dravya)* of the formulation composition individually and pass through the sieve number 44 to obtain coarse powder.

Clean, dry and powder the ingredients numbered 22 to 29 *(Prakṣepa Dravya)* of the formulation composition individually and pass through the sieve number 85 to obtain fine powder.

Add specified amounts of water to the *Kvātha Dravya*, soak overnight, heat, reduce to one eighth and filter through *muslin cloth* to obtain *Kvātha.* Allow to cool.

Transfer the filtrate to a clean container; add ingredient numbered 20, 21 of the formulation composition. Finally add the finely powdered *Prakṣepa Dravyas* and seal the mouth of the container.

Shift the container to the fermentation room and constantly check for the signs of completion of fermentation process.

Filter the fermented material through a clean *muslin cloth.*

Pack in air tight containers and allow for maturation.

Description:

Clear, dark brown liquid without frothing and significant sedimentation; with astringent taste

Identification:

Thin Layer Chromatography:

Dry 50 ml of the formulation in vacuum to remove the self generated alcohol. Add 50 ml *water* to dissolve the extract and partition successively with n-*hexane* (50 ml x 3) and *chloroform* (50 ml x 3). Filter and concentrate the *chloroform* extract under vacuum and weigh. Dissolve 20 mg of residue in 1 ml of *chloroform* and carry out the thin layer chromatography.

Apply separately 10 µl of solution prepared as above and 5 µl of standard solution of *withanolide D* prepared by dissolving 1 mg in 1 ml of *methanol*, on TLC plate and develop the plate to a distance of 8 cm using *toluene: ethyl acetate: acetic acid* (5 : 4 : 1) as mobile phase. After development, allow the plate to dry in air and spray with *anisaldehyde-sulphuric acid reagent* followed by heating at 105^0 for about 10 minutes and examine under ultraviolet light (366 nm). It shows major spots at R_f 0.27 (dark purple), 0.44 (purple, corresponding to *withanolide D*), 0.61 (light grey), and 0.70 (dark brown).

Physico-chemical parameters:

Total phenolic content:	0.104 to 0.260 per cent w/v equivalent to tannic acid,	Appendix 5.1.1
Total solids:	Not less than 18.5 per cent w/v,	Appendix 3.8
Specific gravity (at 250^0):	1.05 to 1.20,	Appendix 3.2
*p*H*:*	3.50 to 4.50,	Appendix 3.3
Reducing sugars:	Not less than 13 per cent w/v,	Appendix 5.1.3
Non-reducing sugars:	Not more than 0.70 per cent w/v,	Appendix 5.1.3
Alcohol content:	5 to 10 per cent v/v,	Appendix 3.17

Methanol:	Absent,	Appendix 2.8

Other requirements:

Microbial limit:	Appendix 2.4
Aflatoxins:	Appendix 2.7

Storage: Store in a cool place in tightly closed amber coloured bottle, protect from light and moisture.

Therapeutic uses: *Mūrcchā* (syncope), Apasmāra (epilepsy), Śoṣa (cachexia), Unmāda (mania/psychosis), Kārśya (emaciation), Arśa (piles), Agnimāndya (digestive impairment), Vātaroga (neurological disorders).

Dose: 15 — 30 ml orally with equal amount of water after meals twice a day.

BABBŪLĀRIṢṬA

(AFI, Part-II, 1:3)

Definition:

Babbūlāriṣṭa is a fermented liquid preparation made with the ingredients in the Formulation composition given below. It contains not more than 10 per cent, and not less than 5 per cent of alcohol that is self generated in the preparation over a period of time.

Formulation composition:

1	Babbūla API	*Acacia Arabica*	St. Bk.	9.600 kg
2.	Jalafor decoction	Water		49.152 l
	reduced to			12.288 l
3	Guḍa API	Jaggery		4.8 kg
4	Dhātakī API	*Woodfordia fruticosa*	Fl.	768 g
5	Kṛṣṇā (Pippalī API)	*Piper longum*	Fr.	96 g
6	Jātīphala API	*Myristica fragrans*	Sd.	48 g
7	Kaṅkola API	*Piper cubeba*	Fr.	48 g
8	Elā (Sūkṣmailā API)	*Elettaria cardamomum*	Sd.	48 g
9	Tvak API	*Cinnamomum zeylanicum*	St. Bk.	48 g
10	Patra (Tejapatra API)	*Cinnamomum tamala*	Lf.	48 g
11	Keśara (Nāgakeśara API)	*Mesua ferrea*	Stmn.	48 g
12	Lavaṅga API	*Syzygium aromaticum*	Fl.	48 g
13	Marica API	*Piper nigrum*	Fr.	48 g

Method of preparation:

Take the raw materials of pharmacopoeial quality.

Wash, dry and powder the ingredient numbered 1 *(Kvātha Dravya)* of the formulation composition and pass through the sieve number 44 to obtain coarse powder.

Clean, dry and powder the ingredients numbered 5 to 13 *(Prakṣepa Dravya)* of the formulation composition individually and pass through the sieve number 85 to obtain fine powder.

Add specified amounts of water to the *Kvātha Dravya*, soak overnight, heat, reduce to one fourth and filter through *muslin cloth* to obtain *Kvātha.*

Add the ingredient number 3 of the formulation composition to the *Kvātha*, allow to dissolve and filter through the muslin cloth.

Transfer the filtrate to a clean container; add *Dhātakī* and other finely powdered *Prakṣepa Dravyas.* Seal the mouth of the container.

Shift the container to the fermentation room and constantly check for the signs of completion of fermentation process.

Filter the fermented material through a clean muslin cloth.

Pack in air tight containers and allow for maturation.

Description:

Clear, dark brown liquid without frothing and significant sedimentation; with astringent taste

Identification:

Thin Layer Chromatography:

Dry 50 ml of the formulation in vacuum to remove the self generated alcohol. Add 30 ml *methanol* to dissolve the extract. Filter and dry the methanolic extract in vacuum and weigh. Dissolve 10 mg of residue in 1 ml of *methanol* and carry out thin layer chromatography.

Apply separately 15 µl of solution prepared as above and 5 µl each of *gallic acid and caffeic acid* solutions, prepared by dissolving 1 mg of *gallic acid and* 0.1mg of *caffeic acid* in one ml *methanol* separately, on TLC plate and develop the plate to a distance of 8 cm using *toluene: ethyl acetate: formic acid: methanol* (3 : 3 : 0.8 : 0.2) as mobile phase. After development, allow the plate to dry in air and

spray with *Natural product reagent*, dry and examine under ultraviolet light (366 nm). It shows major spots at R_f 0.35 (light blue), 0.44 (blue, corresponding to *gallic acid)* and 0.57 (purple, corresponding to *caffeic acid*).

Physico-chemical parameters:

Total phenolic content:	0.187 to 0.208 per cent w/v equivalent to tannic acid,	Appendix 5.1.1
Total solids:	Not less than 16.5 per cent w/v,	Appendix 3.8
Specific gravity (at 25^0):	1.05 to 1.10,	Appendix 3.2
*p*H*:*	4.0 to 4.50,	Appendix 3.3
Reducing sugars:	Not less than 4.20 per cent w/v,	Appendix 5.1.3
Non-reducing sugars:	Not more than 0.80 per cent w/v,	Appendix 5.1.3
Alcohol content:	5 to 10 per cent v/v,	Appendix 3.17
Methanol:	Absent,	Appendix 2.8

Assay:

The formulation contains 0.02 to 0.10 per cent w/v of *gallic acid,* when assayed by the following method:

Estimation of gallic acid : Apply 1.0 to 8.0 µl of (5 data point) standard solution of *gallic acid* prepared under thin layer chromatography on TLC plate and develop the plate to a distance of 8 cm using *toluene: ethyl acetate: acetic acid: methanol* (3 : 3 : 0.8 : 0.2) as mobile phase. Derivatise the plate with *Natural product reagent* and dry in a current of cold air and scan in the TLC scanner at a wavelength of 366 nm. Record the peak area under curve for a peak corresponding to *gallic acid* and plot the calibration curve by plotting the peak area *vs* concentration of *gallic acid.*

Dry about 50 ml, accurately measured, of the formulation in vacuum to remove the self generated alcohol. Add 30 ml *methanol* to dissolve the extract. Filter and dry the methanolic extract in vacuum and weigh. Dissolve about 10 mg, accurately weighed, of the residue in 1 ml of *methanol* taken from

graduated pipette. Apply 15 µl on TLC plate and carry out thin layer chromatography. Develop, dry and scan the plate as described in preceding paragraph for calibration curve of *gallic acid*. Calculate the amount of *gallic acid in* the test solution from the calibration curve of *gallic acid*.

Other requirements:

Microbial limit:	Appendix 2.4
Aflatoxins:	Appendix 2.7

Storage: Store in a cool place in tightly closed amber coloured bottle, protect from light and moisture.

Therapeutic uses: Kṣaya (pthisis), Kuṣṭha (diseases of skin), Atisāra (diarrhoea), Prameha (urinary disorder), Śvāsa (dyspnoea/asthma), Kāsa (cough).

Dose: 15 — 30 ml orally with equal amount of water after meals twice a day.

BALĀRIṢṬA

(AFI, Part-I, 1: 9)

Definition:

Balāriṣṭa is a fermented liquid preparation, made with the ingredients in the Formulation composition given below. It contains not more than 10 per cent, and not less than 5 per cent of alcohol that is self generated in the preparation over a period of time.

Formulation composition:

1	Balā API	*Sida cordifolia*	Rt.	4.8 kg
2	Aśvagandhā API	*Withania somnifera*	Rt.	4.8 kg
3	Jala for decoction	Water		49.152 l
	reduced to			12.288 l
4	Guḍa API	Jaggery		14.4 kg
5	Dhātakī API	*Woodfordia fruticosa*	Fl.	768 g
Prakṣepa Dravyas:				
6	Payasyā (Kṣīravidārī API)	*Ipomea digitata*	Sub. Rt.	96 g
7	Pañcāṅgula (Eraṇḍa API)	*Ricinus communis*	Rt.	96 g
8	Rāsnā API	*Pluchea lanceolata*	Lf.*/Rt.	48 g
9	Elā (Sūkṣmailā API)	*Elettaria cardamomum*	Sd.	48 g
10	Prasāraṇī (Prasāriṇī API	*Paederia foetida*	Pl.	48 g
11	Devapuṣpā (Lavaṅga API)	*Syzgyium aromaticum*	Fl. Bd.	48 g
12	Uśīra API	*Vetiveria zizanioides*	Rt.	48 g
13	Śvadaṃṣṭrā (Gokṣura API)	*Tribulus terrestris*	Fr.	48 g

* Actual part used in the formulation.

Method of preparation:

Take the raw materials of pharmacopoeial quality.

Wash, dry and powder the ingredients numbered 1 and 2 *(Kvātha Dravya)* of the formulation composition.

Clean, dry and powder the ingredients numbered 6 to 13 *(Prakṣepa Dravya)* of the formulation composition individually and pass through the sieve number 85 to obtain fine powder.

Add specified amount of water to the *Kvātha Dravya*, soak overnight, heat, reduce to one fourth and filter through *muslin cloth* to obtain *Kvātha*.

Add the ingredient number 4 and 5 of the formulation composition to the *Kvātha*, allow to dissolve and filter through *muslin cloth*.

Transfer the filtrate to a clean container; add ingredient number 5 and other finely powdered *Prakṣepa Dravyas* and seal the mouth of the container.

Shift the container to the fermentation room and constantly check for the signs of completion of fermentation process.

Filter the fermented material through a clean *muslin cloth*.

Pack in air tight containers and allow for maturation.

Description:

Clear brown liquid without frothing and significant sedimentation; with aromatic odour and sweet taste

Identification:

Thin Layer Chromatography:

Dry 50 ml of the formulation in vacuum to remove the self generated alcohol. Add 50 ml *water* to dissolve the extract and partition successively with n-*hexane* (50 ml x 3), *chloroform* (50 ml x 3) and *ethyl acetate* (50 ml x 3). Filter and concentrate the ethyl acetate extract under vacuum and weigh. Dissolve 10 mg of residue in 1 ml of *methanol* and carry out thin layer chromatography.

Apply separately 20 µl of test solution prepared as above and 5 µl of marker solution prepared by dissolving 1 mg of *gallic acid* in 1 ml of *methanol*, on TLC plate and develop the plate to a distance of 8

cm using *toluene: ethyl acetate: acetic acid* (5 : 4 : 1) as mobile phase. After development, allow the plate to dry in air and derivatise with *Natural product reagent* and examine under ultraviolet light (366 nm). It shows spots at R_f 0.25 (light yellow), 0.40 (blue, corresponding to *gallic acid)*, 0.58 (sky blue) and at 0.62 (blue).

Physico-chemical parameters:

Total phenolic content:	0.095 to 0.105 per cent w/v equivalent to tannic acid,	Appendix 5.1.1
Total solids:	Not less than 22.0 per cent w/v,	Appendix 3.8
Specific gravity (at 25^0):	1.05 to 1.20,	Appendix 3.2
*p*H*:*	3.4 to 4.6,	Appendix 3.3
Reducing sugars:	Not less than 14.0 per cent w/v,	Appendix 5.1.3
Non-reducing sugars:	Not more than 1.0 per cent w/v,	Appendix 5.1.3
Alcohol content:	5 to 10 per cent v/v,	Appendix 3.17
Methanol:	Absent,	Appendix 2.8

Other requirements:

Microbial limit:	Appendix 2.4
Aflatoxins:	Appendix 2.7

Storage: Store in a cool place in tightly closed amber coloured bottle, protect from light and moisture.

Therapeutic uses: Agnimāndya (digestive impairment), Daurbalya (weakness), Vātaja Roga (diseases due to Vāta doṣa), Kārśya (emaciation).

Dose: 15 — 30 ml orally with equal amount of water after meals twice a day.

DAŚAMŪLĀRIṢṬA

(AFI, Part-I, 1: 18)

Definition:

Daśamūlāriṣṭa is a fermented liquid preparation, made with the ingredients in the Formulation composition given below. It contains not more than 10 per cent, and not less than 5 per cent of alcohol that is self generated in the preparation over a period of time.

Formulation composition:

1	Bilva API	*Aegle marmelos*	St. Bk	48 g
2	Śyonāka API	*Oroxylum indicum*	St. Bk	48 g
3	Gambhārī API	*Gmelina arborea*	St. Bk	48 g
4	Pāṭalā API	*Stereospermum suaveolens*	St. Bk	48 g
5	Agnimantha API	*Premna mucronata* (Official substitute)	St. Bk	48 g
6	Śālaparṇī API	*Desmodium gangeticum*	Pl.	48 g
7	Pṛśniparṇī API	*Uraria picta*	Pl.	48 g
8	Bṛhatī API	*Solanum indicum*	Pl.	48 g
9	Kaṇṭakārī API	*Solanum xanthocarpum*	Pl.	48 g
10	Gokṣura API	*Tribulus terrestris*	Pl.	48 g
11	Citraka API	*Plumbago zeylanicum*	Rt.	240 g
12	Pauṣkara (Puṣkara API)	*Inula racemosa*	Rt.	240 g
13	Lodhra API	*Symplocos racemosa*	St. Bk.	192 g
14	Guḍūcī API	*Tinospora cordifolia*	St.	192 g
15	Dhātrī (Āmalakī API)	*Emblica officinalis*	P.	154 g
16	Durālabhā (Dhanvayāsa API)	*Fagonia cretica*	Pl.	115 g
17	Khadira API	*Acacia catechu*	Ht. Wd.	77 g
18	Bījasāra API	*Pterocarpus marsupium*	Ht. Wd.	77 g

19	Pathyā (Harītakī API)	*Terminalia chebula*	P.	77g
20	Kuṣṭha API	*Saussurea lappa*	Rt.	19 g
21	Mañjiṣṭhā API	*Rubia cordifolia*	Rt.	19 g
22	Devadāru API	*Cedrus deodara*	Ht. Wd.	19 g
23	Viḍaṅga API	*Embelia ribes*	Fr.	19 g
24	Madhuka API	*Glycyrrhiza glabra*	Rt.	19 g
25	Bhārṅgī API	*Clerodendrum serratum*	Rt.	19 g
26	Kapittha API	*Feronia limonia*	Fr.P.	19 g
27	Bibhītaka API	*Terminalia bellirica*	P.	19 g
28	Punarnavā (Rakta Punarnavā API)	*Boerhavia diffusa*	Rt.	19 g
29	Cavya API	*Piper retrofractum*	St.	19 g
30	Māṃsī (Jaṭāmāṃsī API)	*Nardostachys jatamansi*	Rz.	19 g
31	Priyaṅgu API	*Callicarpa macrophylla*	Fl.	19 g
32	Sārivā API	*Hemidesmus indicus*	Rt.	19 g
33	Kṛṣṇa Jīraka API	*Carum carvi*	Fr.	19 g
34	Trivṛtā (Trivṛt API)	*Operculina turpethum*	Rt.	19 g
35	Reṇukā API	*Vitex negundo*	Sd.	19 g
36	Rāsnā API	*Pluchea lanceolata*	Lf.	19 g
37	Pippalī API	*Piper longum*	Fr.	19 g
38	Kramuka (Pūga API)	*Areca catechu*	Sd.	19 g
39	Śaṭhī (Śaṭī API)	*Hedychium spicatum*	Rz.	19 g
40	Haridrā API	*Curcuma longa*	Rz.	19 g
41	Śatapuṣpā (Śatāhvā API)	*Anethum sowa*	Fr.	19 g
42	Padmaka API	*Prunus cerasoides*	St.	19 g
43	Nāgakeśara API	*Mesua ferrea*	Stmn.	19 g
44	Musta (Mustā API)	*Cyperus rotundus*	Rz.	19 g
45	Indrayava API	*Holarrhena antidysenterica*	Sd.	19 g
46	Śṛṅgī (Karkaṭaśṛṅgī API)	*Pistacia integerrima*	Gl.	19 g
47	Jīvaka API	*Pueraria tuberos* (Official substitute)	Rt.Tr.	19 g
48	Ṛṣabhaka API	*Microstylis wallichii*	Rt.Tr.	19 g

49	Medā API	*Polygonatum cirrhifolium*	Rt.Tr.	19 g
50	Mahāmedā API	*Asparagus racemosus* (Official substitute)	Rt.Tr.	19 g
51	Kākolī API	*Withania somnifera* (Official substitute)	Sub.Rt.	19 g
52	Kṣīrakākolī API	*Withania somnifera* (Official substitute)	Sub.Rt	19 g
53	Ṛddhi API	*Dioscorea bulbifera* (Official substitute)	Sub.Rt.Tr.	19 g
54	Vṛddhi API	*Dioscorea bulbifera* (Official substitute)	Sub.Rt.Tr.	19 g
55	Jalafor decoction reduced to	Water		20 l 5 l
56	Drākṣā API	*Vitis vinifera*	Dr.Fr.	600 g
57	Jala for decoction reduced to	Water		2.45 l 1.84 l
58	Madhu API	Honey		307 g
59	Guḍa API	Jaggery		3.8 kg
60	Dhātakī API	*Woodfordia fruticosa*	Fl.	290 g
61	Kaṅkola API	*Piper cubeba*	Fr.	19 g
62	Jala (Hrīvera API)	*Coleus vettiveroides*	Rt.	19 g
63	Candana (Śveta Candana API)	*Santalum album*	Ht. Wd.	19 g
64	Jātīphala API	*Myristica fragrans*	Sd.	19 g
65	Lavaṅga API	*Syzygium aromaticum*	Fl. Bud	19 g
66	Tvak API	*Cinnamomum zeylanicum*	St. Bk.	19 g
67	Elā (Sūkṣmailā API)	*Elettaria cardamomum*	Sd.	19 g
68	Patra (Tejapatra API)	*Cinnamomum tamala*	Lf.	19 g
69	Keśara (Nāgakeśara API)	*Mesua ferrea*	Stmn.	19 g
70	Pippalī API	*Piper longum*	Fr.	19 g
71	Kataka Phala (Kataka API)	*Strychnos potatorum*	Sd.	QS

Method of preparation:

Take the raw materials of pharmacopoeial quality.

Wash, dry and powder the ingredients numbered 1 and 54 *(Kvātha Dravya)* of the formulation composition individually and pass through the sieve number 44 to obtain coarse powder. Add specified amount of water (Number 55), soak overnight, and heat, reduce to half and filter through *muslin cloth* to obtain *Kvātha.*

Wash and crush the ingredient numbered 56 *(Kvātha Dravya)* of the formulation composition. Add specified amount of water (Number 57), soak overnight, heat, reduce to one fourth and filter through *muslin cloth* to obtain *Kvātha.*

Collect the two *Kvāthas* into one clean container and mix to form a homogenous liquid.

Clean, dry and powder the ingredients numbered 61 to 70 *(Prakṣepa Dravya)* of the formulation composition individually and pass through the sieve number 85 to obtain fine powder.

Add the ingredient number 59 of the formulation composition to the *Kvātha,* allow to dissolve and filter through the muslin cloth.

Transfer the filtrate to a clean container; add *Madhu*, *Dhātakī* and other finely powdered *Prakṣepa Dravyas* and seal the mouth of the container.

Shift the container to the fermentation room and constantly check for the signs of completion of fermentation process.

Filter the fermented material through a clean muslin cloth.

Pack in air tight containers and allow for maturation.

Description:

Clear dark brown liquid without frothing and significant sedimentation; with aromatic odour and bitter taste.

Identification:

Thin Layer Chromatography:

Dry 50 ml of the formulation in vacuum to remove the self generated alcohol. Add 50 ml *water* to dissolve the extract and partition successively with n-*hexane* (50 ml x 3), *chloroform* (50 ml x 3), and

ethyl acetate (50 ml x 3). Filter and concentrate the ethyl acetate extract in vacuum and weigh. Take 20 mg of ethyl acetate extract and dissolve in 1 ml of *methanol*.

Apply 3 µl on TLC plate and develop the plate to a distance of 8 cm using *toluene: ethyl acetate: formic acid: methanol* (3 : 3 : 0.8 : 0.2) as mobile phase. After development, allow the plate to dry in air and derivatise with *Natural product reagent*, dry and examine under ultraviolet light (366 nm). It shows major spots at R_f 0.08 (yellow), 0.15 (dark blue), 0.37(light blue), 0.44 (blue), 0.55 (light blue) and 0.63 (light blue).

Physico-chemical parameters:

Total phenolic content:	0.2 per cent w/v equivalent to tannic acid,	Appendix 5.1.1
Total solids:	24 - 54 per cent w/v,	Appendix 3.8
Specific gravity (at 25^0):	1.09 — 1.1 g/ml,	Appendix 3.2
*p*H*:*	3.6 — 3.7,	Appendix 3.3
Reducing sugars:	14 -24 per cent w/v,	Appendix 5.1.3
Non-reducing sugars	Not more than 1 per cent w/v,	Appendix 5.1.3
Alcohol content:	5 - 7 per cent v/v,	Appendix 3.17
Methanol:	Absent,	Appendix 2.8

Other requirements:

Microbial limit:	Appendix 2.4
Aflatoxins:	Appendix 2.7

Storage: Store in a cool place in tightly closed amber coloured bottle, protect from light and moisture.

Therapeutic uses: Arśa (piles), Bhagandara (fistula in-ano), Pāṇḍu (anaemia), Kāmalā (jaundice), Udara (diseases of abdomen), Mūtravibandha (retention of urine), Agnimāndya (dyspepsia), Aruci (anorexia), Chardi (emesis), Grahaṇī (malabsorption syndrome), Gulma (abdominal lump), Kāsa (cough), Śvāsa

(asthma), Kṣaya (pthisis), Dhātukṣaya (tissue wasting), Vātavyādhi (disorder due to Vāta Doṣa), Kuṣṭha (disease of skin), Meha (excessive flow of urine), Śarkarā (gravel in urine), Aśmarī (calculus), Vandhyatva (infertility), Kārśya (emaciation), Śukrakṣaya (deficiency of semen), Daurbalya (weakness).

Dose: 15 — 30 ml orally with equal amount of water after meals twice a day.

DRĀKṢĀRIṢṬA

(AFI, Part-I, 1:20)

Definition:

Drākṣāriṣṭa is a fermented liquid preparation made with the ingredients in the Formulation composition given below. It contains not more than 10 per cent, and not less than 5 per cent of alcohol that is self generated in the preparation over a period of time.

Formulation composition:

1	Drākṣā API	*Vitis vinifera*	Dr. Fr.	2.4 kg
2	Jala for decoction	Water		49.152 l
	reduced to			12.288 l
3	Guḍa API	Jaggery		9.6 kg
	Prakṣepa Dravyas:			
4	Tvak API	*Cinnamomum zeylanicum*	St. Bk.	48 g
5	Elā (Sūkṣmailā API)	*Elettaria cardamomum*	Sd.	48 g
6	Patra (Tejapatra API)	*Cinnamomum tamala*	Lf.	48 g
7	Keśara (Nāgakeśara API)	*Mesua ferrea*	Stmn.	48 g
8	Priyaṅgu API	*Callicarpa macrophylla*	Fl.	48 g
9	Marica API	*Piper nigrum*	Fr.	48 g
10	Kṛṣṇā (Pippalī API)	*Piper longum*	Fr.	48 g
11	Viḍaṅga API	*Embelia ribes*	Fr.	48 g
12	Dhātakī API	*Woodfordia fruticosa*	Fl.	384 g

Method of preparation:

Take the raw materials of pharmacopoeial quality.

Wash and crush the ingredient numbered 1 *(Kvātha Dravya)* of the formulation composition.

Clean, dry and powder the ingredients numbered 4 to 11 *(Prakṣepa Dravya)* of the formulation composition individually and pass through the sieve number 85 to obtain fine powder.

Add specified amount of water to the *Kvātha Dravya*, soak overnight, heat, reduce to one fourth and filter through *muslin cloth* to obtain *Kvātha.*

Add the ingredient number 3 of the formulation composition to the *Kvātha*, allow to dissolve and filter through the *muslin cloth.*

Transfer the filtrate to a clean container; add *Dhātakī* and other finely powdered *Prakṣepa Dravyas.* Seal the mouth of the container.

Shift the container to the fermentation room and constantly check for the signs of completion of fermentation process.

Filter the fermented material through a clean *muslin cloth.*

Pack in air tight containers and allow for maturation.

Description:

Clear brown liquid without frothing and significant sedimentation; with aromatic odour and sweet taste

Identification:

Thin Layer Chromatography:

Dry 50 ml of the formulation in vacuum to remove the self generated alcohol. Add 50 ml *water* to dissolve the extract and partition successively with n-*hexane* (50 ml x 3), *chloroform* (50 ml x 3) and *ethyl acetate* (50 ml x 3). Filter and concentrate the ethyl acetate extract under vacuum and weigh. Dissolve 10 mg of residue in 1 ml of *methanol* and carry out thin layer chromatography.

Apply separately 5 µl of test solution prepared as above and 3 µl of marker solution prepared by dissolving 1 mg of *gallic acid* in 1 ml of *methanol,* on TLC plate and develop the plate to a distance of 8 cm using *toluene: ethyl acetate: acetic acid* (5 : 4 : 1) as mobile phase. After development, allow the plate to dry in air and derivatise with *Natural product reagent* and examine under ultra violet light (366

nm). It shows spots at R_f 0.19 (light blue), 0.37 (blue, corresponding to *gallic acid*), 0.44 (yellow) and R_f 0.64 (light green).

Physico-chemical parameters:

Total phenolic content:	0.028 to 0.082 per cent w/v equivalent to tannic acid,	Appendix 5.1.1
Total solids:	Not less than 28.00 per cent w/v,	Appendix 3.8
Specific gravity (at 25^0):	1.08 to 1.20,	Appendix 3.2
*p*H:	3.5 to 4.5,	Appendix 3.3
Reducing sugars:	Not less than 14.0 per cent w/v,	Appendix 5.1.3
Non-reducing sugars:	Not more than 0.80 per cent w/v,	Appendix 5.1.3
Alcohol content:	5 to 10 per cent v/v,	Appendix 3.17
Methanol:	Absent,	Appendix 2.8

Other Requirements:

Microbial limit:	Appendix 2.4
Aflatoxins:	Appendix 2.7

Storage: Store in a cool place in tightly closed amber coloured bottle, protect from light and moisture.

Therapeutic uses: Agnimāndya (digestive impairment), Kāsa (cough), Śvāsa (dyspnoea/ asthma), Kṣaya (pthisis), Uraḥkṣata (chest wound), Malaśodhaka (laxative), Galaroga (diseases of throat) and Daurbalya (weakness).

Dose: 15 — 30 ml orally with equal amount of water after meals twice a day.

DRĀKṢĀSAVA

(AFI, Part-II, 1: 1)

Definition:

Drākṣāsava is a fermented liquid preparation made with the ingredients in the Formulation composition given below. It contains not more than 10 per cent, and not less than 5 per cent of alcohol that is self generated in the preparation over a period of time.

Formulation composition:

1	Drākṣā API	*Vitis vinifera*	Dr. Fr.	4.8 kg
2	Jala for decoction	Water		49.152 l
	reduced to			12.288 l
3	Śarkarā API			4.8 kg
4	Madhu API	Honey		4.8 kg
Prakṣepa Dravyas:				
5	Dhātakī API	*Woodfordia fruticosa*	Fl.	336 g
6	Jātī API	*Jasminum officinale*	Fl.	24 g
7	Lavaṅga API	*Syzygium aromaticum*	Fl. Bud	24 g
8	Kakkola (Kaṅkola API)	*Piper cubeba*	Fr.	24 g
9	Lavalīphala API	*Cicca acida*	Fr.	24 g
10	Candana (Śveta Candana API)	*Santalum album*	Ht. Wd.	24 g
11	Kṛṣṇā (Pippalī API)	*Piper longum*	Fr.	24 g
12	Tvak API	*Cinnamomum zeylanicum*	St. Bk.	24 g
13	Elā (Sūkṣmailā API)	*Elettaria cardamomum*	Sd.	24 g
14	Patra (Tejapatra API)	*Cinnamomum tamala*	Lf.	24 g

Method of preparation:

Take the raw materials of pharmacopoeial quality.

Wash and crush the ingredient numbered 1 *(Kvātha Dravya)* of the formulation composition.

Clean, dry and powder the ingredients numbered 6 to 14 *(Prakṣepa Dravya)* of the formulation composition individually and pass through the sieve number 85 to obtain fine powder.

Add specified amount of water to the *Kvātha Dravya*, soak overnight, heat, reduce to one fourth and filter through *muslin cloth* to obtain *Kvātha.*

Add the ingredient number 3 of the formulation composition to the *Kvātha*, allow to dissolve and filter through the *muslin cloth.*

Transfer the filtrate to a clean container; add *Madhu, Dhātakī* and other finely powdered *Prakṣepa Dravyas.* Seal the mouth of the container.

Shift the container to the fermentation room and constantly check for the signs of completion of fermentation process.

Filter the fermented material through a clean *muslin cloth.*

Pack in air tight containers and allow for maturation.

Description:

Clear brown liquid without frothing and significant sedimentation; with aromatic odour and sweet taste

Identification:

Thin Layer Chromatography:

Dry 50 ml of the formulation in vacuum to remove the self generated alcohol. Add 50 ml *water* to dissolve the extract and partition successively with n-*hexane* (50 ml x 3), *chloroform* (50 ml x 3) and *ethyl acetate* (50 ml x 3). Filter and concentrate the ethyl acetate extract under vacuum and weigh. Dissolve 20 mg of residue in 1 ml of *methanol* and carry out thin layer chromatography.

Apply separately 2µl of test solution prepared as above and 1µl of marker solution prepared by dissolving 1 mg of *gallic acid in* 1 ml of *methanol,* on TLC plate. Develop the plate to a distance of 8

cm using *toluene: ethyl acetate: acetic acid* (5 : 4 : 1) as mobile phase. After development, allow the plate to dry in air and derivatise with *Natural product reagent* and examine under ultraviolet light (366 nm). It shows spots at R_f 0.01 (light blue), 0.44 (blue, corresponding to *gallic acid*), 0.65 (light green) and at R_f 0.80 (green).

Physico-chemical parameters:

Total phenolic content:	0.049 to 0.085 per cent w/v equivalent to tannic acid,	Appendix 5.1.1
Total solids:	Not less than 25.0 per cent w/v,	Appendix 3.8
Specific gravity (at 25n):	1.08 to 1.20,	Appendix 3.2
*p*H*:*	4.0 to 4.5,	Appendix 3.3
Reducing sugars:	Not less than 16.0 per cent w/v,	Appendix 5.1.3
Non-reducing sugars:	Not more than 0.80 per cent w/v,	Appendix 5.1.3
Alcohol content:	5 to 10 per cent v/v,	Appendix 3.17
Methanol:	Absent,	Appendix 2.8

Other requirements:

Microbial limit:	Appendix 2.4
Aflatoxins:	Appendix 2.7

Storage: Store in a cool place in tightly closed amber coloured bottle, protect from light and moisture.

Therapeutic uses: Arśa (piles), Aruci (tastelessness), Hṛdroga (heart disease), Pāṇḍu (anaemia), Raktapitta (bleeding disorder), Udararoga (diseases of abdomen), Kṣata (wound), Śoṣa (cachexia), Jvara (fever).

Dose: 15 — 30 ml orally with equal amount of water after meals twice a day.

JĪRAKĀDYARIṢṬA

(AFI, Part-I, 1: 16)

Definition:

Jīrakādyariṣṭa is a fermented liquid preparation made with the ingredients in the Formulation composition given below. It contains not more than 10 per cent, and not less than 5 per cent of alcohol that is self generated in the preparation over a period of time.

Formulation composition:

1	Jīraka (Śveta Jīraka API)	*Cuminum cyminum*	Fr.	9.6 kg
2	Jala for decoction	Water		49.152 l
	reduced to			12.288 l
3	Guḍa API	Jaggery		14.4 kg
	Prakṣepa Dravyas:			
4	Dhātakī API	*Woodfordia fruticosa*	Fl.	768 g
5	Śuṇṭhī API	*Zingiber officinale*	Rz.	48 g
6	Jātīphala API	*Myristica fragrans*	Sd.	48 g
7	Mustaka (Mustā API)	*Cyperus rotundus*	Rz.	48 g
8	Tvak API	*Cinnamomum zeylanicum*	St. Bk.	48 g
9	Elā (Sūkṣmailā API)	*Elettaria cardamomum*	Sd.	48 g
10	Patra (Tejapatra API)	*Cinnamomum tamala*	Lf.	48 g
11	Nāgakeśara API	*Mesua ferrea*	Stmn.	48 g
12	Yamānikā (Yavānī API)	*Trachyspermum ammi*	Fr.	48 g
13	Kakkola (Kaṅkola API)	*Piper cubeba*	Fr.	48 g
14	Devapuṣpa (Lavaṅga API)	*Syzygium aromaticum*	Fl. Bud	48 g

Method of preparation:

Take the raw materials of pharmacopoeial quality.

Wash, dry and crush the ingredient numbered 1 *(Kvātha Dravya)* of the formulation composition.

Clean, dry and powder the ingredients numbered 5 to 14 *(Prakṣepa Dravya)* of the formulation composition individually and pass through the sieve number 85 to obtain fine powder.

Add specified amount of water to the *Kvātha Dravya*, soak overnight, heat, reduce to one fourth and filter through *muslin cloth* to obtain *Kvātha*.

Add the ingredient number 3 of the formulation composition to the *Kvātha*, allow to dissolve and filter through the *muslin cloth*.

Transfer the filtrate to a clean container; add *Dhātakī* and other finely powdered *Prakṣepa Dravyas*. Seal the mouth of the container.

Shift the container to the fermentation room and constantly check for the signs of completion of fermentation process.

Filter the fermented material through a clean *muslin cloth*.

Pack in air tight containers and allow for maturation.

Description:

Clear dark brown liquid without frothing and significant sedimentation; with aromatic odour and bitter taste

Identification:

Thin Layer Chromatography:

Dry 50 ml of the formulation in vacuum to remove the self generated alcohol. Add 50 ml *water* to dissolve the extract and partition successively with n-*hexane* (50 ml x 3), *chloroform* (50 ml x 3) and *ethyl acetate* (50 ml x 3). Filter and concentrate the ethyl acetate extract under vacuum and weigh. Dissolve 2 mg of residue in 1 ml of *methanol* and carry out thin layer chromatography.

Apply separately 5 µl of test solution prepared as above and 5 µl each of marker solution prepared by dissolving 1 mg each of *luteolin* and *apigenin* in 1 ml each of *methanol* separately, on TLC plate. Develop the plate to a distance of 8 cm using *toluene: ethyl acetate: acetic acid* (5 : 4 : 1) as mobile phase. After development, allow the plate to dry in air and derivatise with *Natural product reagent* and examine under ultraviolet light (366 nm). It shows spots at R_f 0.40 (orange, corresponding to *luteolin*), 0.51 light green, and at R_f 0.64 (parrot green, corresponding to *apigenin*).

Physico-chemical parameters:

Total phenolic content:	0.154 to 0.189 per cent w/v equivalent to tannic acid,	Appendix 5.1.1
Total solids:	Not less than 22.0 per cent w/v,	Appendix 3.8
Specific gravity (at 25^0):	1.08 to 1.20,	Appendix 3.2
*p*H*:*	3.5 to 4.5,	Appendix 3.3
Reducing sugars:	Not less than 14.00 per cent w/v,	Appendix 5.1.3
Non-reducing sugars:	Not more than 1.00 per cent w/v,	Appendix 5.1.3
Alcohol content:	5 to 10 per cent v/v,	Appendix 3.17
Methanol:	Absent,	Appendix 2.8

Other requirements:

Microbial limit:	Appendix 2.4
Aflatoxins:	Appendix 2.7

Storage: Store in a cool place in tightly closed amber coloured bottle, protect from light and moisture.

Therapeutic uses: Sūtikāroga (puerperal disease), Agnimāndya (digestive impairment), Atisāra (diarrhoea), Grahaṇī (malabsorption syndrome).

Dose: 15 — 30 ml orally with equal amount of water after meals twice a day.

KANAKĀSAVA

(AFI, Part-I, 1: 9)

Definition:

Kanakāsava is a fermented liquid preparation made with the ingredients in the Formulation composition given below. It contains not more than 10 per cent, and not less than 5 per cent of alcohol that is self generated in the preparation over a period of time.

Formulation composition:

1	Kanaka (Dhattūra API)	*Datura metel*	Pl.	192 g
2	Vṛṣamūla (Vāsā API)	*Adhatoda vasica*	Rt.	192 g
3	Madhuka (Yaṣṭī API)	*Glycyrrhiza glabra*	Rt.	96 g
4	Māgadhī (Pippalī API)	*Piper longum*	Fr.	96 g
5	Vyāghrī (Kaṇṭakārī API)	*Solanum xanthocarpum*	Pl.	96 g
6	Keśara (Nāgakeśara API)	*Mesua ferrea*	Stmn.	96 g
7	Viśvabheṣaja (Śuṇṭhī API)	*Zingiber officinale*	Rz.	96 g
8	Bhārṅgī API	*Clerodendrum serratum*	Rt.	96 g
9	Tālīsapatra API	*Abies webbiana*	Lf.	96 g
10	Dhātakī API	*Woodfordia fruticosa*	Fl.	768 g
11	Drākṣā API	*Vitis vinifera*	Dr. Fr.	960 g
12	Jala	Water		24.576 l
13	Śarkarā API	Sugar		4.8 kg
14	Kṣaudra (Madhu API)	Honey		2.4 kg

Method of preparation:

Take the raw materials of pharmacopoeial quality.

Wash, dry and powder the ingredients numbered 1 to 9 of the formulation composition and pass through the sieve number 44 to obtain coarse powder.

Wash and clean the ingredients numbered 10 and 11 of the formulation composition.

Add specified amount of water to the ingredient number 13 of the formulation composition, allow to dissolve and filter through the *muslin cloth*.

Transfer the filtrate to a clean container; add *Dhātakī, Drākṣā* and coarsely powdered other drugs. Seal the mouth of the container.

Shift the container to the fermentation room and constantly check for the signs of completion of fermentation process.

Filter the fermented material through a clean *muslin cloth*.

Pack in air tight containers and allow for maturation.

Description:

Clear dark yellow colour liquid without frothing and significant sedimentation; with aromatic odour and acrid taste

Identification:

Thin Layer Chromatography:

Dry 50 ml of the formulation in vacuum to remove the self generated alcohol. Add 50 ml *water* to dissolve the extract and partition successively with n-*hexane* (50 ml x 3), *chloroform* (50 ml x 3) and *ethyl acetate* (50 ml x 3). Filter and concentrate the ethyl acetate extract under vacuum and weigh. Dissolve 40 mg of residue in 1 ml of *methanol* and carry out thin layer chromatography.

Apply separately 10 µl of test solution prepared as above and 5 µl each of marker solutions prepared by dissolving 1 mg each of *gallic acid and ethyl gallate* in 1 ml each of *methanol* separately, on TLC plate. Develop the plate to a distance of 8 cm using *toluene: ethyl acetate: formic acid: methanol* (3 : 3 : 0.8 : 0.2) as mobile phase. After development, allow the plate to dry in air and derivatise with *Natural product reagent* and examine under ultra violet light (366 nm). It shows spots at R_f 0.06 (light yellow),

0.09 (dark yellow), 0.43 (light blue), 0.47 (blue, corresponding to *gallic acid),* 0.58 (light blue, corresponding to *ethyl gallate*), and 0.65 (light green).

Physico-chemical parameters:

Total phenolic content:	0.054 to 0.085 per cent w/v equivalent to tannic acid,	Appendix 5.1.1
Total solids:	Not less than 11.50 per cent w/v,	Appendix 3.8
Specific gravity (at 25^0):	1.01 to 1.15,	Appendix 3.2
*p*H*:*	3.5 to 4.2,	Appendix 3.3
Reducing sugars:	Not less than 6.5 per cent w/v,	Appendix 5.1.3
Non-reducing sugars:	Not more than 0.50 per cent w/v,	Appendix 5.1.3
Alcohol content:	5 to 10 per cent v/v,	Appendix 3.17
Methanol:	Absent,	Appendix 2.8

Other requirements:

Microbial limit:	Appendix 2.4
Aflatoxins:	Appendix 2.7

Storage: Store in a cool place in tightly closed amber coloured bottle, protect from light and moisture.

Therapeutic uses: Kāsa (cough); Śvāsa (asthma); Rājayakṣmā (tuberculosis); Kṣatakṣīṇa (debility due to chest injury).

Dose: 15 — 30 ml orally with equal amount of water after meals twice a day.

KHADIRĀRIṢṬA

(AFI, Part I, 1:14)

Definition:

Khadirāriṣṭa is a fermented liquid preparation made with the ingredients in the Formulation composition given below. It contains not more than 10 per cent, and not less than 5 per cent of alcohol that is self generated in the preparation over a period of time.

Formulation composition:

1	Khadira API	*Acacia catechu*	Ht. Wd.	2.4 kg
2	Devadāru API	*Cedrus deodara*	Ht. Wd.	2.4 kg
3	Bākucī API	*Psoralea corylifolia*	Sd.	576 g
4	Dārvī (Dāruharidrā API)	*Berberis aristata*	St.	960 g
5	Harītakī API	*Terminalia chebula*	P.	960 g
6	Bibhītaka API	*Terminalia belerica*	P.	960 g
7	Āmalakī API	*Emblica officinalis*	P.	960 g
8	Jala for decoction	Water		98.304 l
	reduced to			12.288 l
9	Mākṣika (Madhu API)	Honey		9.6 kg
10	Śarkarā API	Cane sugar		4.8 kg
Prakṣepa Dravyas:				
11	Dhātakī API	*Woodfordia fruticosa*	Fl.	960 g
12	Kaṅkola API	*Piper cubeba*	Fr.	48 g
13	Nāgakeśara API	*Mesua ferrea*	Stmn.	48 g
14	Jātīphala API	*Myristica fragrans*	Sd.	48 g
15	Lavaṅga API	*Syzygium aromaticum*	Fl. Bd.	48 g
16	Elā (Sūkṣmailā API)	*Elettaria cardamomum*	Sd.	48 g

17	Tvak API	*Cinnamomum zeylanicum*	St. Bk.	48 g
18	Patra (Tejapatra API)	*Cinnamomum tamala*	Lf.	48 g
19	Kṛṣṇā (Pippalī API)	*Piper longum*	Fr.	192 g

Method of preparation:

Take the raw materials of pharmacopoeial quality.

Wash, dry and powder the ingredients numbered 1 to 7 *(Kvātha Dravya)* of the formulation composition and pass through the sieve number 44 to obtain coarse powder.

Clean, dry and powder the ingredients numbered 12 to 19 *(Prakṣepa Dravya)* of the formulation composition individually and pass through the sieve number 85 to obtain fine powder.

Add specified amounts of water to the *Kvātha Dravya*, soak overnight, heat, reduce to one eighth and filter through *muslin cloth* to obtain *Kvātha.*

Add the ingredient number 10 of the formulation composition to the *Kvātha*, allow to dissolve and filter through the *muslin cloth* in to a clean container.

Add *Dhātakī*, *Madhu* and other finely powdered *Prakṣepa Dravyas.* Seal the mouth of the container.

Shift the container to the fermentation room and constantly check for the signs of completion of fermentation process.

Filter the fermented material through a clean muslin cloth.

Pack in air tight containers and allow for maturation.

Description:

Clear, dark brown liquid without frothing and significant sedimentation; with astringent taste

Identification:

Thin Layer Chromatography:

Dry 50 ml of the formulation in vacuum to remove the self generated alcohol. Add 25 ml *water* and partition with *chloroform* (25 ml x 3). Filter and concentrate the *chloroform* extract in vacuum and weigh. Dissolve 10 mg of residue in 1 ml of *methanol* and carry out thin layer chromatography.

Apply separately 15 µl of test solution prepared as above and 0.2 µl each of *berberine* and *palmatine* solutions, prepared by dissolving 1 mg each in 1 ml of *methanol* separately, on TLC plate and develop to a distance of 8 cm using *n-butano: ethyl acetate: formic acid: water* (3 : 5 : 1 : 1) as mobile phase. After development, allow the plate to dry in air and examine under ultraviolet light (366 nm). It shows major spots at R_f 0.45 (light green, corresponding to *palmatine*) and 0.55 (light green, corresponding to *berberine*).

Apply separately 15 µl of test solution prepared as above and 15 µl marker solution prepared by dissolving 0.1 mg of *angelicine* in 1 ml of *methanol,* on TLC plate and develop the plate to a distance of 8 cm using *n-hexane: ethyl acetate* (7 : 3) as mobile phase. After development, allow the plate to dry in air. Spray the plate with 10 % *ethanolic potassium hydroxide*, dry and examine under ultraviolet light (366 nm). It shows major spots at R_f 0.38 (parrot green, corresponding to *angelicine*) and R_f 0.45 (blue).

Physico-chemical parameters:

Total phenolic content:	0.070 to 0.091 per cent w/v equivalent to tannic acid,	Appendix 5.1.1
Total solids:	Not less than 11.50 per cent w/v,	Appendix 3.8
Specific gravity (at 25^0):	1.01 to 1.15,	Appendix 3.2
*p*H*:*	3.50 to 4.2,	Appendix 3.3
Reducing sugars:	Not less than 6.5 per cent w/v,	Appendix 5.1.3
Non-reducing sugars:	Not more than 0.50 per cent w/v,	Appendix 5.1.3
Alcohol content:	5 to 10 per cent v/v,	Appendix 3.17
Methanol:	Absent,	Appendix 2.8

Other requirements:

Microbial limit:	Appendix 2.4
Aflatoxins:	Appendix 2.7

Storage: Store in a cool place in tightly closed amber coloured bottle, protect from light and moisture.

Therapeutic uses: Mahākuṣṭha (skin diseases), Hṛdroga (heart diseases), Pāṇḍu (anaemia), Arbuda (tumor), Gulma (abdominal lump), Granthi (cysts), Kṛmi (worm infestation), Kāsa (cough), Śvāsa (asthma), Plīhodara (splenomegaly).

Dose: 15 - 30 ml orally with equal amount of water after meals twice a day.

KUMĀRYĀSAVA (B)

(AFI, Part-I, 1:13)

Definition:

Kumāryāsava (B) is a fermented liquid preparation made with ingredients in the Formulation composition given below. It contains not more than 10 per cent, and not less than 5 per cent of alcohol that is self generated in the preparation over a period of time.

Formulation composition:

1	Kumārī Rasa (KumārīAPI)	*Aloe barbadensis*	Lf.	12.288 l
2	Guḍa API	Jaggery		4.8 kg
3	Vijayā (Harītakī API)	*Terminalia chebula*	P.	1.2 kg
4	Jala for decoction	Water		12.288 l
	reduced to			3.072 l
5	Madhu API	Honey		3.072 kg
6	Dhātakī API	*Woodfordia fructicosa*	Fl.	768 g
7	Jātīphala API	*Myristica fragrans*	Sd.	48 g
8	Lavaṅga API	*Syzygium aromaticum*	Fl. Bd.	48 g
9	Kaṅkola API	*Piper cubeba*	Fr.	48 g
10	Jaṭilā (Jaṭāmāṃsī API)	*Nardostachys jatamansi*	Rz.	48 g
11	Kabābaka API	*Piper cubeba*	Fr.	48 g
12	Cavya API	*Piper retrofractum*	St.	48 g
13	Citra (Eraṇḍa API)	*Ricinus communis*	Rt.	48 g
14	Jātipatrī (Jātīphala API)	*Myristica fragrans*	Ar.	48 g
15	Karkaṭa (Karkaṭaśṛṅgī API)	*Pistacia integerrima*	Gl.	48 g
16	Akṣa (Bibhītaka API)	*Terminalia belerica*	P.	48 g
17	Puṣkaramūla (Puṣkara API)	*Inula racemosa*	Rt.	48 g

18	Mṛta Śulva (Tāmra API) bhasma	*Calcined Tāmra*	48 g
19	Mṛta Loha (Lauha API) bhasma	*Calcined Lauha*	24 g

Method of preparation:

Take the raw materials of pharmacopoeial quality.

Wash, clean and extract juice from the ingredient number 1 of the formulation composition.

Wash, dry and powder the ingredient numbered 3 *(Kvātha Dravya)* of the formulation composition and pass through the sieve number 44 to obtain coarse powder.

Clean, dry and powder the ingredients numbered 7 to 17 *(Prakṣepa Dravya)* of the formulation composition individually and pass through the sieve number 85 to obtain fine powder.

Prepare *Bhasma* of the ingredients numbered 18 and 19 of the formulation composition.

Add specified amounts of water to the *Kvātha Dravya*, soak overnight, heat, reduce to one eighth and filter through *muslin cloth* to obtain *Kvātha.*

Add the ingredient number 2 of the formulation composition to the *Kvātha*, allow to dissolve and filter through the *muslin cloth* in to a clean container.

Add *Kumārī Rasa, Tāmra Bhasma, Loha Bhasma, Madhu*, *Dhātakī* and other finely powdered *Prakṣepa Dravyas.* Seal the mouth of the container.

Shift the container to the fermentation room and constantly check for the signs of completion of fermentation process.

Filter the fermented material through a clean *muslin cloth.*

Pack in air tight containers and allow for maturation.

Description:

Clear, dark brown liquid without frothing and significant sedimentation; with astringent taste

Identification:

Thin Layer Chromatography:

Dry 50 ml of the formulation in vacuum to remove the self generated alcohol. Add 50 ml *water* to dissolve the extract and partition successively with n-*hexane* (50 ml x 3), *chloroform* (50 ml x 3) and *ethyl acetate* (50 ml x 3). Filter and concentrate the ethyl acetate extract under vacuum and weigh. Dissolve l mg of residue in 1 ml of *methanol* and carry out thin layer chromatography.

Apply separately 1.5 µl of the test solution prepared as above and 2 µl of marker solution prepared by dissolving 1 mg of *gallic acid* in 1 ml of *methanol*, on TLC plate and develop the plate to a distance of 8 cm using *toluene: ethyl acetate: acetic acid* (5 : 4 : 1) as mobile phase. After development, allow the plate to dry in air and derivatise with *Natural product reagent* and examine under ultraviolet light (366 nm). It shows spots at R_f 0.31 (blue, corresponding to *gallic acid)* and at R_f 0.54 (light blue).

Physico-chemical parameters:

Total phenolic content:	0.061 to 0.079 per cent w/v equivalent to tannic acid,	Appendix 5.1.1
Total solids:	Not less than 13.0 per cent w/v,	Appendix 3.8
Specific gravity (at 25^0):	1.01 to 1.10,	Appendix 3.2
*p*H*:*	3.50 to 4.2,	Appendix 3.3
Reducing sugars:	Not less than 7.5 per cent w/v,	Appendix 5.1.3
Non-reducing sugars:	Not more than 0.30 per cent w/v,	Appendix 5.1.3
Alcohol content:	5 to 10 per cent v/v,	Appendix 3.17
Methanol:	Absent,	Appendix 2.8

Other requirements:

Microbial limit:	Appendix 2.4
Aflatoxins:	Appendix 2.7

Storage: Store in a cool place in tightly closed amber coloured bottle, protect from light and moisture.

Therapeutic uses: Gulma (abdominal lump); Kāsa (cough); Śvāsa (asthma); Arśa (piles); Vātavyādhi (neurological diseases); Apasmāra (epilepsy); Kṣaya (pthisis); Udara (abdominal diseases); Manyāroga (diseases of neck region); Agnimāndya (digestive impairment); Koṣṭhaśūla (abdominal pain) Naṣṭapuṣpa (menopause).

Dose: 15 - 30 ml orally with equal amount of water after meals twice a day.

KUṬAJĀRIṢṬA

(AFI, Part-I, 1: 11)

Definition:

Kuṭajāriṣṭa is a fermented liquid preparation made with the ingredients in the Formulation composition given below. It contains not more than 10 per cent, and not less than 5 per cent of alcohol that is self generated in the preparation over a period of time.

Formulation composition:

1	Kuṭajamūla (Kuṭaja API)	*Holarrhena antidysenterica*	St. Bk.	4.8 kg
2	Mṛdvīkā (Drākṣā API)	*Vitis vinifera*	Dr. Fr.	2.8 kg
3	Madhūka Puṣpa (Madhūka API)	*Madhuca indica*	Fl.	480 g
4	Kāśmarī (GambhārīAPI)	*Gmelina arborea*	St. Bk.	480 g
5	Jala for decoction	Water		49.152 l
	reduced to			12.288 l
6	Guḍa API	Jaggery		4.8 kg
7.	Dhātakī API	*Woodfordia fruticosa*	Fl.	960 g

Method of preparation:

Take the raw materials of pharmacopoeial quality.

Wash, dry and powder the ingredients numbered 1 and 4 *(Kvātha Dravya)* of the formulation composition.

Wash and clean the ingredients numbered 2 and 3 *(Kvātha Dravya)* of the formulation composition.

Add specified amount of water to the *Kvātha Dravya*, soak overnight, heat, reduce to one fourth and filter through *muslin cloth* to obtain *Kvātha.*

Add the ingredient number 6 of the formulation composition to the *Kvātha*, allow to dissolve and filter

through the *muslin cloth.*

Transfer the filtrate to a clean container; add *Dhātakī* and seal the mouth of the container.

Shift the container to the fermentation room and constantly check for the signs of completion of fermentation process.

Filter the fermented material through a clean *muslin cloth.*

Pack in air tight containers and allow for maturation.

Description:

Clear dark brown liquid without frothing and significant sedimentation; with aromatic odour and bitter taste

Identification:

Thin Layer Chromatography:

Partition 50 ml of the formulation with *chloroform* (50 ml x 3) and discard the chloroform extract. Adjust the pH of the aqueous layer to 8.5 with *ammonium hydroxide* and again partition with *chloroform* (50 ml x 3). Filter and concentrate the chloroform extract in vacuum and weigh. Dissolve 20 mg of residue in 1 ml of *methanol* and carry out thin layer chromatography.

Apply separately 3 µl of test solution prepared as above and 10 µl of marker solution prepared by dissolving 1 mg of *conessine* in 1 ml of *methanol,* on TLC plate. Develop the plate to a distance of 8 cm using *ethyl acetate:* n-*hexane: triethylamine* (7.5 : 2.4 : 0.6) as mobile phase. After development, allow the plate to dry in air and derivatise with *modified Dragendorff's reagent* and examine under ultraviolet light 560 nm after drying. It shows spots at R_f 0.40 (mustard yellow, corresponding to *conessine*) and at R_f 0.54 (yellow).

Physico-chemical parameters:

Total phenolic content:	0.119 to 0.201 per cent w/v equivalent to tannic acid,	Appendix 5.1.1
Total solids:	Not less than 16.0 per cent w/v,	Appendix 3.8
Specific gravity (at 25^0):	1.04 to 1.12,	Appendix 3.2
*p*H*:*	3.5 to 4.5,	Appendix 3.3
Reducing sugars:	Not less than 7.50 per cent w/v,	Appendix 5.1.3
Non-reducing sugars:	Not more than 0.90 per cent w/v,	Appendix 5.1.3
Alcohol content:	4 to 10 per cent v/v,	Appendix 3.17
Methanol:	Absent,	Appendix 2.8

Assay:

The sample contains 0.003 to 0.01 percent w/v of *conessine*, when assayed by the following method.

Estimation of conessine: Apply separately 4 µl to 12 µl (8 data point) of *conessine* solution prepared under thin layer chromatography on TLC plate and develop the plate to a distance of 8 cm using *ethyl acetate:* n-*hexane: triethylamine* (7.5 : 2.4 : 0.6) as mobile phase and dry. Derivatise the plate with *modified Dragendorff's reagent* and dry in a current of cold air and scan in the TLC scanner at 560 nm. Note the peak area under curve for the peak corresponding to *conessine* and prepare the calibration curve by plotting peak area *vs.* concentration of *conessine*.

Process 50 ml of the formulation partitioned under thin layer chromatography.

Apply 3 µl of the test solution on TLC plate. Develop, dry and scan the plate as described in preceding paragraph for calibration curve of *conessine*. Calculate the amount of *conessine* in the test solution from the calibration curve of *conessine*.

Other requirements:

Microbial limit:	Appendix 2.4
Aflatoxins:	Appendix 2.7

Storage: Store in a cool place in tightly closed amber coloured bottle, protected from light and moisture.

Therapeutic uses: Grahaṇī (malabsorption syndrome); Pravāhikā (dysentery); Raktātisāra (diarrhoea with blood); Jvara (fever).

Dose: 15 - 30 ml orally with equal amount of water after meals twice a day.

LOHĀSAVA

(AFI, Part-I, 1:32)

Definition:

Lohāsava is a fermented liquid preparation made with the ingredients in the Formulation composition given below. It contains not more than 10 per cent, and not less than 5 per cent of alcohol that is self generated in the preparation over a period of time.

Formulation composition:

1	Loha Cūrṇa-Śodhita (Lauha API) Iron dust			192 g
2.	Śuṇṭhī API	*Zingiber officinale*	Rz.	192 g
3	Marica API	*Piper nigrum*	Fr.	192 g
4	Pippalī API	*Piper longum*	Fr.	192 g
5	Harītakī API	*Terminalia chebula*	P.	192 g
6	Bibhītaka API	*Terminalia bellierica*	P.	192 g
7	Āmalakī API	*Emblica officinalis*	P.	192 g
8	Yavānikā (Yavānī API)	*Trachyspermum ammi*	Fr.	192 g
9	Viḍaṅga API	*Embelia ribes*	Fr.	192 g
10	Mustaka (Mustā) API)	*Cyperus rotundus*	Rz.	192 g
11	Citra (Eraṇḍa) API)	*Ricinus communis*	Rt.	192 g
12	Dhātakī API	*Woodfordia fruticosa*	Fl.	960 g
13	Kṣaudra (Madhu) API	Honey		3.072 kg
14	Guḍa API	Jaggery		4.80 kg
15	Jala	Water		24.576 l

Method of preparation:

Take the raw materials of pharmacopoeial quality.

Wash, dry and powder the ingredients numbered 2 to 11 of the formulation composition and pass through the sieve number 44 to obtain coarse powder.

Add specified amount of water to the ingredient number 14 of the formulation composition, allow to dissolve and filter through the *muslin cloth.*

Transfer the filtrate to a clean container; add *Loha Bhasma*, *Madhu, Dhātakī* and coarsely powdered other drugs. Seal the mouth of the container.

Shift the container to the fermentation room and constantly check for the signs of completion of fermentation process.

Filter the fermented material through a clean *muslin cloth.*

Pack in air tight containers and allow for maturation.

Description:

Clear, dark brown liquid without frothing and significant sedimentation; with astringent taste

Identification:

Thin Layer Chromatography:

Dry 50 ml of the formulation in vacuum to remove the self generated alcohol. Add 50 ml *water* to dissolve the extract and partition successively with n-*hexane* (50 ml x 3), *chloroform* (50 ml x 3) and *ethyl acetate* (50 ml x 3). Filter and concentrate the ethyl acetate extract under vacuum and weigh. Dissolve 20 mg of residue in 1 ml of *methanol* and carry out thin layer chromatography.

Apply separately 5 µl of test solution prepared as above and 3 µl each of marker solutions prepared by dissolving 1 mg each of *gallic acid and* ethyl gallate in 1 ml each of *methanol* separately, on TLC plate and develop the plate to a distance of 8 cm using *toluene: ethyl acetate: acetic acid* (5 : 4 : 1) as mobile phase. After development, allow the plate to dry in air and derivatise with *Natural product reagent* and

examine under ultraviolet light (366 nm). It shows spots at R_f 0.25 (light yellow), 0.40 (blue, corresponding to *gallic acid),* 0.39 (blue), and 0.53 (light blue, corresponding to *ethyl gallate*).

Physico-chemical parameters:

Total phenolic content:	0.062 to 0.075 per cent w/v equivalent to tannic acid,	Appendix 5.1.1
Total solids:	Not less than 3.0 per cent w/v,	Appendix 3.8
Specific gravity (at 25^0):	1.00 to 1.20,	Appendix 3.2
*p*H*:*	3.4 to 4.5,	Appendix 3.3
Reducing sugars:	Not less than 14.0 per cent w/v,	Appendix 5.1.3
Non-reducing sugars:	Not more than .80 per cent w/v,	Appendix 5.1.3
Alcohol content:	4 to 10 per cent v/v,	Appendix 3.17
Methanol:	Absent,	Appendix 2.8

Assay:

The sample contains 0.1 to 0.5 per cent w/v of *gallic acid* and 0.09 to 0.1 per cent w/v of *ethyl gallate*, when assayed by the following method.

Estimation of gallic acid and *ethyl gallate*: Dissolve 1 mg each of *gallic acid* and *ethyl gallate* in 1 ml each of *methanol* separately.

Apply separately 1.0 to 8.0 µl each of (5 data point) of above solutions on TLC plate and develop the plate to a distance of 8 cm using *toluene: ethyl acetate: acetic acid* (5 : 4 : 1) acid as mobile phase. Derivatise the plate with *Natural product reagent* and dry in a current of cold air and scan in the TLC scanner at a wavelength of 366 nm. Note the peak areas under curve for the peaks corresponding to *gallic acid and ethyl gallate* and prepare the calibration curve by plotting peak area *vs.* concentration of *gallic acid* and *ethyl gallate* separately.

Process vacuum-dried 50 ml of the formulation under thin layer chromatography. Apply 5 µl of the test solution on TLC plate. Develop, dry and scan the plate as described in preceding paragraph for

calibration curve of *gallic acid* and *ethyl gallate*. Calculate the amount of *gallic acid and ethyl gallate* in the test solution from the calibration curves of *gallic acid and ethyl gallate* respectively.

Other requirements:

Microbial limit:	Appendix 2.4
Aflatoxins:	Appendix 2.7

Storage: Store in a cool place in tightly closed amber coloured bottle, protected from light and moisture.

Therapeutic uses: Jaṭhara (weak digestion), Pāṇḍu (anaemia), Śvayathu (oedema), Gulma (abdominal lump), Arśa (piles), Agnimāndya (digestive impairment), Plīhā Roga (splenic disease), Kuṣṭha (disease of skin), Kāsa (cough), Śvāsa (asthma), Bhagandara (fistula-in-ano), Aruci (tastelessness), Grahaṇī (malabsorption syndrome), Hṛdroga (disease of heart).

Dose: 15 - 30 ml orally with equal amount of water after meals twice a day.

MUSTAKĀRIṢṬA

(AFI, Part-I, 1: 26)

Definition:

Mustakāriṣṭa is a fermented liquid preparation, made with ingredients in the Formulation composition given below. It contains not more than 10 per cent, and not less than 5 per cent of alcohol that is self generated in the preparation over a period of time.

Formulation Composition:

1.	Mustaka (Mustā API)	*Cyperus rotundus*	Rz.	2.4 kg
2.	Jala for decoction	Water		12.2880 l
	reduced to			3.072 l
3.	Guḍa API	Jaggery		3.6 kg
4.	Dhātakī API	*Woodfordia fruticosa.*	Fl.	192 g
5.	Yamānī (Yavānī API)	*Trachyspermum ammi*	Fr.	24 g
6.	Viśvabheṣaja (Śuṇṭhī API)	*Zingiber officinale*	Rz.	24 g
7.	Marica API	*Piper longum*	Fr.	24 g
8.	Lavaṅga (Devapuṣpa API)	*Syzygium aromaticum*	Fl. Bd.	24 g
9.	Methī API	*Trigonella foenum-graecum*	Sd.	24 g
10.	Vahni (Citraka API)	*Plumbago zeylanica*	Rt.	24 g
11.	Jīraka (Śveta Jīraka API)	*Cuminum cyminum*	Fr.	24 g

Method of Preparation:

Take the raw materials of Pharmacopoeial quality.

Wash, dry and crush the ingredient numbered 1 *(Kvātha Dravya)* of the formulation composition and pass through the sieve number 44 to obtain coarse powder.

Clean, dry and powder the ingredients numbered 5 to 11 *(Prakṣepa Dravya)* of the formulation composition individually and pass through the sieve number 85 to obtain fine powder.

Add specified amount of water to the *Kvātha Dravya*, soak overnight, heat, reduce to one fourth and filter through *muslin cloth* to obtain *Kvātha.*

Add the ingredient number 3 of the formulation composition to the *Kvātha*, allow to dissolve and filter through the *muslin cloth.*

Transfer the filtrate to a clean container; add *Dhātakī* and other finely powdered *Prakṣepa Dravya.* Seal the mouth of the container.

Shift the container to the fermentation room and constantly check for the signs of completion of fermentation process.

Filter the fermented material through a clean *muslin cloth.*

Pack in air tight containers and allow for maturation.

Description:

Clear dark brown liquid without frothing and significant sedimentation; with aromatic odour and bitter taste

Identification:

Thin Layer Chromatography:

Dry 50 ml of the formulation in vacuum to remove the self generated alcohol. Add 50 ml *water*, shake and partition successively with n-*hexane* (100 ml x 3), *chloroform* (100 ml x 3) and *ethyl acetate* (50 ml x 3). Filter and concentrate the ethyl acetate extract under vacuum and weigh. Dissolve 20 mg of residue in 1 ml of *methanol* and carry out the thin layer chromatography.

Apply 5 µl of the solution prepared above and 5 µl of marker solution prepared by dissolving 1 mg of *gallic acid* in 1 ml of *methanol* separately, on TLC plate and develop the plate to a distance of 8 cm using *toluene*: *ethyl acetate*: *formic acid*: *methanol* (3.3 : 0.8 : 0.2) as mobile phase. After development, allow the plate to dry in air. Spray the plate with *anisaldehyde-sulphuric acid reagent*, followed by

heating at 105^0 for about 10 min and examine at 560 nm. It shows major spots at R_f 0.06 (yellow), 0.10 (dark yellow), 0.21 (orange), 0.27 (yellow), 0.32 (light blue), 0.42 (sky blue), 0.51 (dark blue, corresponding to *gallic acid)*, 0.62 (white), 0.65 (orange) and 0.68 (light blue).

Physico-chemical parameters:

Total phenolic content:	Not less than 0.06 per cent w/v equivalent to tannic acid,	Appendix 5.1.1
Total solids:	20 to 30 per cent w/v,	Appendix 3.8
Specific gravity (at 25^0):	1.1 to 1.25,	Appendix 3.2
*p*H*:*	3.02 to 4.5,	Appendix 3.3
Reducing sugars:	30 to 45 per cent w/v,	Appendix 5.1.3
Non-reducing sugars:	Not more than 5 per cent w/v,	Appendix 5.1.3
Alcohol content:	3.0 to 7.5 per cent v/v,	Appendix 3.17
Methanol:	Absent,	Appendix 2.8

Other Requirements:

Microbial load:	Appendix 2.4
Aflatoxins:	Appendix 2.7

Storage: Store in a cool place in tightly closed amber coloured bottle, protect from light and moisture.

Therapeutic Uses: Ajīrṇa (dyspepsia); Agnimāndya (digestive impairment), Grahaṇī (malabsorption syndrome); Visūcikā (gastro-enteritis with piercing pain).

Dose: 15 - 30 ml orally with equal amount of water after meals twice a day.

PĀRTHĀDYARIṢṬA

(AFI, Part-I, 1: 21)

Definition:

Pārthādyariṣṭa is a fermented liquid preparation made with the ingredients in the Formulation composition given below. It contains not more than 10 per cent, and not less than 5 per cent of alcohol that is self generated in the preparation over a period of time.

Formulation composition:

1.	Pārtha (Arjuna API)	*Terminalia arjuna*	St. Bk.	4.8 kg
2.	Mṛdvīkā (Drākṣā API)	*Vitis vinifera*	Fr.	2.4 kg
3.	Madhupuṣpa (Madhūka API)	*Madhuca indica*	Fl.	960 g
4.	Jala for decoction	Water		49.152 l
	reduced to			12.288 l
5.	Dhātakī API	*Woodfordia fruticosa*	Fl.	960 g
6.	Guḍa API	Jaggery		4.8 kg

Method of preparation:

Take the raw materials of pharmacopoeial quality.

Wash, dry and powder the ingredient numbered 1 *(Kvātha Dravya)* of the formulation composition and pass through the sieve number 44 to obtain coarse powder. Wash and clean the ingredient number 4 and 5 *(Kvātha Dravya)* of the formulation composition.

Add specified amount of water to the *Kvātha Dravya*, soak overnight, heat, reduce to one fourth and filter through *muslin cloth* to obtain *Kvātha.*

Add the ingredient number 6 of the formulation composition to the *Kvātha*, allow to dissolve and filter through the muslin cloth.

Transfer the filtrate to a clean container; add *Dhātakī* and seal the mouth of the container.

Shift the container to the fermentation room and constantly check for the signs of completion of fermentation process.

Filter the fermented material through a clean muslin cloth.

Pack in air tight containers and allow for maturation.

Description:

Clear brown liquid without frothing and significant sedimentation; with aromatic odour and astringent taste

Identification:

Thin Layer Chromatography:

Dry 50 ml of the formulation in vacuum to remove the self generated alcohol. Add 50 ml *water* to dissolve the extract and partition successively with n-*hexane* (50 ml x 3), *chloroform* (50 ml x 3) and *ethyl acetate* (50 ml x 3). Filter and concentrate the ethyl acetate extract under vacuum and weigh. Dissolve 1 mg of residue in 1 ml of *methanol* and carry out thin layer chromatography.

Apply separately 15 µl of test solution prepared as above and 5 µl each of marker solutions prepared by dissolving 1 mg each of *gallic acid* and *ethyl gallate* in 1 ml each of *methanol* separately, on TLC plate and develop the plate to a distance of 8 cm using *toluene: ethyl acetate: formic acid* (3 : 3 : 08) as mobile phase. After development, allow the plate to dry in air and derivatise with *Natural product reagent* and examine under ultraviolet light (366 nm). It shows spots at R_f 0.13 (brilliant blue), 0.31 (blue), 0.45 (blue, corresponding to *gallic acid)* and at R_f 0.56 (light blue, corresponding to *ethyl gallate*).

Physico-chemical parameters:

Total phenolic content:	0.095 to 0.110 per cent w/v equivalent to tannic acid,	Appendix 5.1.1
Total solids:	Not less than 10.0 per cent w/v,	Appendix 3.8
Specific gravity (at 25^0):	1.02 to 1.05,	Appendix 3.2
*p*H*:*	4.0 to 4.6,	Appendix 3.3
Reducing sugars:	Not less than 5.5 per cent w/v,	Appendix 5.1.3
Non-reducing sugars:	Not more than 0.30 per cent w/v,	Appendix 5.1.3
Alcohol content:	6 to 12 per cent v/v,	Appendix 3.17
Methanol:	Absent,	Appendix 2.8

Other requirements:

Microbial limit:	Appendix 2.4
Aflatoxins:	Appendix 2.7

Storage: Store in a cool place in tightly closed amber coloured bottle, protect from light and moisture.

Therapeutic uses: Hṛdroga (heart disease), Phuphphusa Roga (lung disease), Balakṣaya (loss of strength/ immunity), Vīryakṣaya (azoospermia).

Dose: 15 - 30 ml orally with equal amount of water after meals twice a day.

PIPPALYĀDYĀSAVA

(AFI, Part-I, 1: 22)

Definition:

Pippalyādyāsava is a fermented liquid preparation, made with ingredients in the Formulation composition given below. It contains not more than 10 per cent, and not less than 5 per cent of alcohol that is self generated in the preparation over a period of time.

Formulation composition:

1.	Pippalī API	*Piper longum*	Fr.	8 g
2.	Marica API	*Piper nigrum*	Fr.	8 g
3.	Haridrā API	*Curcuma longa*	Rz	8 g
4.	Cavya API	*Piper chaba*	Rz.	8 g
5.	Citraka API	*Plumbago zeylanica*	Rt.	8 g
6.	Ghana (Mustā API)	*Cyperus rotundus*	Rt.	8 g
7.	Viḍaṅga API	*Embelia ribes*	Fr.	8 g
8.	Kramuka (Pūga API)	*Areca catechu*	Sd	8 g
9.	Lodhra API	*Symplocos racemosa*	St. Bk.	8 g
10.	Pāṭhā API	*Cissampelos pareira*	Rt.*/Pl.	8 g
11.	Dhātrī (Āmalakī API)	*Emblica officinale*	P.	8 g
12.	Elavāluka API	*Prunus avium*	St. Bk.	8 g
13.	Uśīra API	*Vetiveria zizanioides*	Rt.	8 g
14.	Candana (Śveta Candana API)	*Santalum album*	St. Bk.	8 g
15.	Kuṣṭha API	*Saussurea lappa*	Rt.	8 g
16.	Lavaṅga API	*Syzygium aromaticum*	Fl.bd	8 g
17.	Tagara API	*Valeriana wallichii*	Rz.	8 g
18.	Jaṭāmāṃsī API	*Nardostachys jatamansi*	Rz.	8 g

19.	Tvak API	*Cinnamomum zeylanicum*	St. Bk.	8 g
20.	Elā (Sūkṣmailā API)	*Elettaria cardamomum*	Sd.	8 g
21.	Patra (Tejapatra API)	*Cinnamomum tamala*	Lf.	8 g
22.	Priyaṅgu API	*Callicarpa macrophylla*	Fl.	8 g
23.	Nāgakeśara API	*Mesua ferrea*	Stmn.	8 g
24.	Jala	Water		8.1 l
25.	Guḍa	Jaggery		4.8 kg
26.	Dhātakī API	*Woodfordia fruticosa*	Fl.	160 g
27.	Drākṣā API	*Vitis vinifera Linn*	Dr.Fr.	2.880 kg

* Actual part used in the formulation.

Method of Preparation:

Take the raw materials of pharmacopoeial quality.

Wash, dry and powder the ingredients numbered 1 to 23 of the formulation composition individually and pass through the sieve number 44 to obtain coarse powder.

Wash and clean the ingredient number 27 of the formulation composition.

Add specified amount of water to the ingredient number 25 of the formulation composition, allow to dissolve and filter through the muslin cloth.

Transfer the filtrate to a clean container; add *Drākṣā, Dhātakī* and coarsely powdered other drugs. Seal the mouth of the container.

Shift the container to the fermentation room and constantly check for the signs of completion of fermentation process.

Filter the fermented material through a clean muslin cloth.

Pack in air tight containers and allow for maturation.

Description:

Clear dark brown liquid without frothing and significant sedimentation; with aromatic odour and acrid taste

Identification:

Thin Layer Chromatography:

Dry 50 ml of the formulation in vacuum to remove the self generated alcohol. Add 50 ml *water*, shake and partition successively with n-*hexane* (50 ml x 3) and *chloroform* (50 ml x 3). Filter and concentrate the *chloroform* extract under vacuum and weigh. Dissolve 20 mg of residue in 1 ml of *chloroform* and carry out the thin layer chromatography.

Apply 10 µl of the solution prepared above and 5 µl of marker solution prepared by dissolving 1 mg of *piperine* in 1 ml of *chloroform* separately, on TLC plate and develop the plate to a distance of 8 cm using *toluene*: *ethyl acetate*: *acetic acid* (8 : 2 : 0.3) as mobile phase. After development, allow the plate to dry in air and examine under ultraviolet light (254 nm). It shows major spots at R_f 0.13 (light black), 0.22 (light black), 0.30 (dark black, corresponding to *piperine)* and 0.66 (light black).

Apply 10 µl of the solution prepared above and 5 µl each of marker solutions prepared by dissolving 1 mg each of *gallic acid and caffeic acid* in 1 ml each of *methanol* separately, on TLC plate and develop the plate to a distance of 8 cm using *toluene*: *ethyl acetate*: *formic acid*: *methanol* (3: 3: 0.8: 0.2)) as mobile phase. After development spray the plate with *Natural product reagent* and dry in air and examine under ultraviolet light (366 nm). It shows major spots at R_f 0.08 (light yellow), 0.13 (light black), 0.13 (light blue), 0.22 (light black), 0.30 (dark black, corresponding to *piperine*), 0.48 (dark blue, corresponding to *gallic acid*), 0.60 (light blue, corresponding to *caffeic acid*).

Physico-chemical parameters:

Total phenolic content:	Not less than 0.1 per cent w/v equivalent to tannic acid,	Appendix 5.1.1
Total solids:	20 to 30 per cent w/v,	Appendix 3.8
Specific gravity (at 25^0):	1.0 to 1.25,	Appendix 3.2
*p*H*:*	4.0 to 5.0,	Appendix 3.3
Reducing sugars:	10 to 25 per cent w/v,	Appendix 5.1.3
Non-reducing sugars :	Not more than 0.5 per cent w/v,	Appendix 5.1.3
Alcohol content:	5 to 7.5 per cent v/v,	Appendix 3.17

Methanol:	Absent,	Appendix 2.8

Other Requirements:

Microbial load:	Appendix 2.4
Aflatoxins:	Appendix 2.7

Storage: Store in a cool place in tightly closed amber coloured bottle, protect from light and moisture.

Therapeutic Uses: Grahaṇī (malabsorption syndrome); Gulma (abdominal lump); Kārśya (emaciation); Kṣaya (pthisis); Arśa (piles); Udara (urticaria); Pāṇḍu (anaemia).

Dose: 15 - 30 ml orally with equal amount of water after meals twice a day.

PUNARNAVĀDYARIṢṬA

(AFI, Part-II, 1:2)

Definition:

Punarnavādyariṣṭa is a fermented liquid preparation, made with the ingredients in the Formulation composition given below. It contains not more than 10 per cent, and not less than 5 per cent of alcohol that is self generated in the preparation over a period of time.

Formulation composition:

1	Śveta Punarnavā API	*Boerhavia verticillata*	Rt.	144 g
2	Rakta Punarnavā API	*Boerhavia diffusa*	Rt.	144 g
3	Balā API	*Sida cordifolia*	Rt.	144 g
4	Atibalā API	*Abutilon indicum*	Rt.	144 g
5	Pāṭhā API	*Cissampelos pareira*	Rt.	144 g
6	Vāsā API	*Adhatoda vasica*	Rt.	144 g
7	Guḍūcī API	*Tinospora cordifolia*	St.	144 g
8	Citraka API	*Plumbago zeylanica*	Rt.	144 g
9	Nidigdhikā (Kaṇṭakārī API)	*Solanum surattense*	Pl.	144 g
10	Jala for decoction	Water		12.288 l
	reduced to			6.144 l
11	Guḍa API	Jaggery		9.6 kg
12	Madhu API	Honey		768 g
Prakṣepa Dravyas:				
13	Hema (Nāgakeśara API)	*Mesua ferrea*	Stmn.	24 g
14	Tvak API	*Cinnamomum zeylanicum*	St. Bk.	24 g
15	Elā (Sūkṣmailā API)	*Elettaria cardamomum*	Sd.	24 g
16	Marica API	*Piper nigrum*	Fr.	24 g

17	Ambu (Hr̄ivera API)	*Coleus vettiveroides*	Rt.	24 g
18	Patra (Tejapatra API)	*Cinnamomum tamala*	Lf.	24 g

Method of preparation:

Take the raw materials of pharmacopoeial quality.

Wash, dry and powder the ingredients numbered 1 to 9 *(Kvātha Dravya)* of the formulation composition individually and pass through the sieve number 44 to obtain coarse powder.

Clean, dry and powder the ingredients numbered 13 to 18 *(Prakṣepa Dravya)* of the formulation composition individually and pass through the sieve number 85 to obtain fine powder.

Add specified amount of water to the *Kvātha Dravya*, soak overnight, heat, reduce to half and filter through *muslin cloth* to obtain *Kvātha.*

Add the ingredient number 11 of the formulation composition to the *Kvātha*, allow to dissolve and filter through the muslin cloth.

Transfer the filtrate to a clean container; add *Madhu,* finely powdered *Prakṣepa Dravyas* and seal the mouth of the container.

Shift the container to the fermentation room and constantly check for the signs of completion of fermentation process.

Filter the fermented material through a clean muslin cloth.

Pack in air tight containers and allow for maturation.

Description:

Clear, dark brown liquid without frothing and significant sedimentation; with astringent taste

Identification:

Thin Layer Chromatography:

Dry 50 ml of the formulation in vacuum to remove the self generated alcohol. Add 50 ml *water* to dissolve the extract and partition successively with n-*hexane* (50 ml x 3), *chloroform* (50 ml x 3) and *ethyl acetate* (50 ml x 3). Filter and concentrate the ethyl acetate extract under vacuum and weigh. Dissolve 10 mg of residue in 1 ml of *methanol* and carry out thin layer chromatography.

Apply separately 5 µl each of test solution prepared as above and marker solution prepared by dissolving 0.2 mg of *gallic acid* in 1 ml of *methanol* separately, on TLC plate and develop the plate to a distance of 8 cm using *toluene: ethyl acetate: acetic acid* (5 : 4 : 1) as mobile phase. After development, allow the plate to dry in air and derivatise with *Natural product reagent* and examine under ultraviolet light (366 nm). It shows spots at R_f 0.21 (light blue), 0.56 (light green, corresponding to *gallic acid*) and 0.61(light blue).

Physico-chemical parameters:

Total phenolic content:	0.052 to 0.083 per cent w/v equivalent to tannic acid,	Appendix 5.1.1
Total solids:	Not less than 11.50 per cent w/v,	Appendix 3.8
Specific gravity (at 25^0):	1.02 to 1.3,	Appendix 3.2
*p*H*:*	3.5 to 4.5,	Appendix 3.3
Reducing sugars:	Not less than 5.8 per cent w/v,	Appendix 5.1.3
Non-reducing sugars:	Not more than 0.90 per cent w/v,	Appendix 5.1.3
Alcohol content:	5 to 10 per cent v/v,	Appendix 3.17
Methanol:	Absent,	Appendix 2.8

Other requirements:

Microbial limit:	Appendix 2.4
Aflatoxins:	Appendix 2.7

Storage:

Store in a cool place in tightly closed amber coloured bottle, protect from light and moisture.

Therapeutic uses: Śotha (inflammatory diseases), Udararoga (abdominal diseases), Plīhāroga (splenic disorders), Amlapitta (hyperacidity), Gulma (abdominal lump) and Jvara (fever).

Dose: 15 - 30 ml orally with equal amount of water after meals twice a day.

PUNARNAVĀSAVA

(AFI, Part-I, 1: 23)

Definition:

Punarnavāsava is a fermented liquid preparation, made with the ingredients of the Formulation composition given below. It contains not more than 10 per cent, and not less than 5 per cent of alcohol that is self generated in the preparation over a period of time.

Formulation composition:

1.	Śuṇṭhī API	Zingiber officinale	Rz.	16 g
2.	Marica API	*Piper nigrum*	Fr.	16 g
3.	Pippalī API	*Piper longum*	Fr.	16 g
4.	Harītakī API	*Terminalia chebula*	Fr.P	16 g
5.	Bibhītaka API	*Terminalia belerica*	Fr.P	16 g
6.	Āmalakī API	*Emblica officinalis.*	Fr.P	16 g
7.	Dārvī (Dāruharidrā) API	*Berberis aristata*	St.	16 g
8.	Śvadaṃṣṭrā (Gokṣura) API	*Tribulus terrestris*	Fr.	16 g
9.	Bṛhatī API	*Solanum indicum*	Rt.	16 g
10.	Kaṇṭakārī API	*Solanum xanthocarpum*	Pl.	16 g
11.	Vāsāmūla (Vāsā) API	*Adhatoda vasica*	Rt.	16 g
12.	Eraṇḍamūla (Eraṇḍa) API	*Ricinus communis*	Rt.	16 g
13.	Kaṭukā API	*Picrorrhiza kurroa*	Rt./Rz.	16 g
14..	Gajapippalī API	*Scindapsus officinalis*	Fr.	16 g
15.	Śothaghnī (Punarnavā) API	*Boerhaavia diffusa*	Rt.	16 g
16.	Picumarda (Nimba) API	*Azadirachta indica*	St. Bk.	16 g
17.	Guḍūcī API	*Tinospora cordifolia*	St.	16 g
18.	Śuṣka Mūlaka (Mūlaka) API	*Raphanus sativus*	Rt.	16 g

19.	Durālabhā API	*Fagonia cretica*	Rt.	16 g
20.	Paṭola API	*Trichosanthes dioica*	Lf.	16 g
21.	Dhātakī API	*Woodfordia fruticosa*	Fl.	256 g
22.	Drākṣā API	*Vitis vinifera*	Dr. Fr.	320 g
23.	Sitā API	Sugar		1.6 kg
24.	Mākṣika (Madhu) API	Honey		800 g
25.	Jala	Water		8.19 l

Method of Preparation:

Take the raw materials of pharmacopoeial quality.

Wash, dry and powder the ingredients numbered 1 to 20 of the formulation composition individually and pass through the sieve number 44 to obtain coarse powder.

Wash and clean the ingredient number 22 of the formulation composition.

Add specified amount of water to the ingredient number 23 of the formulation composition, allow to dissolve and filter through the muslin cloth.

Transfer the filtrate to a clean container; add *Madhu, Drākṣā, Dhātakī* and coarsely powdered other drugs. Seal the mouth of the container.

Shift the container to the fermentation room and constantly check for the signs of completion of fermentation process.

Filter the fermented material through a clean muslin cloth.

Pack in air tight containers and allow for maturation.

Description:

Clear dark brown liquid without frothing and significant sedimentation; with aromatic odour and acrid taste

Identification:

Thin Layer Chromatography:

Dry 400 ml of the formulation in vacuum to remove the self generated alcohol. Add 100 ml *water*, shake and partition successively with n-*hexane* (100 ml x 3) and *chloroform* (100 ml x 3). Filter and concentrate the chloroform extract under vacuum and weigh. Dissolve 10 mg of residue in 1 ml of *methanol* and carry out the thin layer chromatography.

Apply 40 µl of the solution prepared above and 5 µl each of marker solutions prepared by dissolving 1 mg each of *berberine* and *palmatine* in 1 ml of *chloroform* separately, on TLC plate and develop the plate to a distance of 8 cm using n-*butanol: ethyl acetate: formic acid: water* (3 : 5 : 1 : 1) as mobile phase. After development, allow the plate to dry in air and examine under ultraviolet light (366 nm). It shows major spots at R_f 0.39 (parrot green, corresponding to *palmatin*), 0.48 (parrot green, corresponding to *berberine*) and 0.55 (light blue).

Apply 10 µl of the test solution prepared above and 5 µl of marker solution prepared by dissolving 1 mg of *gallic acid* in 1 ml of *methanol* on TLC plate and develop the plate to a distance of 8 cm using *toluene: ethyl acetate: formic acid: methanol* (3 : 3 : 0.8 : 0.2) as mobile phase. After development spray the plate with *Natural Product reagent* and dry in air and examine under ultraviolet light (366 nm). It shows major spots at R_f 0.38 (sky blue), 0.43 (dark blue, corresponding to *gallic acid)*, 0.49 (dark green), 0.57 (light blue), 0.62 (orange) and 0.64(light green).

Physico-chemical parameters:

Total phenolic content:	Not less than 0.04 per cent w/v equivalent to tannic acid,	Appendix 5.1.1
Total solids:	10 to 20 per cent w/v,	Appendix 3.8
Specific gravity (at 25^0):	1.0 to 1.1,	Appendix 3.2
*p*H*:*	3.5 to 4.5,	Appendix 3.3
Reducing sugars:	7.5 to 12.5 per cent w/v,	Appendix 5.1.3
Non-reducing sugars :	Not more than 1.0 per cent w/v,	Appendix 5.1.3
Alcohol content:	5 to 10 per cent v/v,	Appendix 3.17
Methanol:	Absent,	Appendix 2.8

Assay:

The formulation contains 0.01 to 0.02 per cent w/v of *berberine*, when assayed by the following method:

Estimation of berberine: Apply 1.0 to 8.0 µl of (5 data point) *berberine* solution prepared under thin layer chromatography on TLC plate and develop the plate to a distance of 8 cm using n-*butanol: ethyl acetate: formic acid : water* (3 : 5 : 1 : 1) as mobile phase. After development allow the plate to dry in a current of cold air and scan in the TLC scanner at a wavelength of 366 nm. Note the peak areas under curve for the peak corresponding to *berberine* and prepare the calibration curve by plotting peak area *vs.* concentration of *berberine*.

Process vacuum-dried 400 ml of the formulation under thin layer chromatography.

Apply 1 µl of the test solution on TLC plate. Develop, dry and scan the plate for calibration curve of *berberine*. Calculate the amount of *berberine* in the test solution from the calibration curve of *berberine*.

Other Requirements:

Microbial load:	Appendix 2.4
Aflatoxins:	Appendix 2.7

Storage: Store in a cool place in tightly closed amber coloured bottle, protect from light and moisture.

Therapeutic uses: Śotha (inflammation conditions), Udararoga (eight type of abdominal disorders), Plīhā (splenic disease); Amlapitta (hyperacidity); Yakṛt (disease of liver); Gulma (abdominal lump); Jvara (fever); Kṛcchrasādhya Roga (related to difficult conditions to manage).

Dose: 15 - 30 ml orally with equal amount of water after meals twice a day.

ROHĪTAKĀRIṢṬA

(AFI, Part-I, 1:31)

Definition:

Rohītakāriṣṭa is a fermented liquid preparation made with the ingredients in Formulation composition given below. It contains not more than 10 per cent, and not less than 5 per cent of alcohol that is self generated in the preparation over a period of time.

Formulation composition:

1	Rohītaka API	*Tecomella undulata*	St. Bk	4.8 kg
2	Jala for decoction	Water		49.152 l
	reduced to			12.288 l
3	Guḍa API	Jaggery		9.6 kg
Prakṣepa Dravyas:				
4	Dhātakī API	*Woodfordia fruticosa*	Fl.	768 g
5	Pippalī API	*Piper longum*	Fr.	48 g
6	Pippalīmūla API	*Piper longum*	St.	48 g
7	Cavya API	*Piper retrofractum*	St.	48 g
8	Citraka API	*Plumbago zeylanica*	Rt.	48 g
9	Śuṇṭhī API	*Zingiber officinale*	Rz.	48 g
10	Tvak API	*Cinnamomum zeylanicum*	St. Bk.	48 g
11	Elā (Sūkṣmailā API)	*Elettaria cardamomum*	Sd.	48 g
12	Patra (Tejapatra API)	*Cinnamomum tamala*	Lf.	48 g
13	Harītakī API	*Terminalia chebula*	P.	48 g
14	Bibhītaka API	*Terminalia belerica*	P.	48 g
15	Āmalakī API	*Emblica officinalis*	P.	48 g

Method of preparation:

Take the raw materials of pharmacopoeial quality.

Wash, dry and powder the ingredients numbered 1 *(Kvātha Dravya)* of the formulation composition and pass through the sieve number 44 to obtain coarse powder.

Clean, dry and powder the ingredients numbered 5 to 15 *(Prakṣepa Dravya)* of the formulation composition individually and pass through the sieve number 85 to obtain fine powder.

Add specified amounts of water to the *Kvātha Dravya*, soak overnight, heat, reduce to one fourth and filter through *muslin cloth* to obtain *Kvātha.*

Add the ingredient number 3 of the formulation composition to the *Kvātha*, allow to dissolve and filter through the muslin cloth.

Transfer the filtrate to a clean container; add *Dhātakī* and other finely powdered *Prakṣepa Dravyas.*

Seal the mouth of the container.

Shift the container to the fermentation room and constantly check for the signs of completion of fermentation process.

Filter the fermented material through a clean muslin cloth.

Pack in air tight containers and allow for maturation.

Description:

Clear, dark brown liquid without frothing and significant sedimentation; with astringent taste

Identification:

Thin Layer Chromatography:

Dry 50 ml of the formulation in vacuum to remove the self generated alcohol. Add 50 ml *water* to dissolve the extract and partition successively with n-*hexane* (50 ml x 3), *chloroform* (50 ml x 3) and *ethyl acetate* (50 ml x 3). Filter and concentrate the ethyl acetate extract under vacuum and weigh. Dissolve 10 mg of residue in 1 ml of *methanol* and carry out thin layer chromatography.

Apply separately 6 µl of the test solution prepared as above and 5 µl of marker solution prepared by dissolving 1 mg each of *gallic acid* and *ethyl gallate* in 1 ml each of *methanol,* on TLC plate and develop the plate to a distance of 8 cm using *toluene: ethyl acetate: formic acid: methanol* (3 : 3 : 0.8 : 0.2) as mobile phase. After development, allow the plate to dry in air and derivatise with *Natural product reagent* and examine under ultraviolet light (366 nm). It shows spots at R_f 0.34 (brilliant blue), 0.45 (blue, corresponding to *gallic acid)*, 0.57 (blue, corresponding to *ethyl gallate*) and 0.63 (light blue).

Physico-chemical parameters:

Total phenolic content:	0.060 to 0.071 per cent w/v equivalent to tannic acid,	Appendix 5.1.1
Total solids:	Not less than 16.0 per cent w/v,	Appendix 3.8
Specific gravity (at 25^0):	1.05 to 1.14,	Appendix 3.2
*p*H*:*	3.8 to 4.7,	Appendix 3.3
Reducing sugars:	Not less than 11.0 per cent w/v,	Appendix 5.1.3
Non-reducing sugars:	Not more than 0.70 per cent w/v,	Appendix 5.1.3
Alcohol content:	5 to 10 per cent v/v,	Appendix 3.17
Methanol:	Absent,	Appendix 2.8

Other requirements:

Microbial limit:	Appendix 2.4
Aflatoxins:	Appendix 2.7

Storage: Store in a cool place in tightly closed amber coloured bottle, protect from light and moisture.

Therapeutic uses: Plīhāroga (splenic disease), Gulma (abdominal lump), Udararoga (disease of abdomen), Aṣṭhīlā (prostatic hypertrophy), Arśa (piles), Kāmalā (jaundice), Kuṣṭha (disease of skin).

Dose: 15 - 30 ml orally with equal amount of water after meals twice a day.

SĀRIVĀDYĀSAVA

(AFI, Part-I, 1: 37)

Definition:

Sārivādyāsava is a fermented liquid preparation made with the ingredients in the Formulation composition given below. It contains not more than 10 per cent, and not less than 5 per cent of alcohol that is self generated in the preparation over a period of time.

Formulation composition:

1	Sārivā (Śveta Sārivā API)	*Hemidesmus indicus*	Rt.	192 g
2	Mustaka (Mustā API)	*Cyperus rotundus*	Rz.	192 g
3	Lodhra API	*Symplocos racemosa*	St. Bk.	192 g
4	Nyagrodha API	*Ficus bengalensis*	St. Bk.	192 g
5	Pippala (Aśvattha API)	*Ficus religiosa*	Fr.	192 g
6	Śaṭī API	*Hedychium spicatum*	Rz.	192 g
7	Anantā (Śveta Sārivā API)	*Hemidesmus indicus*	Rt.	192 g
8	Padmaka API	*Prunus cerasoides*	St.	192 g
9	Bāla (Hrīvera API)	*Coleus vettiveroides*	Rt.	192 g
10	Pāṭhā API	*Cissampelos pareira*	Rt.	192 g
11	Dhātrī (Āmalakī API)	*Emblica officinalis*	P.	192 g
12	Guḍūcikā (Guḍūcī API)	*Tinospora cordifolia*	St.	192 g
13	Ūśīra API	*Vetiveria zizanioides*	Rt.	192 g
14	Śveta Candana API	*Santalum album*	Ht. Wd.	192 g
15	Rakta Candana API	*Pterocarpus santalinus*	Ht. Wd.	192 g
16	Yamānī (Yavānī API)	*Trachyspermum ammi*	Fr.	192 g
17	Kaṭurohiṇī (Kaṭukā API)	*Picrorhiza kurroa*	Rz.	192 g
18	Patra (Tejapatra API)	*Cinnamomum tamala*	Lf.	192 g

19	Sthūlailā API	*Amomum subulatum*	Sd.	192 g
20	Sūkṣmailā API	*Elettaria cardamomum*	Sd.	192 g
21	Kuṣṭha API	*Saussurea lappa*	Rt.	192 g
22	Svarṇapatrī API	*Cassia angustifolia*	Lf.	192 g
23	Harītakī API	*Terminalia chebula*	P.	192 g
24	Jala	Water		24.576 l
25	Guḍa API	Jaggery		14.4 kg
26	Dhātakī API	*Woodfordia fruticosa*	Fl.	480 g
27	Drākṣā API	*Vitis vinifera*	Dr. Fr.	2.8 kg

Method of preparation:

Take the raw materials of pharmacopoeial quality.

Wash, dry and powder the ingredients numbered 1 to 23 of the formulation composition and pass through the sieve number 44 to obtain coarse powder.

Wash and clean the ingredient numbered 27 of the formulation composition.

Add specified amount of water to the ingredient number 25 of the formulation composition, allow to dissolve and filter through the muslin cloth.

Transfer the filtrate to a clean container; add *Dhātakī, Drākṣā* and other coarsely powdered drugs. Seal the mouth of the container.

Shift the container to the fermentation room and constantly check for the signs of completion of fermentation process.

Filter the fermented material through a clean muslin cloth.

Pack in air tight containers and allow for maturation.

Description:

Clear, dark brown liquid without frothing and significant sedimentation; with astringent taste

Identification:

Thin Layer Chromatography:

Dry 50 ml of the formulation in vacuum to remove the self generated alcohol. Add 50 ml *water* to dissolve the extract and partition successively with n-*hexane* (50 ml x 3), *chloroform* (50 ml x 3) and *ethyl acetate* (50 ml x 3). Filter and concentrate the ethyl acetate extract under vacuum and weigh. Dissolve 20 mg of residue in 1 ml of *methanol* and carry out thin layer chromatography.

Apply separately 5 µl of test solution prepared as above and 3 µl of marker solution prepared by dissolving 1 mg of *gallic acid* in 1 ml of *methanol,* on TLC plate and develop the plate to a distance of 8 cm using *toluene: ethyl acetate: acetic acid* (5 : 4 : 1) as mobile phase. After development, allow the plate to dry in air and derivatise with *Natural product reagent* and examine under ultraviolet light (366 nm). It shows spots at R_f 0.31 (blue, corresponding to *gallic acid*), 0.51 (light blue) and 0.62 (brilliant blue).

Physico-chemical parameters:

Total phenolic content :	0.037 to 0.078 per cent w/v equivalent to tannic acid,	Appendix 5.1.1
Total solids:	Not less than 24.0 per cent w/v,	Appendix 3.8
Specific gravity (at 25^0):	1.10 to 1.15,	Appendix 3.2
*p*H*:*	3.0 to 4.0,	Appendix 3.3
Reducing sugars:	Not less than 15.0 per cent w/v,	Appendix 5.1.3
Non-reducing sugars:	Not more than 0.75 per cent w/v,	Appendix 5.1.3
Alcohol content:	5 to 10 per cent v/v,	Appendix 3.17
Methanol:	Absent,	Appendix 2.8

Other requirements:

Microbial limit:	Appendix 2.4
Aflatoxins:	Appendix 2.7

Storage: Store in a cool place in tightly closed amber coloured bottle, protect from light and moisture.

Therapeutic uses: Vātarakta (gout), Meha (excessive flow of urine), Prameha (increased frequency and turbidity of urine), Pramehapiḍakā (carbuncle), Upadaṃśa (syphilis/soft chancre), Bhagandara (fistula-in-ano), Raktavikāra (disorders of blood), Daurbalya (weakness), Agnimāndya (digestive impairment).

Dose: 15 - 30 ml orally with equal amount of water after meals twice a day.

UŚĪRĀSAVA

(AFI, Part-I, 1:8)

Definition:

Uśīrāsava is a fermented liquid preparation, made with the ingredients in the Formulation composition given below. It contains not more than 10 per cent, and not less than 5 per cent of alcohol that is self generated in the preparation over a period of time.

Formulation composition:

1	Uśīra API	*Vetiveria zizanioides*	Rt.	48 g
2	Bālaka (Hrīvera API)	*Coleus vettiveroides*	Rt.	48 g
3	Padma API	*Nelumbo nucifera*	Fl.	48 g
4	Kāśmarya (Gambhārī API)	*Gmelina arborea*	St. Bk.	48 g
5	Nīlotpala (Utpala API)	*Nymphaea stellata*	Fl.	48 g
6	Priyaṅgu API	*Callicarpa macrophylla*	Fl.	48 g
7	Padmaka API	*Prunus cerasoides*	St.	48 g
8	Lodhra API	*Symplocos racemosa*	St. Bk.	48 g
9	Mañjiṣṭhā API	*Rubia cordifolia*	Rt.	48 g
10	Dhanvayāsaka API	*Fagonia cretica*	Pl.	48 g
11	Pāṭhā API	*Cissampelos pareira*	Rt. /Pl.	48 g
12	Kirātatikta API	*Swertia chirata*	Pl.	48 g
13	Nyagrodha API	*Ficus benghalensis*	St. Bk.	48 g
14	Udumbara API	*Ficus racemosa*	St. Bk.	48 g
15	Śaṭī API	*Hedychium spicatum*	Rz.	48 g
16	Parpaṭa API	*Fumaria parviflora*	Pl.	48 g
17	Puṇḍarīka (Kamala) API	*Nelumbo nucifera*	Fl.	48 g
18	Paṭola API	*Trichosanthes dioica*	Lf./Pl.	48 g

19	Kāñcanāraka (Kāñcanāra) API	*Bauhinia variegata*	St. Bk.	48 g
20	Jambu API	*Syzygium cumini*	St. Bk.	48 g
21	Śālmalī Niryāsa (Śālmalī) API	*Salmalia malabarica*	Exd.	48 g
22	Drākṣā API	*Vitis vinifera*	Dr. Fr.	960 g
23	Dhātakī API	*Woodfordia fruticosa*	Fl.	q.s. for dhūpana
24	Jala	Water		24.576 l
25	Śarkarā API	Sugar		768 g
26	Kṣaudra (Madhu) API	Honey		4.8 kg
27	Marica API	*Piper nigrum*	Fr.	q.s. for dhūpana

Method of preparation:

Take the raw materials of pharmacopoeial quality.

Wash, dry and powder the ingredients numbered 1 to 21 of the formulation composition and pass through the sieve number 44 to obtain coarse powder.

Wash and clean the ingredient number 22.

Add specified amount of water to the ingredient number 25 of the formulation composition, allow to dissolve and filter through the muslin cloth.

Transfer the filtrate to a clean container; add *Madhu, Drākṣā, Dhātakī* and coarsely powdered other drugs. Seal the mouth of the container.

Shift the container to the fermentation room and constantly check for the signs of completion of fermentation process.

Filter the fermented material through a clean muslin cloth.

Pack in air tight containers and allow for maturation.

Description:

Clear, dark brown liquid without frothing and significant sedimentation; with astringent taste

Identification:

Thin Layer Chromatography:

Dry 50 ml of the formulation in vacuum to remove the self generated alcohol. Add 50 ml *water* to dissolve the extract and partition successively with n-*hexane* (50 ml x 3), *chloroform* (50 ml x 3) and *ethyl acetate* (50 ml x 3). Filter and concentrate the ethyl acetate extract under vacuum and weigh. Dissolve 20 mg of residue in 1 ml of *methanol* and carry out thin layer chromatography.

Apply separately 10 µl of test solution prepared as above and 3 µl of marker solution prepared by dissolving 1 mg of *gallic acid* in 1 ml of *methanol* separately, on TLC plate and develop the plate to a distance of 8 cm using *toluene: ethyl acetate: acetic acid* (5 : 4 : 1) as mobile phase. After development, allow the plate to dry in air and derivatise with *Natural product reagent* and examine under ultraviolet light (366 nm). It shows spots at R_f 0.28 (blue, corresponding to *gallic acid*), 0.43 (light blue) and 0.61(light blue).

Physico-chemical parameters:

Total phenolic content:	0.036 to 0.51 per cent w/v equivalent to tannic acid,	Appendix 5.1.1
Total solids:	Not less than 7.00 per cent w/v,	Appendix 3.8
Specific gravity (at 25^0):	1.02 to 1.15,	Appendix 3.2
*p*H*:*	3.5 to 4.5,	Appendix 3.3
Reducing sugars:	Not less than 5.00 per cent w/v,	Appendix 5.1.3
Non-reducing sugars:	Not more than 0.65 per cent w/v,	Appendix 5.1.3
Alcohol content:	4 to 9 per cent v/v,	Appendix 3.17
Methanol:	Absent,	Appendix 2.8

Assay:

Contains not less than 0.1 to 0.5 per cent w/v of *gallic acid* when assayed by the following method:

Estimation of gallic acid : Apply 1.0 to 8.0 µl of (5 data point) *gallic acid* solution prepared under Thin layer chromatography on TLC plate and develop the plate to a distance of 8 cm using *toluene: ethyl acetate: acetic acid* (5 : 4 : 1) as mobile phase. Derivatise the plate with *Natural product reagent* and dry in a current of cold air and scan in the TLC scanner at a wavelength of 366 nm. Note the peak areas under curve for the peak corresponding to *gallic acid and* prepare the calibration curve by plotting peak area *vs.* concentration of *gallic acid.*

Process vacuum-dried 50 ml of the formulation under thin layer chromatography.

Apply 5 µl of the test solution on TLC plate. Develop, dry and scan the plate for calibration curve of *gallic acid.* Calculate the amount of *gallic acid in* the test solution from the calibration curve of *gallic acid.*

Other requirements:

Microbial limit:	Appendix 2.4
Aflatoxins:	Appendix 2.7

Storage: Store in a cool place in tightly closed amber coloured bottle, protect from light and moisture.

Therapeutic uses: Raktapitta (bleeding disorders); Pāṇḍu (aneamia), Kuṣṭha (skin diseases); Prameha (urinary disorders); Arśa (piles); Kṛmi (worm infestation); Śotha (inflammatory diseases).

Dose: 15 - 30 ml orally with equal amount of water after meals twice a day.

AVALEHA

General Description:

Avaleha or Lehya is a semi-solid preparation of drugs, prepared with addition of jaggery, sugar or sugar-candy and boiled with prescribed juices or decoction.

These preparations generally have

(1) *Kaṣāya* or other liquids,

(2) Jaggery, sugar or sugar-candy,

(3) Powders or pulps of certain drugs,

(4) Ghee or oil and

(5) Honey.

Jaggery, sugar or sugar-candy is dissolved in the liquid and strained to remove the foreign particles. This solution is boiled over a moderate fire. When pressed between two fingers if *Pāka* becomes thready (*Tantuvat*), or when it sinks in water without getting easily dissolved, it should be removed from the fire. Fine powders of drugs are then added in small quantities and stirred continuously to form a homogenous mixture. Ghee or oil, if mentioned, is added while the preparation is still hot and mixed well. Honey, if mentioned is added when the preparation becomes cool and mixed well.

The *Lehya* should neither be hard nor a thick fluid. When pulp of the drugs is added and ghee or oil is present in the preparation, this can be rolled between the fingers. When metals are mentioned, the *Bhasmas* of the metals are used. In case of drugs like *Bhallātaka,* purification process is to be followed.

The *Lehya* should be kept in glass or porcelain jars. It can also be kept in a metal container which does not react with it. Normally, *Lehyas* should be used within one year.

DAŚAMŪLA HARĪTAKĪ

(AFI, Part-I, 3:14)

Definition:

Daśamūla Harītakī is a semisolid preparation made with the ingredients in the Formulation composition given below.

Formulation composition:

1.	Daśamūla Kaṣāya	Decoction of Daśamūla Kvātha Cūrṇa		3.072 l
(a.)	Bilva API	*Aegle marmelos*	Rt./St. Bk.	
(b.)	Agnimantha API	*Premna mucronata (Official substitute)*	Rt./St. Bk.	
(c.)	Śyonāka API	*Oroxylum indicum*	Rt./St. Bk.	
(d.)	Kāśmarī (Gambhārī) API	*Gmelina arborea*	Rt./St. Bk.	
(e.)	Pāṭalā API	*Stereospermum suaveolens*	Rt./St. Bk.	
(f.)	Śālaparṇī API	*Desmodium gangeticum*	Pl.	
(g.)	Pṛśniparṇī API	*Uraria picta*	Pl.	
(h.)	Śvadaṃṣṭrā (Gokṣura) API	*Tribulus terrestris*	Pl.	
(i.)	Bṛhatī API	*Solanum indicum*	Pl.	
(j.)	Kaṇṭakārī API	*Solanum surattense*	Pl.	
	Jala for decoction	Water		12.288 l
	reduced to			3.072 l
2.	Pathyā (Harītakī API)	*Terminalia chebula*	Fr. P.	100 in number
3.	Guḍa API	Jaggery		4.8 kg
4.	Tvak API	*Cinnamomum verum (=C. zeylanicum)*	St. Bk.	48 g
5.	Elā (Sūkṣmailā API)	*Elettaria cardamomum*	Sd.	48 g
6.	Patra (Tejapatra API)	*Cinnamomum tamala*	Lf.	48 g
7.	Śuṇṭhī API	*Zingiber officinale*	Rz.	48 g

8.	Marica API	*Piper nigrum*	Fr.	48 g
9.	Pippalī API	*Piper longum*	Fr.	48 g
10.	Yavaśūkaja (Yavakṣāra API)	*Hordeum vulgare*	Water soluble ash of Pl.	12 g
11.	Kṣaudra (Madhu API)	Honey		384 g

Method of Preparation:

Take all ingredients of pharmacopoeial quality.

Take the powders of *Daśamūla* ingredients in a steel vessel, mix well to make a uniform mixture, add water and soak it overnight.

Filter the decoction (*Kaṣāya*) through muslin cloth.

Heat the above mixture to about 100^0, till the water reduces to one fourth the volume and *Harītakī* becomes soft.

Remove the bundle of *Harītakī* from *Daśamūla Kaṣāya*, separate the pulp of the boiled *Harītakī* and pulverize in a grinder to make a homogenous paste.

Cut *Guḍa* into thin flakes and add to the above *Daśamūla Kaṣāya* in a steel vessel and heat, maintaining the temperature between 80^0 and 90^0. After the *Guḍa* dissolves, filter the hot syrup through muslin cloth.

Add the paste of *Harītakī* to the syrup, mix well and heat the mixture with continuous stirring maintaining the temperature between 100^0 - 106^0. Observe the mixture for formation of soft bolus, which does not disperse in water. Stop heating and allow to cool to 50^0.

Add powders of ingredients numbered 7 to 10 in it and mix well.

On cooling to room temperature add powders of ingredients numbered 4 to 6, followed by honey and mix well to obtain a homogenous mixture.

Pack it in tightly closed containers to protect from light and moisture.

Description:

Brown semi solid, sticky paste, with spicy odour and sweet, pungent taste

***Identification*:**

Microscopy:

Take about 5 g of the sample, wash with water three times, each time pouring off the supernatant and adding fresh water. Take a small quantity of the washed sediment, and warm with adequate quantity of chloral hydrate solutions, on water bath. Wash with water to remove chloral hydrate and mount in glycerin. Take another small quantity of sediment and mount in iodine water. Observe the following characteristics.

Epidermal tissues showing thin walled cells, slightly beaded, with occasional cross, long fibres with blunt or pegged tips, wide lumen **(Harītakī**).; fragments of fibres with narrow lumen not over 600 µ long or over 45 µ midwidth, stone cells lignified on three sides only, parenchyma cells containing minute acicular crystals of calcium oxalate (**Tvak)**; selereids for testa, long fibre light cells with very thin walls from aril, perispern cells with bulbus projection and orange coloured sclerenchymatous cells (**Sūkṣmailā)**; groups of angular epidermal parenchyma with sunken stomata, and unicellular to bicellular brichomes **(Tejapatra)**; large oval starch grains up to 75 µ in size, hilum eccentric lamellae distinct, yellow color oleoresin cells, non lignified septate fibres **(Śuṇṭhī);** fragments of hypodermis in surface view, stone cells of various stages and size, in groups, interspersed among parenchyma tissue **(Marica);** stone cells with broad lumen in groups of two to eight **(Pippalī).**

Thin-layer Chromatography:

Extract 5 g of formulation with 25 ml *methanol* under reflux on a water bath for 30 min, Filter, and concentrate the extract to 10 ml and carry out the thin layer chromatography. Apply 10 µl of the extract on TLC plate and develop the plate to a distance of 8 cm using *toluene: ethyl acetate: formic acid* (3 : 3 : 0.5) as mobile phase. After development, allow the plate to dry in air and examine under ultraviolet light (366nm). It shows major fluorescent spots at R_f 0.42, 0.59 and 0.71 (all blue).

Physicochemical parameters:

Total Ash: Not more than 2.0 per cent, Appendix 2.2.3

Acid insoluble ash:	Not more than 0.13 per cent,	Appendix 2.2.4
Alcohol-soluble extractive:	Not less than 74 per cent,	Appendix 2.2.7
Water-soluble extractive:	Not less than 70 per cent,	Appendix 2.2.8
Reducing sugar:	25 to 35 per cent,	Appendix 5.1.3.1
Non-reducing sugar:	20 to 30 per cent,	Appendix 5.1.3.1
*p*H *(5 % aqueous solution):*	3.96 to 4.08,	Appendix 3.3

Assay:

Daśamūla Harītakī contains 4.5 to 5.0 % w/w *gallic acid* when assayed by the following method:

Estimation of gallic acid: Dissolve about 10 mg of accurately weighed *gallic acid* in 100 ml of *methanol* in a volumetric flask. From this stock solution, prepare standard solutions of 15 to 75 µg / ml by transferring aliquots (1.5 to 7.5 ml) of stock solution to 10 ml-volumetric flasks and adjusting the volume to 10 ml with *methanol.*

Apply 10 µl each of the standard solutions corresponding to 150 ng to 750 ng of *gallic acid* on a TLC plate. Develop the plate to a distance of 8 cm using *toluene: ethyl acetate: formic acid: methanol* (3 : 3 : 0.8 : 0.2) as mobile phase. After development, dry the plate and scan in TLC scanner at a wavelength of 280 nm. Note the area under the curve for peak corresponding to *gallic acid* and prepare the calibration curve by plotting peak area *vs.* amount of *gallic acid.*

Hydrolyze about 5 g, accurately weighed, avaleha by refluxing with 50 ml of 2N *hydrochloric acid* on a water-bath. Filter, add equal amount of *water*, transfer to a separating funnel and extract with *diethyl ether* (20 ml x 4). Collect the *diethyl ether* layers and dry the combined extract over *anhydrous sodium sulphate* to remove the solvent. Dissolve the residue in 25 ml of *methanol*. Apply 10 µl on a TLC plate and develop, dry and scan the plate as described in the preceding paragraph for calibration curve of *gallic acid*. Note area under the curve for a peak corresponding to *gallic acid*. Calculate the amount of *gallic acid* in the test solution from the calibration curve of *gallic acid* .

Other requirements:

Microbial Limits: Appendix 2.4.

Aflatoxins: Appendix 2.7.

Storage: Store in a cool place in tightly closed amber coloured containers, to protect from light and moisture.

Therapeutic uses: Śopha (oedema); Arocaka (tastelessness); Gara-Udararoga (abdominal disorder due to slow/accumulated poison); Gulma (abdominal lump); Plīhāroga (splenic disease); Vaivarṇya (discoloration); Mūtrakṛcchra (dysuria); Śukradoṣa (vitiation of semen); Śvāsa (asthma); Jvara (fever); Meha (excessive flow of urine); Kārśya (emaciation); Raktapitta (bleeding disorder); Āmavāta (rheumatism).

Dose: 6 to 12 g twice a day.

Anupāna : water, milk

DRĀKṢĀVALEHA

(AFI, Part-I, 3:15)

Definition:

Drākṣāvaleha is a semisolid preparation made with the ingredients in the Formulation composition given below.

Formulation Composition:

1.	Drākṣā API	*Vitis vinifera*	Dr. Fr.	768 g
2.	Kaṇā (Pippalī) API	*Piper longum*	Fr.	768 g
3.	Śarkarā API	Sugar		2.800 kg
4.	Madhuka (Yaṣṭī) API	*Glycyrrhiza glabra*	Rt.	96 g
5.	Śuṇṭhī API	*Zingiber officinale*	Rz.	96 g
6.	Tvakkṣīrī (Vaṃśa API)	*Bambusa arundinacea*	S.C.	96 g
7.	Dhātrī (Āmalakī) Phalarasa	*Embelica officinalis*	P.	12.288 l
8.	Madhu	Honey		768 g

Method of preparation:

Take all ingredients of pharmacopoeial quality.

Wash the *Drākṣā* with fresh water, till it becomes clean and drain the water completely. Remove the seeds and crush to a fine paste.

Clean, dry the ingredients numbered 2, 4 and 5 of the formulation composition, powder separately and pass through sieve number 85.

Clean the ingredient number 6 of the formulation composition, powder and pass through sieve number 120.

Wash, clean the fresh *Āmalakī* fruits, grind it, squeeze the juice and filter it through *muslin cloth* to obtain *Svarasa.*

Crush *Drākṣā* to make a pulp and pass through sieve number 44.

Add sugar to *Svarasa* and heat, maintaining the temperature between 80^0 and 90^0. After the sugar dissolves, filter the hot syrup through muslin cloth.

Heat the filtered syrup mildly to make ‘two-thread sugar syrup’.

Add the *Drākṣā* pulp to the above syrup, heat with constant stirring maintaining temperature between 90^0 and 100^0 and observe the mixture till the formation of a soft bolus, which does not disperse in water.

Stop heating and allow to cool to 50^0.

Add fine powders of *Prakṣepa Dravyas* and mix thoroughly to prepare a homogeneous blend.

Allow to cool to room temperature and add *Madhu.*

Pack it in tightly closed amber coloured containers to protect from light and moisture.

Description:

Semi solid, malleable, dark brown, sticky preparation, with a spicy odour, sour and pungent, sweet taste

Identification:

Microscopy:

Weigh 5 g of the sample, and mix with 50 ml of water in a beaker with gentle warming, till the sample gets completely dispersed in water. Centrifuge the mixture and decant the supernatant. Wash the sediment with distilled water and centrifuge again. Decant the supernatant and mount the sediment in glycerine. Take another small quantity of sediment and mount in iodine water. Observe the following characters.

Broad xylem vessels with spiral thickening, septate fibres, wide lumen with oblique tips, sac shaped simple large starch grains with hilum at narrow end and showing eccentric striations, parenchymatous cells filled with yellowish-brown droplets of oleoresin(**Śuṇṭhī**); perisperm cells packed with minute

starch grains; elongated, spindle shaped, wide lumened lignified cells associated with spirally thickened narrow vessels. (**Pippalī**); cells from pericarp filled with pink colour pigment, acicular needles of calcium oxalate (**Drākṣā**); crystal fibres, group of tracheids with bordered pits and slit like openings, fragments of xylem vessels with bordered pits (**Yaṣṭī**); angular fragments, glass like, visible in the microscope, but becoming invisible between crossed polars in a polarizing microscope **(Vaṃśa)**.

Thin-layer chromatography:

Extract 5 g of formulation with 25 ml *methano*l under reflux on a water bath for 30 min, filter, and concentrate the extract to 10 ml and carry out the thin layer chromatography. Apply 20 µl of the extract on TLC plate and develop the plate to a distance of 8 cm using *toluene: ethyl acetate: formic acid: methanol* (3 : 3 : 0.8 : 0.2) as mobile phase. After development, allow the plate to dry in air and examine under ultraviolet light (254 nm). It shows major fluorescent spots at R_f 0.10, 0.21, 0.48, 0.60, 0.74, 0.80 and 0.84 (all blue).

Physico-chemical parameters:

Total Ash:	Not more than 2.5 per cent,	Appendix 2.2.3
Acid-insoluble ash:	Not more than 0.8 per cent,	Appendix 2.2.4
Alcohol -soluble extractive:	Not less than 55.0 per cent,	Appendix 2.2.7
Water-soluble extractive:	Not less than 65.0 per cent,	Appendix 2.2.8
Reducing sugar:	37 to 40 per cent,	Appendix 5.1.3.1
Non-reducing sugar:	4.7 to 6.3 per cent,	Appendix 5.1.3.1
pH (5 % aqueous solution):	3.35 to 3.75,	Appendix 3.3

Assay:

Drākṣāvaleha contains 5.0 to 5.75 per cent *gallic acid* when assayed by the following method:

Estimation of gallic acid: Dissolve 10 mg of *gallic acid in* 100 ml of *methanol* in a volumetric flask. From this stock solution, prepare standard solutions of 15 to 75 µg / ml by transferring aliquots (1.5 to 7.5 ml) of stock solution to 10 ml-volumetric flasks and adjusting the volume 10 ml with *methanol.*

Apply 10 µl of each standard solution corresponding to 150 ng to 750 ng of *gallic acid on* a TLC plate. Develop the plate to a distance of 8 cm using *toluene: ethyl acetate: formic acid: methanol* (3: 3: 0.8: 0.2) as mobile phase. After development, dry the plate and scan in TLC scanner at wavelength of 280 nm. Note the area under the curve for peak corresponding to *gallic acid and* prepare the calibration curve by plotting peak area *vs.* amount of *gallic acid.*

Hydrolyze about 5 g, accurately weighed azalea by refluxing with 50 ml of 2N *hydrochloric acid* on a water-bath. Filter, add equal amount of *water*, transfer to a separating funnel and extract with *diethyl ether* (20 ml x 4). Collect the *diethyl ether* layers and dry over *anhydrous sodium soleplate* to remove the solvent. Dissolve the residue in 25 ml of *methanol*. Apply 10 µl on a TLC plate and develop, dry and scan the plate as described in the preceding paragraph for calibration curve of *gallic acid*. Note area under the curve for a peak corresponding to *gallic acid*. Calculate the amount of *gallic acid in* the test solution from the calibration curve of *gallic acid.*

Other requirements:

Microbial Limits:	Appendix 2.4
Aflatoxins:	Appendix 2.7

Storage: Store in a cool place in tightly closed amber coloured containers to protect from light and moisture.

Therapeutic uses: Pāṇḍu (anemia); Kāmalā (jaundice); Halīmaka (chronic obstructive Jaundice/chlorosis/advanced stage of jaundice).

Dose: 6 to 12 gm twice a day

Anupāna : water, milk

ELĀDYA MODAKA

(AFI, Part-I, 3:3)

Definition:

Elādya Modaka is a semisolid preparation made with the ingredients in the Formulation composition given below.

Formulation Composition:

1) Elā (Sūkṣmailā) API	*Elettaria cardamomum*	Sd.	1 part
2) Madhūka API	*Madhuca indica*	Fl.	1 part
3) Agni API	*Plumbago zeylanica*	Rt.	1 part
4) Haridrā API	*Curcuma longa*	Rz.	1 part
5) Dāruharidrā API	*Berberis aristata*	St.	1 part
6) Harītakī API	*Terminalia chebula*	P.	1 part
7) Bibhītaka API	*Terminalia belerica*	P.	1 part
8) Āmalakī API	*Emblica officinalis*	P.	1 part
9) Raktaśāli (Śāli) API	*Oryza sativa*	Sd.	1 part
10) Kaṇā (Pippalī) API	*Piper longum*	Fr.	1 part
11) Drākṣā API	*Vitis vinifera*	Dr. Fr.	1 part
12) Kharjūra API	*Phoenix sylvestris*	Fr.	1 part
13) Tila API	*Sesamum indicum*	Sd.	1 part
14) Yava API	*Hordeum vulgare*	Sd.	1 part
15) Vidārī API	*Pueraria tuberosa*	Rt. Tr.	1 part
16) Gokṣura Bīja (Gokṣura) API	*Tribulus terrestris*	Fr.	1 part
17) Trivṛtā (Trivṛt) API	*Ipomoea turpethum*	Rt.	1 part
18) Śatāvarī API	*Asparagus racemosus*	Rt.	1 Part
19) Sitā API	Sugar candy		36 part

20) Jala	Water	12 part

Method of Preparation:

Take all ingredients of pharmacopoeial quality.

Wash, clean, dry ingredients numbered 1 to 18 in formulation composition, powder separately and pass through sieve number 85.

Add sugar to water in a stainless steel vessel and heat, maintaining the temperature between 80^0 and 90^0.

After the sugar dissolves, filter the hot syrup through muslin cloth.

Heat the filtered syrup until it becomes thick syrup of optimum consistency. Stop heating and allow to cool to 50^0.

Add the fine powders of *Prakṣepa Dravyas* with constant stirring to form a homogeneous mixture. Roll the mixture into *Modaka* of approximately 6 g each while warm.

Pack in tightly closed containers to protect from light and moisture.

Description:

Brown soft balls; initially bitter followed by slightly sweet and pungent taste and faintly flavoured with *Elā.*

Identification:

Thin-layer chromatography:

Extract 25 g of formulation with *methanol: chloroform: ether* (1 : 1 : 1) under reflux on a water bath for 30 min, filter and concentrate the extract to 10 ml and carry out the thin-layer chromatography.

Apply 10 µl on TLC plate and develop the plate to a distance of 8 cm using *toluene: ethyl acetate: formic acid: methanol* (6 : 6 : 0.4 : 1.6) as mobile phase. After development allow the plate to dry in air and examine under ultraviolet light (366 nm). It shows major spots at R_f 0.33 (black), 0.45 (black), 0.65 (blue), 0.71 (yellow), 0.75 (fluorescent blue). Spray the plate with *anisaldehyde sulphuric acid reagent*

followed by heating at 105^0 for about 10 min. It shows spots at R_f 0.15 (brown), 0.45 (black), 0.62 (brown), 0.71 (bluish-black), 0.75 (green), 0.85 (blue) and 0.91 (pink) under ultraviolet light (366 nm) and spots at R_f 0.45 (light-brown); 0.65 (brown, *α-pinene*) and 0.71 (brick red, *curcumin*), in visible light.

Physico-chemical parameters:

Total Ash:	Not more than 1.47 per cent,	Appendix 2.2.3
Acid-insoluble ash:	Not more than 0.19 per cent,	Appendix 2.2.4
Alcohol-soluble extractive:	Not less than 40.0 per cent,	Appendix 2.2.7
Water-soluble extractive:	Not less than 70.0 per cent,	Appendix 2.2.8
Reducing sugar:	11 to 16 per cent,	Appendix 5.1.3.1
Non-reducing sugar:	70 to 72 per cent,	Appendix 5.1.3.1
*p*H *(5 % aqueous solution):*	4.3 to 4.6,	Appendix 3.3

Other requirements:

Microbial Limits:	Appendix-2.4
Aflatoxins:	Appendix-2.7

Storage: Store in cool place in tightly closed amber coloured containers, protect from light and moisture.

Therapeutic uses: Agnimāndya (digestive impairment); Chardi (emesis); Madātyaya (alcoholism); Madyapānaja Vikāra (alcholism disorder).

Dose: 6 to 12 gm twice a day

Anupāna : Fresh milk, Mudga Yūṣa.

MADHUSNUHĪ RASĀYANA

(AFI, Part-I, 3:19)

Definition:

Madhusnuhī Rasāyana is a semisolid Avaleha preparation made with the ingredients in the Formulation composition given below.

Formulation Composition :

1.	Śuṇṭhī API	*Zingiber officinale*	Rz.	6 g
2.	Marica API	*Piper nigrum*	Fr.	6 g
3.	Pippalī API	*Piper longum*	Fr.	6 g
4.	Harītakī API	*Terminalia chebula*	P.	6 g
5.	Bibhītaka API	*Terminalia belerica*	P.	6 g
6.	Āmalakī API	*Emblica officinalis*	P.	6 g
7.	Tvak API	*Cinnamomum zeylanicum*	St. Bk.	6 g
8.	Elā (Sūkṣmailā API)	*Elettaria cardamomum*	Sd.	6 g
9.	Patra (Tejapatra) API	*Cinnamomum zeylanicum*	Lf.	6 g
10.	Jātīphala API	*Myristica fragrans*	Sd.	6 g
11.	Jātīpatrī (Jātīphala API)	*Myristica fragrans*	Ar.	6 g
12.	Agni (Citraka API)	*Plumbago zeylanica*	Rt.	6 g
13.	Varālā (Lavaṅga API)	*Syzigium aromaticum*	Fl. Bd.	6 g
14.	Dhānyaka API	*Coriandrum sativum*	Fr.	6 g
15.	Śveta Jīraka API	*Cuminum cyminum*	Fr.	6 g
16.	Kṛṣṇa Jīraka API	*Carum carvi*	Fr.	6 g
17.	Viḍaṅga API	*Embelia ribes*	Fr.	6 g
18.	Cavya API	*Piper chaba*	St.	6 g
19.	Kuṣṭha API	*Saussuera lappa*	Rt.	6 g

20.	Trivṛtā (Trivṛt API)	*Ipomoea turpethum*	Rt.	6 g
21.	Granthika (Pippalīmūla API)	*Piper longum*	Rt.	6 g
22.	Vājigandhikā (Aśvagandhā API)	*Withania somnifera*	Rt.	6 g
23.	Bhārṅgī API	*Clerodendrum serratum*	Rt.	6 g
24.	Tejovatī-Bīja API	*Zanthoxylum alatum*	Sd.	6 g
25.	Keśara (Nāgakeśara API)	*Mesua ferrea*	Stmn.	6 g
26.	Śuddha Gandha (Gandhaka API)	Sulphur		192 g
27.	Mahiṣākṣa Guggulu-Śodhita API	*Commiphora wightii*	O. R.	192 g
28.	Madhusnuhī API	*Smilax china*	Rt. Tr.	192 g
29.	Ghṛta (Goghṛta API)	Clarified butter from cow's milk		576 g
30.	Sitā API	Sugar candy		576 g
31.	Madhu API	Honey		768 g

Method of Preparation:

Take raw materials of pharmacopoeial quality.

Clean, dry the ingredients number 1 to 26 and 29 (*Prakṣepa Dravya*) of the formulation composition, powder separately and pass through sieve number 85.

Treat *Guggulu* to prepare *Śodhita Guggulu* (Appendix 6.2.7.4).

Treat *Gandhaka* to prepare *Śodhita Guggulu* (Appendix 6.2.7.3).

Powder *Śuddha Gandhaka* and pass through sieve number 120.

Add two times water to the sugar in a stainless steel vessel and heat, maintaining the temperature between 80^0 and 90^0. After the sugar dissolves, filter the hot syrup through muslin cloth.

Heat the filtered syrup mildly to make two thread sugar syrup. Stop heating and allow to cool to 60^0.

Add warm *Ghṛta* and mix well.

Add *Śodhita Guggulu*, followed by fine powders of ingredients number 1 to 26 and 29, followed by *Śuddha Gandhaka*. Mix thoroughly each time to prepare a homogeneous blend.

Allow to cool it to room temperature and add *Madhu*.

Pack in tightly closed container to protect from light and moisture.

Description:

Solid, brown, sweet semi solid with smell characteristic of coconut

Identification:

Thin-layer chromatography:

Extract 5 g of formulation with 25 ml *methanol* under reflux on a water bath for 30 min, Filter and concentrate the extract to 10 ml and carry out the TLC. Apply 20 µl on TLC plate and develop the plate to a distance of 8 cm using *toluene: ethyl acetate: formic acid: methanol* (6 : 5 : 0.8 : 0.2) as mobile phase. After development allow the plate to dry in air and examine under ultraviolet light (366 nm). It shows major spots at R_f 0.34 (black), 0.48 (black), 0.53 (blue), 0.57 (blue), 0.63 (blue), 0.72 (blue), 0.75 (greenish-blue), 0.85 (light blue). Spray the plate with *anisaldehyde sulphuric acid reagent* followed by heating at 105^0 for about 10 min. It shows major spots at R_f 0.34 (brown), 0.48 (brown), 0.66 (light violet), 0.68 (light yellow), 0.69 (light violet), 0.72 (blue), 0.77 (blue), 0.81 (light violet), 0.89 (grey) in visible light.

Physico-chemical parameters

Total Ash:	Not more than 1.4 per cent,	Appendix 2.2.3
Acid-insoluble ash:	Not more than 0.23 per cent,	Appendix 2.2.4
Alcohol-soluble extractive:	Not less than 40.0 per cent,	Appendix 2.2.7
Water-soluble extractive:	Not less than 47.5 per cent,	Appendix 2.2.8
Total sugar:	29.86 to 35.14 per cent,	Appendix 5.1.3.2
Reducing sugar:	25 to 30 per cent,	Appendix 5.1.3.1
Non-reducing sugar:	4.78 to 5.14 per cent,	Appendix 5.1.3.1
*p*H *(5 % aqueous solution):*	4.02 to 4.17,	Appendix 3.3

Other requirements:

Microbial Limits:	Appendix 2.4
Aflatoxins:	Appendix 2.7

Storage: Store in a cool place in tightly closed containers, protect from light and moisture.

Therapeutic uses: Pramehapiṭakā (diabetic carbuncle); Arbuda (tumour); Gaṇḍamālā (cervical lymphadenitis); Bhagandara (fistula-in-ano); Guhyavraṇa (ulcer in genitalia); Vātarakta (gout); Kuṣṭha (diseases of skin); Kilāsa (vitiligo) Arśa (piles); Prameha (increased frequency and turbidity of urine); Kaṇḍū (itching). Used as Rasāyana.

Dose: 6 to 12 gm twice a day

Anupāna: warm water.

CŪRṆA

General Description:

Drugs according to the formulation composition of the particular *Cūrṇa* are collected, dried, powdered individually and passed through sieve number 85 to prepare a fine powder. They are mixed in the specified proportion and stored in well closed container.

The term *Cūrṇa* may be applied to the powder prepared by a single drug or a combination of more drugs.

Raja and *Kṣoda* are the synonyms for *Cūrṇa. Cūrṇas* may be of plant origin, or mixed with other ingredients. The following points are to be noted.

If metals / minerals are used, prepare *Bhasma* or *Sindūra* of the minerals unless otherwise mentioned.

In cases where *Pārada* and *Gandhaka* are mentioned, prepare *Kajjalī* and add other drugs, one by one, according to the formula.

In general the aromatic drugs like *Hiṅgu* [Asafoetida] etc. should be fried before they are converted to fine powders.

Specific care should be taken in case of Salts and Sugars. Formulations with hygroscopic components should not usually be prepared during rainy seasons. If so, specific precautions should be taken during storage.

Cūrṇas should be stored in air tight containers. Polyethylene and foil packing also provides damp proof protection.

Special precaution for storage should be taken in cases of formulations with salts, sugars and *Kṣāras.*

BHĀSKARALAVAṆA CŪRṆA

(Lavaṇabhāskara Cūrṇa)

(AFI, Part-I, 7:27)

Definition:

Bhāskaralavaṇa Cūrṇa is a powder preparation made with the ingredients in the Formulation composition given below.

Formulation composition:

1.	Sāmudra Lavaṇa API	Sea salt		96 g
2.	Sauvarcala Lavaṇa API			60 g
3.	Viḍa Lavaṇa API			24 g
4.	Saindhava Lavaṇa API	Rock salt		24 g
5.	Dhānyaka API	*Coriandrum sativum*	Fr.	24 g
6.	Pippalī API	*Piper longum*	Fr.	24 g
7.	Pippalīmūla API	*Piper longum*	Rt.	24 g
8.	Kṛṣṇa Jīraka API	*Carum carvi*	Fr.	24 g
9.	Patraka (Tvakpatra API)	*Cinnmomum tamala*	Lf.	24 g
10.	Nāgakeśara API	*Mesua ferrea*	Stmn.	24 g
11.	Tālīsa API	*Abies webbiana*	Lf.	24 g
12.	Amlavetasa API	*Garcinia pedunculata*	Fr.	24 g
13.	Marica API	*Piper nigrum*	Fr.	12 g
14.	Jīraka (Śveta Jīraka API)	*Cuminum cyminum*	Fr.	12 g
15.	Viśva (Śuṇṭhī API)	*Zingiber officinale*	Rz.	12 g
16.	Dāḍima Bīja (Dāḍima API)	*Punica granatum*	Dr.Sd.	48 g
17.	Tvak API	*Cinnmomum zeylanicum*	St. Bk.	6 g
18.	Elā (Sūkṣmailā) API)	*Eletteria cardamomum*	Sd.	6 g

Methods of preparation:

Take all ingredients of pharmacopoeial quality.

Wash and dry the ingredients numbered 5 to 18.

Roast coarsely powdered *Sāmudra Lavaṇa, Sauvarcala Lavaṇa, Saindhava Lavaṇa* and *Viḍa Lavaṇa* individually in a stainless steel pan on low flame till free from moisture, powder separately and pass through sieve number 85**.**

Powder the ingredients 5 to 18. The powders should completely pass through sieve number 44 and not less than 50 per cent through sieve number 85.

Weigh each ingredient separately and mix together. Pass the *Cūrṇa* through sieve number 44 to obtain a homogenous blend and pack in an air-tight container.

Description:

Creamish-brown coloured, smooth powder with a characteristic odour of *Viḍa Lavaṇa* and salty taste. The powder completely passes through sieve number 44 and not less than 50 per cent through sieve number 85.

Identification:

Thin Layer Chromatography:

Extract 4 g of formulation with 25 ml *alcohol* under reflux on a water bath for 30 min, filter and concentrate the extract to 10 ml and carry out the thin layer chromatography. Apply 10 µl on TLC plate and develop the plate to a distance of 8 cm using *toluene: ethyl acetate* (5:3) as mobile phase. After development, allow the plate to dry in air and examine under ultraviolet light. It shows major spots at R_f 0.13 (greenish blue), 0.23 (blue), 0.44 (pale blue), 0.59 (pale blue), 0.72 (greenish blue), 0.74 (pale blue), 0.82 (greenish blue) and 0.92 (blue) under 254 nm and 0.10 (violet), 0.48 (pale blue), 0.77 (pale

blue) and 0.85 (pink) under 366 nm. Spray the plate with *vanillin-sulphuric acid reagent* followed by heating at 105^0 for about 10 min. It shows major spots at R_f 0.13 (orange), 0.23 (light orange), 0.38 (light orange), 0.51 (light grey), 0.64 (dark brown), 0.72 (pink) and 0.95 (black) in visible light.

Test for Chlorides:

Dissolve 1 g of sample in 10 ml *deionised water* and filter. Acidify the filtrate with *dilute nitric acid*, add 5 per cent w/v *silver nitrate solution*. A curdy white precipitate shows the presence of chlorides.

Test for Magnesium:

Dissolve 1 g of sample in 10 ml *deionised water* and filter. Add 1 ml of *dilute hydrochloric acid*, 1 drop of *Magneson II reagent* and 3 ml of *dilute sodium hydroxide solution*. A blue precipitate shows the presence of magnesium.

Test for Sulphates:

Dissolve 1 g of sample in 10 ml *deionised water* and filter. Add 2 ml of 2 per cent *barium chloride solution*. A white precipitate shows the presence of sulphates.

Test for Sulphides:

Dissolve 1 g of sample in 10 ml *deionised water* and filter. Add 4 ml of *silver nitrate solution*. A black precipitate shows the presence of sulphides.

Physico-chemical parameters:

Loss on drying at 105^0:	Not more than 7 per cent,	Appendix 2.2.10.
Total ash:	Not more than 50 per cent,	Appendix 2.2.3.
Acid-insoluble ash:	Not more than 3 per cent,	Appendix 2.2.4.
Alcohol-soluble extractive:	Not less than 12 per cent,	Appendix 2.2.7.
Water-soluble extractive:	Not less than 47 per cent,	Appendix 2.2.8.
*p*H *(10% aqueous solution):*	4.0 to 4.7,	Appendix 3.3.

Assay:

Sodium:	Not less than 14 per cent w/w,	Appendix 5.29

Other requirements:

Microbial limits:	Appendix 2.4
Aflatoxins:	Appendix 2.7

Storage: Store in a cool place in tightly closed containers, protect from light and moisture.

Therapeutic uses: Agnimāndya (digestive impairment); Śūla (pain); Grahaṇī (mal absorption syndrome); Vātakaphaja Gulma (tumor due to Vāta Doṣa and Kapha Doṣa); Plīhā (splenic disease); Udara (disease of abdomen); Arśa (piles); Kṣaya (pthisis); Kuṣṭha (disease of skin); Vibandha (constipation); Bhagandara (fistula-in-ano); Śopha (oedema); Śūla (pain); Śvāsa (asthma); Kāsa (cough); Āmavāta (rheumatism); Hṛdrujā (angina pectoris); Ajīrṇa (dyspepsia).

Dose: 2-5 g in divided doses.

Anupāna: Mastu, Takra, Āsava, Warm water.

GOMŪTRA HARĪTAKĪ

(AFI, Part-I, 7:8)

Definition:

Gomūtra Harītakī is a powder preparation made with the ingredients in the Formulation composition given below.

Formulation composition:

1.	Gomūtra	Cow urine		4 parts
2.	Pathyā (Harītakī API)	*Terminalia chebula*	P.	1 part
3.	Jala Kvātha (Hrīvera API)	*Coleus vettiveroides*	Rt.	1 part
4.	Miśi Kvātha (Miśreyā API)	*Foeniculum vulgare*	Fr.	1 part
5.	Kuṣṭha API Kvātha	*Saussurea lappa*	Rt.	1 part

Method of preparation:

Take all ingredients of pharmacopoeial quality.

Wash and dry the ingredients numbered 2 to 5.

Boil the *Harītakī* in *Gomūtra* till all the *Gomūtra* is absorbed.

Boil coarsely powdered *Hrīvera* in potable water till it reduces to eighth part, filter and collect the decoction of *Hrīvera* in a stainless steel vessel.

Soak the boiled *Harītakī* in the decoction of *Hrīvera* and dry it under sun light till all the decoction gets absorbed by the *Harītakī*.

Boil coarsely powdered *Miśreyā* in potable water till it reduces to eighth part. Filter and collect the decoction of *Miśreyā*.

Soak the *Harītakī* in the *Miśreyā* decoction and dry under sun light till all the decoction gets absorbed by the *Harītakī*.

Boil coarsely powdered *Kuṣṭha* in potable water till it reduces to eighth part, filter and collect the decoction.

Soak the *Harītakī* in *Kuṣṭha Kvātha* and dry under sunlight till all the decoction gets absorbed by the *Harītakī*.

Dry under sunlight and powder the dried *Harītakī* in a pulverizer and pass through sieve number 85 and pack in an air tight container.

Description:

Brown coloured, smooth powder with a characteristic odour of *Gomūtra* and a slightly astringent and salty taste. The powder completely passes through sieve number 44 and not less than 50 per cent through sieve number 85.

Identification:

Microscopy:

Take about 2 g of *Cūrṇa*, and wash it thoroughly without loss of *Cūrṇa*; warm a few mg of *Cūrṇa* with *chloral hydrate*, wash and mount in *glycerin*; wash a few mg of *Cūrṇa* in plain water and mount in *glycerin*; treat a few mg of *Cūrṇa* with *iodine* in *potassium iodide* solution and mount in *glycerin*; heat a few mg of *Cūrṇa* in 2% *potassium hydroxide*, wash in water and mount in *glycerin*. Observe the following characters in the different mounts.

Groups of elongated thick walled sclereids with pits and broad lumen, criss-cross thin walled fibres with broad lumen and pegged tips, thin walled parenchyma cells, rosette crystals of calcium oxalate up to 25 µ in size; polygonal epidermal cells with slightly beaded wall; stone cells with wide lumen and pits **(***Harītakī***);** cork cells in surface view; fragments of reticulate and pitted vessels; pitted parenchyma; thin walled broad lumen lignified fibres with oblique pointed ends up to 450 µ in length **(***Hrīvera***)**; endosperm cells with oil globules and aluerone grains; reticulate vessels; fragments of vittae; epidermis with stomata and tracheids with wide lumen and pits **(***Miśreyā***);** groups of elongated polygonal parenchymatous cells, xylem vessels with scalariform and spiral thickening; storage parenchyma with

inulin: fibres with thin walled broad lumen with sharp end tips up to 300 μ in length; positive test for Inulin, when a few mg of *Cūr̤na* is treated with α-- *naphthol* and *conc. sulphuric acid*, warmed gently, and observed under microscope; development of a dark violet colour in the storage parenchyma indicates the presence of inulin **(**Kus̤tha**).**

Thin Layer Chromatography:

Extract 4 g of formulation with 25 ml *alcohol* under reflux on a water bath for 30 min, filter and concentrate the extract to 10 ml and carry out the thin layer chromatography. Apply 10 μl on TLC plate and develop the plate to a distance of 8 cm using *chloroform: methanol: formic acid* (9 : 1 : 0.1) as mobile phase. After development, allow it to dry in air and examine under ultraviolet light. It shows major spots at R_f 0.13 (green), 0.53 (green), 0.66 (bluish green) and 0.89 (light green) under 254 nm; and 0.11 (violet), 0.24 (blue), 0.58 (blue), 0.68 (blue), 0.89 (pale blue) under 366 nm. Spray the plate with *vanillin-sulphuric acid reagent* followed by heating at 105^0 for about 10 minutes. It shows major spots at R_f 0.16 (grey), 0.55 (blue), 0.84 (grey) in visible light.

Physico-chemical parameters:

Loss on drying at 105^0:	Not more than 10 per cent,	Appendix 2.2.10.
Total ash:	Not more than 10 per cent,	Appendix 2.2.3.
Acid-insoluble ash:	Not more than 0.95 per cent,	Appendix 2.2.4.
Alcohol-soluble extractive:	Not less than 28 per cent,	Appendix. 2.2.7.
Water-soluble extractive:	Not less than 49 per cent,	Appendix 2.2.8.
pH (10% aqueous solution):	5.0 to 6.0,	Appendix 3.3.

Other requirements:

Microbial limits:	Appendix 2.4
Aflatoxin:	Appendix 2.7

Storage: Store in a cool place in tightly closed container, protect from light and moisture.

Therapeutic uses: Mukharoga (disease of mouth)

Dose: 2 to 4 g daily in divided doses.

Anupāna: Water

JĀTĪPHALĀDI CŪRṆA

(AFI, Part-I, 7:12)

Definition:

Jātīphalādi Cūrṇa is a powder preparation made with the ingredients in the Formulation composition given below.

Formulation composition:

1.	Jātīphala API	*Myristica fragrans*	Sd.	1 part
2.	Lavaṅga API	*Syzygium aromaticum*	Fl.Bd.	1 part
3.	Elā (Sūkṣmailā API)	*Elettaria cardamomum*	Sd.	1 part
4.	Patra (Tejapatra API)	*Cinnamomum tamala*	Lf.	1 part
5.	Tvak API	*Cinnamomum zeylanicum*	St.Bk.	1 part
6.	Nāgakeśara API	*Mesua ferrea*	Stmn.	1 part
7.	Karpūra API	*Cinnamomum camphora*	Sub.Ext	1 part
8.	Candana (Śveta Candana API)	*Santalum album*	Ht.Wd.	1 part
9.	Tila API	*Sesamum indicum*	Sd.	1 part
10.	Tvakkṣīrī (Vaṃśa API)	*Bambusa bambos*	S.C	1 part
11.	Tagara API	*Valeriana wallichii*	Rt.	1 part
12.	Āmala (Āmalakī API)	*Emblica officinalis*	P.	1 part
13.	Tālīsa API	*Abies webbiana*	Lf.	1 part
14.	Pippalī API	*Piper longum*	Fr.	1 part
15.	Pathyā (Harītakī API)	*Terminalia chebula*	P.	1 part
16.	Sthūlajīraka (Upakuñcikā API)	*Nigella sativa*	Sd.	1 part
17.	Citraka API	*Plumbago zeylanica*	Rt.	1 part
18.	Śuṇṭhī API	*Zingiber officinale*	Rz.	1 part
19.	Viḍaṅga API	*Embelia ribes*	Fr.	1 part

20.	Marica API	*Piper nigrum*	Fr.	1 part
21.	Bhaṅgā (Vijayā API) Śuddha	*Cannabis sativa*	Lf.	20 parts
22.	Śarkarā API	Cane sugar		40 parts

Methods of preparation:

Take all ingredients of pharmacopoeial quality.

Treat *Bhaṅgā* to prepare *Śuddha Bhaṅgā*. (Appendix 6.2.7.15)

Wash and dry the ingredients numbered 1 to 6, 8, 9 and 11 to 21.

Powder the ingredients 1 to 22. The powders should completely pass through sieve number 44 and not less than 50 per cent through sieve number 85. Weigh each ingredient and mix together in required quantity. Pass the *Cūrṇa* through sieve number 44 to obtain a homogenous blend and pack in an air-tight container.

Description:

Greenish brown, smooth powder, odour characteristic of camphor, tastes sweet and faintly pungent. The powder completely passes through sieve number 44 and not less than 50 per cent through sieve number 85.

Identification:

Thin Layer Chromatography:

Extract 4 g of formulation with 25 ml *alcohol* under reflux on a water bath for 30 min, filter and concentrate the extract to 10 ml and carry out the thin layer chromatography. Apply 10 µl on TLC plate and develop the plate to a distance of 8 cm using *toluene: ethyl acetate* (5 : 1.5) as mobile phase. After development, allow the plate to dry in air. Spray the plate with *vanillin-sulphuric acid reagent* followed by heating at 105^0 for about 10 min. It shows major spots at R_f 0.27 (light yellow), 0.41 (light pink), 0.49 (light violet), 0.54, 0.64 (both bluish grey), 0.81 (light violet) and 0.95 (violet) in visible light.

Physico-chemical Parameters:

Loss on drying at 105^0:	Not more than 6.0 per cent,	Appendix 2.2.10
Total ash:	Not more than 7.5 per cent,	Appendix 2.2.3
Acid-insoluble ash:	Not more than 2.8 per cent,	Appendix 2.2.4
Alcoho-soluble extractive:	Not less than 16.0 per cent,	Appendix 2.2.7
Water-soluble extractive:	Not less than 41.0 per cent,	Appendix 2.2.8
*p*H *(10% aqueous solution):*	6.0 to 7.0,	Appendix 3.3
Total sugar:	Not less than 36.0 per cent,	Appendix.5.1.3.2

Other requirements:

Microbial limits:	Appendix 2.4
Aflatoxin:	Appendix 2.7

Storage: Store in a cool place in tightly closed container, protect from light and moisture.

Therapeutic uses: Aruci (tastelessness) Atisāra (diarrhoea); Grahaṇī (malabsorption syndrome); Pravāhikā (dysentery); Kāsa (cough); Śvāsa (dyspnoea/asthma); Vātaśleṣma Pratiśyāya (rhinitis due to Vāta Doṣa and Śleṣma Doṣa).

Dose: 2-5 g in divided doses.

Anupāna: Honey, Water, Takra (Butter milk).

NĀRASIṂHA CŪRṆA

(AFI, Part-I, 7:18)

Definition:

Nārasiṃha Cūrṇa is an electuary prepared with the ingredients in the Formulation composition given below.

Formulation composition:

1.	Śatāvarī Raja (Śatāvarī API)	*Asparagus racemosus*	Rt. Tr.	768 g
2.	Gokṣura API	*Tribulus terrestris*	Fr.	768 g
3.	Vārāhī API	*Dioscorea bulbifera*	Rz.	960 g
4.	Guḍūcī API	*Tinospora cordifolia*	St.	1.200 kg
5.	Bhallātaka API (Śuddha)	*Semecarpus anacardium*	Fr.	1.536 kg
6.	Citraka API	*Plumbago zeylanica*	Rt.	480 g
7.	Tila API	*Sesamum indicum*	Sd.	768 g
8.	Śuṇṭhī API	*Zingiber officinale*	Rz.	128 g
9.	Marica API	*Piper nigrum*	Fr.	128 g
10.	Pippalī API	*Piper longum*	Fr.	128 g
11.	Śarkarā API	Cane sugar		3.360 kg
12.	Mākṣika (Madhu API)	Honey		1.680 kg
13.	Ghṛta (Goghṛta API)	Clarified butter from cow's milk		840 g
14.	Vidārīkanda Raja (Vidārī API)	*Pueraria tuberose*	Rt. Tr.	768 g

Methods of preparation:

Take all ingredients of pharmacopoeial quality.

Treat *Bhallātaka* to prepare *Bhallātaka Śuddha* (Appendix 6.2.7.7).

Wash and dry the ingredients numbered 1 to 4, 6 to 10 and 14, powder individually in a pulverizer. The powders should completely pass through sieve number 44 and not less than 50 per cent through sieve number 85. Weigh separately each ingredient, mix together and pass through sieve number 44 to obtain a homogenous blend. Add *Madhu* and *Ghṛta* to the mixture and mix thoroughly till it spreads evenly to give a moist granular powder.

Store the *Cūrṇa* in a ceramic jar smeared with ghee in its inner surface.

Description:

Brown-coloured, moist, granular powder, slightly pungent to taste with the characteristic smell of *Bhallātaka*

Identification:

Thin Layer Chromatography:

Extract 4 g of formulation with 25 ml *alcohol* under reflux on a water bath for 30 min, filter and concentrate the extract to 10 ml and carry out the thin layer chromatography. Apply 10 µl on TLC plate and develop the plate to a distance of 8 cm using *toluene: ethyl acetate: formic acid* (5 : 1.5 : 0.5) as mobile phase. After development, allow the plate to dry in air and examine under ultraviolet light. It shows major spots at R_f 0.33, 0.55, 0.60, 0.73 (all green), 0.78 (light green), 0.85 (green), 0.93 (greenish blue) under 254 nm; and 0.23, 0.33 (both pink), 0.53 (pale blue), 0.60 (light violet), 0.70 (pale blue), 0.80 (light pink), 0.85 (violet) under 366nm. Spray the plate with *vanillin-sulphuric acid reagent* followed by heating at 105^0 for about 10 min. It shows major spots at R_f 0.33 (brown), 0.48 (light blue), 0.68 (light blue), 0.78 (bluish brown) in visible light.

Physico-chemical parameters:

Loss on drying at 105^0:	Not more than 9 per cent,	Appendix 2.2.10
Total ash:	Not more than 4.0 per cent,	Appendix 2.2.3

Acid-insoluble ash:	Not more than 1.2 per cent,	Appendix 2.2.4
Alcohol-soluble extractive:	Not less than 28 per cent,	Appendix 2.2.7
Water-soluble extractive:	Not less than 34 per cent,	Appendix 2.2.8
*p*H *(10 % aqueous solution):*	5.0 to 5.4,	Appendix 3.3.
Total sugar:	Not less than 5 per cent,	Appendix 5.1.3.1
Reducing sugar:	Not less than 5 per cent,	Appendix 5.1.3.1

Other requirements:

Microbial limits:	Appendix 2.4
Aflatoxins:	Appendix 2.7

Storage:

Store the *Cūrṇa* in a ceramic jar smeared with ghee on its inner surface and protect from light and moisture.

Therapeutic uses: Kāsa (cough); Kṣaya (pthisis); Śukra Kṣaya (deficiency of semen); Jarā (senility); Rujā (pain); Valī (wrinkles in the skin); Palita (graying of hair); Khālitya (alopecia); Meha (excessive flow of urine); Pāṇḍu (anaemia); Āḍhyavāta (gout); Pīnasa (chronic rhinitis); Kuṣṭha (diseases of skin); Udara (disease of abdomen); Bhagandara (fistula-in-ano); Mūtrakṛcchra (dysuria); Gṛdhrasī (sciatica); Halīmaka (chronic obstructive jaundice); Vātavikāra (discorder due to Vāta doṣa); Pittavikāra (disorder of pitta doṣa); Arśa (piles); Śleṣmavikāra (disorder due to kapha doṣa).

Dose: 2-5 g in divided doses.

Anupāna: Milk, Ghee, Honey.

GHṚTA

General Description:

Ghṛtas are preparations in which the *Ghṛta* is boiled with prescribed liquid [*Svarasa* / *Kaṣāya* etc.] and fine paste [*Kalka*] of the drugs specified in the formulation composition. Unless specified otherwise *Ghṛta* means *Go Ghṛta.*

General Method of Preparation:

1. There are usually three essential components in the manufacture of *Ghṛta Kalpanā.*
   a. *Drava* [Any liquid medium as prescribed in the composition]
   b. *Kalka* [Fine paste of the specified drugs]
   c. *Sneha Dravya* [Fatty media - *Ghṛta*]
      and occasionally.
   d. *Gandha Dravya* [Perfuming agents]

2. Unless otherwise specified in the verse, if *Kalka* is one part by weight, *Ghṛta* should be four parts and the *Drava Dravya* should be sixteen parts.

3. There are a few exceptions for the above general rule:

   a. Where *Drava Dravya* is either *Kvātha* or *Svarasa*, the ratio of *Kalka* should be one-sixth and one-eighth respectively to that of *Ghṛta.*
      If the *Drava Dravya* is either *Kṣīra* or *Dadhi* or *Māṃsa Rasa* or *Takra,* the ratio of *Kalka* should be one-eighth to that of *Ghṛta.*
   b. When flowers are advised for use as *Kalka,* it should be one-eighth to that of *Ghṛta.*
   c. Where the numbers of *Drava Dravya* are four or less than four, the total quantity should be four times to that of *Ghṛta.*

d. Where the number of *Drava Dravyas* is more than four, each *Drava* should be equal to that of *Ghṛta.*

e. If, *Kalka Drava* is not prescribed in a formulation, the drugs specified for the *Drava Dravya (Kvātha or Svarasa)* should be used for the preparation of *Kalka.*

f. Where no *Drava Dravya* is prescribed in a formulation, four parts of water should be added to one part of *Ghṛta.*

4. In general, the *Ghṛta* should be subjected to *Mūrcchana* process, followed by addition of increments of *Kalka* and *Drava-Dravya* in specified ratio. The contents are to be stirred continuously through out the process in order to avoid charring.

5. The process of boiling is to be continued till the whole amount of moisture gets evaporated and characteristic features of *Ghṛta* appear.

6. The whole process of *Pāka* should be carried out on a mild to moderate flame.

7. Three stages of *Pāka* are specified for therapeutic purposes.

   a. *Mṛdu Pāka*: In this stage, the *Kalka* looks waxy and when rolled between fingers, it rolls like lac without sticking. The *Ghṛta* obtained at this stage is used for *Nasya* [Nasal instillation].

   b. *Madhyama Pāka*: In this stage, the *Kalka* becomes harder and rolls into *Varti.* It burns without crackling sounds when exposed to fire and *Phena* [froth] will disappear in *Ghṛta.* The *Ghṛta* obtained at this stage is used for *Pāna* [Internal administration] and *Vasti* [Enema].

   c. *Khara Pāka:* Further heating of the *Ghṛta*, leads to *Khara Pāka. Kalka* becomes brittle when rolled between fingers. The *Ghṛta* obtained at this stage is used only for *Abhyaṅga* [External application].

8. The period of *Pāka* depends upon the nature of liquid media used in the process.

a.	*Takra* or *Āranāla*	5 Nights
b.	*Svarasa*	3 Nights
c.	*Kṣīra*	2 Nights

9. *Pātra Pāka:* It is the process by which the *Ghṛta* is augmented or flavored by certain prescribed substances. The powdered drugs are suspended in a vessel containing warm, filtered *Ghṛta.*

The medicated *Ghṛta* will have the odour, colour and taste of the drugs used in the process. If a considerable amount of milk is used in the preparation, the *Ghṛta* will become thick and may solidify in cold seasons.

*Ghṛtas a*re preserved in good quality of glass, steel or polythene containers. These medicated preparations retain the therapeutic efficacy for sixteen months.

DĀḌIMĀDI GHṚTA - A

(AFI, Part-I, 6:19)

Definition:

Dāḍimādi Ghṛta is a medicated preparation made with the ingredients in the Formulation composition given below with Ghṛta as the basic ingredient.

Formulation Composition:

1.	Dāḍima API	*Punica granatum*	Dr. Sd.	192 g
2.	Dhānya (Dhānyaka API)	*Coriandrum sativam*	Fr.	96 g
3.	Citraka API	*Plumbago zeylanica*	Rt.	48 g
4.	Śṛṅgavera (Śuṇṭhī API)	*Zingiber officinale*	Rz.	48 g
5.	Pippalī API	*Piper nigrum*	Fr.	24 g
6.	Ghṛta (Goghṛta API)	Clarified butter from cow's milk		960 g
7.	Jala	Water		3.072 l

Method of Preparation:

Take all ingredients of pharmacopoeial quality.

Wash, clean, dry the ingredients numbered 2 to 5 of the formulation composition, powder separately and pass through sieve number 85 (*Kalka Dravyas*).

Transfer the *Kalka Dravyas* to the wet grinder and grind with sufficient quantity of water to prepare homogeneous blend (*Kalka*).

Clean *Dāḍima* seeds and crush to prepare a paste.

Take *Ghṛta* in a stainless steel vessel and heat mildly to remove moisture if any.

Add increments of *Kalka* and *Dāḍima* paste. Stir thoroughly while adding water.

Heat for 3 h with constant stirring maintaining the temperature between 50^0 and 90^0 during the first hour of heating. Stop heating and allow to stand overnight.

Start the heating next day and observe the boiling mixture for subsidence of froth *(Phenaśānti)* and constantly check the *Kalka* for formation of *Varti (Madhyama Pāka Lakṣaṇa).*

Expose the *Varti* to flame and confirm the absence of crackling sound indicating absence of moisture. Stop heating when the *Kalka* forms a *Varti* and the froth subsides. Filter while hot (about 80^0) through a *muslin cloth* and allow to cool.

Pack it in tightly closed glass containers to protect from light and moisture.

Description:

A green-coloured, soft, low melting medicated fat, unctuous to touch with pleasant sweetish odour and ghee like taste

Identification:

Thin layer chromatography:

Extract 25 ml of formulation with *methanol* (25 ml x 3) under reflux on a water bath, filter and concentrate the extract to 10 ml and carry out the thin layer chromatography. Apply 10 µl of the extract on TLC plate and develop the plate to a distance of 8 cm using *toluene: diethyl ether* (1 : 1) as mobile phase. After development, allow the plate to dry in air. Spray the plate with *anisaldehyde-sulphuric acid reagent* followed by heating at 105^0 for about 10 min. It shows major spots under ultraviolet light (366 nm) at R_f 0.28 (blue), 0.35 (green), 0.48 (blue), 0.57 (violet), 0.63 (pink); and major spots at R_f 0.14 (light pink); 0.37 (grey), 0.48 (blue), 0.50 (violet), 0.63 (purple) in visible light.

Physicochemical parameters:

Refractive index at 40^0:	1.470 to1.468,	Appendix -3.1
Specific gravity at 40^0:	0.959-0.969,	Appendix -3.1.
Acid value:	Not more than 0.9,	Appendix -3.12
Saponification value:	236 to 242,	Appendix - 3.10
Iodine value:	69 to 70,	Appendix -3.11

Peroxide value:	Not more than 6.5,	Appendix - 3.13
Congealing point:	28^0 to18^0,	Appendix - 3.4.2

Other requirements:

Mineral oil:	Absent,	Appendix -3.15
Microbial limits:		Appendix -2.4
Aflatoxins:		Appendix- 2.7

Storage: Store in a cool place in tightly closed container, protect from light and moisture.

Therapeutic uses: Pāṇḍu (anemia); Gulma (abdominal lump); Plīharoga (splenic disease); Hṛdroga (heart disease); Arśa (piles); Pariṇāmaśūla (duodenal ulcer); Garbhiṇī Roga (diseases during pregnancy); Vāta-Kapha Roga (disease due to Vāta Doṣa and Kapha Doṣa); Agnimāndya (digestive impairment); Śvāsa (asthma); Kāsa (cough); Mūḍhavāta (obstructed movement of Vāta Doṣa); Vandhyatva (infertility); Duḥkha Prasava (difficult labour).

Dose: 6 to 12 gm twice a day

Anupāna: Warm water

DĀḌIMĀDI GHṚTA-B

(AFI, Part-I, 87, 6:19)

Definition:

Dāḍimādi Ghṛta is a medicated preparation made with the ingredients in the Formulation composition given below, with Mūrcchita Ghṛta as the basic ingredient.

Formulation Composition:

1. Dāḍima API	*Punica granatum*	Dr. Sd.	192 g
2. Dhānya (Dhānyaka API)	*Coriandrum sativam*	Fr.	96 g
3. Citraka API	*Plumabago zeylanica*	Rt.	48 g
4. Śṛṅgavera (Śuṇṭhī API)	*Zingiber officinale*	Rz.	48 g
5. Pippalī API	*Piper longum*	Fr.	24 g
6. Mūrcchita Ghṛta (Goghṛta API)	Clarified butter from Cow's milk		960 g
7. Jala	Water		3.072 l

Method of Preparation:

Take all ingredients of pharmacopoeial quality.

Treat *Ghṛta* to prepare *Mūrcchita Ghṛta* (Appendix 6.2.8.2)

Wash, clean, dry the ingredients numbered 2 to 5 of the formulation composition powder separately and pass through sieve number 85 (*Kalka Dravyas*).

Transfer the *Kalka Dravyas* to the wet grinder and grind with sufficient quantity of water to prepare homogeneous blend (*Kalka*).

Clean *Dāḍima* seeds and crush to prepare a paste.

Take *Ghṛta* in a stainless steel vessel and heat mildly.

Add increments of *Kalka* and *Dāḍima* paste. Stir thoroughly while adding water.

Heat for 3 h with constant stirring maintaining the temperature between 50^0 and 90^0 during the first hour of heating. Stop heating and allow to stand overnight.

Start the heating next day and observe the boiling mixture for subsidence of froth *(Phenaśānti)* and constantly check the *Kalka* for formation of *Varti (Madhyamapāka Lakṣaṇa).*

Expose the *Varti* to flame and confirm the absence of crackling sound indicating absence of moisture. Stop heating when the *Kalka* forms a *Varti* and the froth subsides. Filter while hot (about 80^0) through a *muslin cloth* and allow to cool.

Pack it in tightly closed glass containers to protect from light and moisture.

Description:

A green-coloured, soft, low melting medicated fat, unctuous to touch with pleasant sweetish odour and bitter taste

Identification:

Thin layer chromatography:

Extract 25 ml of formulation with 25 ml *methanol* under reflux on a water bath, filter and concentrate the extract to 10 ml and carry out the thin layer chromatography.

Apply 10 µl of the extract on a TLC plate and develop the plate to a distance of 8 cm using *toluene: diethyl ether* (1 : 1) as mobile phase. After development, allow the plate to dry in air. Spray the plate with *anisaldehyde-sulphuric acid reagent* followed by heating at 105^0 for about 10 min. It shows major spots at R_f 0.33 (yellow), 0.50 (blue), 0.61 (pink), 0.74 (pink), 0.78 (pink) and 0.88 (pink) under ultraviolet light (366 nm); and major spots at R_f 0.35 (brown), 0.51 (violet), 0.63 (purple) and 0.7 (yellow) in visible light.

Physicochemical parameters:

Refractive index at 40^0:	1.468 to 1.470,	Appendix 3.1
Specific gravity at 40^0:	0.955 to 0.969,	Appendix 3.1
Acid value:	Not more than 0.33,	Appendix 3.12
Saponification value:	236 to 242,	Appendix 3.10

Iodine value:	70 to 90,	Appendix 3.11
Peroxide value:	Not more than 6.5,	Appendix 3.13
Congealing point:	28^0 to18^0,	Appendix 3.4.2

Other requirements:

Mineral oil:	Absent,	Appendix 3.15
Microbial limits:		Appendix 2.4
Aflatoxins:		Appendix 2.7

Storage: Store in a cool place in tightly closed container, protect from light and moisture.

Therapeutic uses: Pāṇḍu (anemia); Gulma (abdominal lump); Plīharoga (splenic disease); Hṛdroga (heart disease); Arśa (piles); Pariṇāmaśūla (duodenal ulcer); Garbhiṇī Roga (disease during pregnancy); Vāta-Kapha Roga (disease due to Vāta Doṣa and Kapha Doṣa); Agnimāndya (digestive impairment); Śvāsa (asthma); Kāsa (cough); Mūḍhavāta (obstructed movement of Vāta Doṣa); Vandhyatva (infertility); Duḥkhaprasava (difficult labour).

Dose: 6 to 12 gm twice a day

Anupāna: warm water.

INDUKĀNTA GHṚTA - A

(AFI, Part-I, 6 : 5)

Definition:

Indukānta Ghṛta is a medicated preparation made with the ingredients in Formulation composition given below, with Ghṛta as basic ingredient.

Formulation Composition:

1.	Pūtīka (Cirabilva API)	*Holoptelea integrifolia*	St. Bk.	256 g
2.	Dāru (Devadāru API)	*Cedrus deodara*	Ht. Wd.	256 g
3.	Bilva API	*Aegle marmelos*	St. Bk.	25.6 g
4.	Agnimantha API	*Premna integrifolia*	St. Bk.	25.6 g
5.	Śyonāka API	*Oroxylum indicum*	St. Bk.	25.6 g
6.	Gambhārī API	*Gmelina arborea*	St. Bk.	25.6 g
7.	Pāṭalā API	*Stereospermum suveolance*	St. Bk.	25.6 g
8.	Śālaparṇī API	*Desmodium gangeticum*	Pl.	25.6 g
9.	Pṛśniparṇī API	*Uraria picta*	Pl.	25.6 g
10.	Bṛhatī API	*Solanum indicum*	Pl.	25.6 g
11.	Kaṇṭakārī API	*Solanum xanthocarpum*	Pl.	25.6 g
12.	Gokṣura API	*Tribulus terrestris*	Pl.	25.6 g
13.	Jala for decoction	Water		12.288 l
	reduced to			3.072 l
14.	Kṣīra (Gokṣīra API)	Cow milk		768 ml
15.	Ghṛta (Goghṛta API)	Clarified butter from Cow's milk		768 g
16.	Pippalī API	*Piper longum*	Fr.	48 g
17.	Pippalīmūla (Pippalī API)	*Piper longum*	Rt.	48 g
18.	Cavya API	*Piper chaba*	St.	48 g
19.	Citraka API	*Plumbago zeylanica*	Rt.	48 g
20.	Śuṇṭhī API	*Zingiber officinale*	Rz.	48 g

21.	Yavakṣāra (Yava API)	*Hordeum vulgare*	Water soluble ash of Pl.	48 g

Method of Preparation:

Take all ingredients of pharmacopoeial quality.

Wash, clean and dry the ingredients numbered 1 to 12 of the formulation composition, powder separately and pass through sieve number 44 *(Kvātha Dravya).*

Wash, clean, dry the ingredients numbered 16 to 21 of the formulation composition, powder separately and pass through sieve number 85 (*Kalka Dravyas*).

Add water for decoction to the *Kvātha Dravyas* and soak for four hours, heat and reduce the volume to one-fourth. Filter with *muslin cloth* to obtain *Kvātha.*

Transfer the *Kalka Dravyas* to the wet grinder and grind with sufficient quantity of water to prepare homogeneous blend.

Take *Ghṛta* in a stainless steel vessel and heat mildly to remove moisture if any.

Add increments of *Kalka.* Stir thoroughly while adding *Kvātha* and *Godugdha.*

Heat for 3 h with constant stirring maintaining the temperature between 50^0 and 90^0 during the first hour of heating. Stop heating and allow to stand overnight.

Start the heating next day and observe the boiling mixture for subsidence of froth *(Phenaśānti)* and constantly check the *Kalka* for formation of *Varti (Madhyamapāka Lakṣaṇa).*

Expose the *Varti* to flame and confirm the absence of crackling sound indicating absence of moisture. Stop heating when the *Kalka* forms a *Varti* and the froth subsides. Filter while hot (about 80^0) through a *muslin cloth* and allow to cool.

Pack it in tightly closed glass containers to protect from light and moisture.

Description:

A green-coloured, soft, low melting medicated fat, unctuous to touch with bitter odour and slightly bitter taste

Identification:

Thin layer chromatography:

Extract 25 ml of formulation with 25 ml *methanol* under reflux on a water bath, filter and concentrate the extract to 10 ml and carry out the thin layer chromatography.

Apply 10 µl of the extract on TLC plate and develop the plate to a distance of 8 cm using *toluene: diethyl ether* (1 : 1) as mobile phase. After development, allow the plate to dry in air and examine under ultraviolet light. It shows major spots at R_f 0.11, 0.44, 0.52 under 254 nm; and fluorescent spots at R_f 0.11 (pink), 0.16, 0.18, 0.24, 0.30, 0.39, 0.48 and 0.65 (all blue) under 366 nm. Spray the plate with *anisaldehyde-sulphuric acid reagent* followed by heating at 105^0 for about 10 min. It shows major spots at R_f 0.12, 0.20 (both grey); 0.23 (blue), 0.30 (green), 0.37, 0.45, 0.53, 0.65 and 0.71 (all blue) under ultraviolet light (366 nm); and major spots at R_f 0.12 (purple), 0.20 (yellow), 0.32, 0.38, 0.53, 0.65 (all blue) in visible light.

Physico-chemical parameters:

Refractive index at 40^0:	1.469 to1.473,	Appendix 3.1
Specific gravity at 40^0:	0.957 to 0.962,	Appendix 3.1.
Acid value:	Not more than 1.53,	Appendix 3.12
Saponification value:	229 to 231,	Appendix 3.10
Iodine value:	85 to 90,	Appendix 3.11
Peroxide value:	Not more than 11.0,	Appendix 3.13
Congealing point:	28^0 to18^0,	Appendix 3.4.2

Other requirements:

Mineral oil:	Absent,	Appendix 3.15
Microbial limits:		Appendix 2.4
Aflatoxins:		Appendix 2.7

Storage: Store in a cool place in tightly closed container, protect from light and moisture.

Therapeutic uses: Śūla (pain/colic); Gulma (abdominal lump); Udara (disease of abdomen); Viṣamajvara (intermittent fever); Vāta Roga (disease due to Vāta Doṣa); Kṣaya (pthisis); Daurbalya (weakness).

Dose: 6 to 12 gm twice a day

Anupāna: warm milk, warm water, Guḍūcī Svarasa.

INDUKĀNTA GHṚTA - B

(AFI, Part-I, 6:5)

Definition:

Indukānta Ghṛta is a medicated preparation made with the ingredients in Formulation composition given below, with Mūrcchita Ghṛta as the main basic ingredient.

Formulation Composition:

1.	Pūtīka (Cirabilva API)	*Holoptelea integrifolia*	St. Bk.	256 g
2.	Dāru (Devadāru API)	*Cedrus deodara*	Ht. Wd.	256 g
3.	Bilva API	*Aegle marmelos*	St. Bk.	25.6 g
4.	Agnimantha API	*Premna integrifolia*	St. Bk.	25.6 g
5.	Śyonāka API	*Oroxylum indicum*	St. Bk.	25.6 g
6.	Gambhārī API	*Gmelina arborea*	St. Bk.	25.6 g
7.	Pāṭalā API	*Stereospermum suaveolance*	St. Bk.	25.6 g
8.	Śālaparṇī API	*Desmodium gangeticum*	Pl.	25.6 g
9.	Pṛśniparṇī API	*Uraria picta*	Pl.	25.6 g
10.	Bṛhatī API	*Solanum indicum*	Pl.	25.6 g
11.	Kaṇṭakārī API	*Solanum xanthocarpum*	Pl.	25.6 g
12.	Gokṣura API	*Tribulus terrestris*	Pl.	25.6 g
13.	Jala for decoction	Water		12.288 l
	reduce to			3.072 l
14.	Kṣīra (Gokṣīra API)	Cow's milk		768 ml
15.	Ghṛta (Goghṛta API)	Clarified butter from Cow's milk		768 g
16.	Pippalī API	*Piper longum*	Fr.	48 g
17.	Pippalīmūla (Pippalī API)	*Piper longum*	Rt.	48 g
18.	Cavya API	*Piper chaba*	St.	48 g

19.	Citraka API	*Plumbago zeylanica*	Rt.	48 g
20.	Śuṇṭhī API	*Zingiber officinale*	Rz.	48 g
21.	Yavakṣāra (Yava API)	*Hordeum vulgare*	Water soluble ash of Pl.	48 g

Method of Preparation:

Take all ingredients of pharmacopoeial quality.

Treat *Ghṛta* to prepare *Mūrcchita Ghṛta* (Appendix 6.2.8.2).

Wash, clean and dry the ingredients numbered 1 to 12 of the formulation composition, powder separately and pass through sieve number 44 *(Kvātha Dravya).*

Wash, clean, dry the ingredients numbered 16 to 21 of the formulation composition powder separately and pass through sieve number 85 (*Kalka Dravyas*).

Add water for decoction to the *Kvātha Dravya* and soak for four hours, heat and reduce the volume to one-fourth. Filter with *muslin cloth* to obtain *Kvātha.*

Transfer the *Kalka Dravyas* to the wet grinder and grind with sufficient quantity of water to prepare homogeneous blend.

Take *Ghṛta* in a stainless steel vessel and heat mildly.

Add increments of *Kalka.* Stir thoroughly while adding *Kvātha* and *Godugdha.*

Heat for 3 h with constant stirring maintaining the temperature between 50^0 and 90^0 during the first hour of heating. Stop heating and allow to stand overnight.

Start the heating next day and observe the boiling mixture for subsidence of froth *(Phenaśānti)* and constantly check the *Kalka* for formation of *Varti (Madhyamapāka Lakṣaṇa).*

Expose the *varti* to flame and confirm the absence of crackling sound indicating absence of moisture. Stop heating when the *Kalka* forms a *Varti* and the froth subsides. Filter while hot (about 80^0) through a *muslin cloth* and allow to cool.

Pack it in tightly closed glass containers to protect from light and moisture.

Description:

A green-coloured, soft, low melting medicated fat, unctuous to touch, slightly pungent odour and slightly bitter taste

Identification:

Thin layer chromatography:

Extract 25 ml of formulation with 25 ml *methanol* under reflux on a water bath, filter and concentrate the extract to 10 ml and carry out the thin layer chromatography. Apply 10 µl on TLC plate and develop the plate to a distance of 8 cm using *toluene: diethyl ether* (1 : 1) as mobile phase. After development, allow the plate to dry in air and examine under ultraviolet light. It shows major spots at R_f 0.11, 0.22, 0.24, 0.34, 0.39, 0.54, 0.88 under 254 nm; and fluorescent spots at R_f 0.11 (brown), 0.16, 0.24 (both blue), 0.35 (yellow), 0.48 and 0.65 (both blue) under 366 nm. Spray the plate with *anisaldehyde-sulphuric acid reagent* followed by heating at 105^0 for about 10 min. It shows major spots at R_f 0.12, 0.20 (both grey), 0.23 (blue), 0.30 (green), 0.37, 0.45, 0.53, 0.65, 0.71 (all blue) and 0.88 (brown) under ultraviolet light (366 nm); and major spots at R_f 0.12 (purple); 0.20 (yellow), 0.32 (brown), 0.38, 0.53, 0.65 (all blue) in visible light.

Physico-chemical parameters:

Refractive index at 40^0:	1.468 to 1.473,	Appendix 3.1
Specific gravity at 40^0:	0.952 to 0.962,	Appendix 3.1.
Acid value:	Not more than 1.44,	Appendix 3.12
Saponification value:	229 to 231,	Appendix 3.10
Iodine value:	85 to 92,	Appendix 3.11
Peroxide value:	Not more than 11.0,	Appendix 3.13
Congealing point:	28^0 to18^0,	Appendix 3.4.2

Other requirements:

Mineral oil:	Absent,	Appendix 3.15
Microbial limits:		Appendix 2.4
Aflatoxins:		Appendix 2.7

Storage: Store in a cool place in tightly closed container, protect from light and moisture.

Therapeutic uses: Śūla (pain/colic); Gulma (abdominal lump); Udara (disease of abdomen); Viṣamajvara (intermittent fever); Vāta Roga (disease due to Vāta Doṣa); Kṣaya (pthisis); Daurbalya (weakness).

Dose: 6 to 12 gm twice a day

Anupāna: warm milk, warm water, Guḍūcī Svarasa

MAHĀTRIPHALĀDYA GHṚTA

(AFI, Part- I, 6:35)

Definition:

Mahātriphalādya Ghṛta is a medicated semisolid preparation made with the ingredients in the Formulation composition given below, with Ghṛta as the basic ingredient.

Formulation composition:

1.	Triphalā Rasa (Triphalā API) -Kvātha			768 ml
	Terminalia belerica		P.	
	Terminalia chebula		P.	
	Emblica officinalis		P.	
2.	Bhṛṅga Rasa (Bhṛṅgarāja API)	*Eclipta alba*	Pl.	768 ml
3.	Vṛṣa Rasa (Vāsā API)	*Adhatoda vasica*	Lf.	768 ml
4.	Śatāvarī Rasa (Śatāvarī API)	*Asparagus racemosus*	Rt. Tr.	768 ml
5.	Ajā Kṣīra API	Goat Milk		768 ml
6.	Guḍūcī Rasa (Guḍūcī API)	*Tinospora cordifolia*	St.	768 ml
7.	Āmalakī Rasa (Āmalakī API)	*Emblica officinalis*	P.	768 ml
8.	Kaṇā (Pippalī API)	*Piper longum*	Fr.	8.72 g
9.	Sitā API	Sugar candy		8.72 g
10.	Drākṣā API	*Vitis vinifera*	Dr. Fr.	8.72 g
11.	Harītakī API	*Terminalia chebula*	P.	8.72 g
12.	Bibhītaka API	*Terminalia belerica*	P.	8.72 g
13.	Āmalakī API	*Emblica officinalis*	P.	8.72 g
14.	Nīlotpala (Utpala API)	*Nymphaea stellata*	Fl.	8.72 g
15.	Madhuka (Yaṣṭī API)	*Glycyrrhiza glabra*	Rt.	8.72 g
16.	Kṣīrakākolī API	*Fritillaria roylei*	Sub. Rt.	8.72 g
17.	Mudhuparṇī (Guḍūcī API)	*Tinospora cordifolia*	St.	8.72 g
18.	Nidigdhikā (Kaṇṭakārī API)	*Solanum xanthocarpum*	Pl.	8.72 g

19.	Ghṛta (Goghṛta API)	Clarified butter from Cow's milk	768 g

Method of preparation:

Take all ingredients of pharmacopoeial quality.

Take fresh *Bhṛṅgarāja, Śatāvarī, Guḍūcī* and *Āmalakī* and wash thoroughly with water. Grind and filter with *muslin cloth* to obtain *Svarasa.*

Take fresh *Vāsā* leaves and obtain juice by *Puṭapāka* method (Appendix 6.1.4.)

Soak the coarse *Triphalā* powder in potable water in the specified ratio for overnight, boil it till the volume is reduced to one fourth of its original volume, cool the *Kvātha* and filtered through muslin cloth. (Appendix 6.1.2.)

Treat *Ghṛta* to prepare *Mūrcchita Ghṛta* (Appendix 6.2.8.2.).

Wash, dry the ingredients number 8 to 18 of the formulation composition, powder separately and pass through sieve number 85. Transfer the powdered ingredients to the wet grinder and grind with sufficient quantity of water to prepare a homogenous blend (*Kalka Dravya*).

Take *Mūrcchita Ghṛta* in a stainless steel vessel and heat to make it moisture free.

Add increments of *Kalka*, stir thoroughly while adding *Triphalā Kvātha, Bhṛṅgarāja, Śatāvarī, Guḍūcī, Āmalakī and Vāsā Svarasa* in the specified ratio.

Heat with constant stirring maintaining the temperature between 50^0 and 90^0 during the first hour of heating. Stop heating and allow to stand overnight.

Start the heating next day and observe the boiling mixture for subsidence of froth (*Phenaśānti*) and constantly check the *Kalka* for the formation of *Varti* (*Madhyamapāka Lakṣaṇa*).

Expose the *Ghṛta* and *Varti* to flame and confirm the absence of crackling sound indicating absence of moisture.

Stop heating when the *Kalka* forms a *Varti* and the froth subsides.

Filter while hot (about 80^0) through a *muslin cloth* and allow to cool.

Pack it in tightly closed glass containers to protect from light and moisture.

Description:

A low melting *Ghṛta*, greenish cream in colour, unctuous to touch, no specific odour and taste bitter.

Identification:

Thin layer chromatography:

Extract 5 g of the formulation with 25 ml n-*hexane* under reflux on a water bath for 30 min, filter and concentrate the extracts to 10 ml and carry out the thin-layer chromatography. Apply 10 µl on TLC plate and develop the plate to a distance of 8 cm using n-*hexane: ethyl acetate* (8.5 : 1.5) as mobile phase. After development, allow the plate to dry in air. Spray the plate with *anisaldehyde-sulphuric acid reagent* followed by heating at 105^0 for about 10 min. It shows major spots at R_f 0.31 (purple), 0.34 (pink), 0.41, 0.65 (both blue), 0.78 (greyish blue) and 0.92 (blue) in visible light.

Physico-chemical parameters:

Refractive index at 40^0:	1.4531 to 1.4534,	Appendix 3.1
Saponification value:	0.2100 to 0.2147,	Appendix 3.10
Acid value:	Not more than 2.9,	Appendix 3.12
Peroxide value:	Not more than 15.8,	Appendix 3.13

Other requirements:

Mineral oil:	Absent,	Appendix 3.15
Microbial Limits:		Appendix 2.4
Aflatoxins:		Appendix 2.7

Storage: Store in a cool place in tightly closed container, protect from light and moisture.

Therapeutic uses: Naktāndhya (night blindness); Timira (cataract); Kāca (cataract); Nīlikā (mole); Paṭala Arbuda (growth in the layers of eyes); Netrābhiṣyanda (conjunctivitis); Adhimantha (glaucoma);

Pakṣmakopa (trichiasis/entropion); Netraroga (disease of eyes); Adṛṣṭi (blindness); Mandadṛṣṭi (diminished vision); Netrasrāva (chronic dacrocystitis/epiphora); Netrakaṇḍū (itching in eyes); Dūradṛṣṭi (hypermetropia); Samīpadṛṣṭi (myopia).

Dose: 6 to 12 gm twice a day

Anupāna: Warm milk, warm water.

TIKTAKA GHṚTA - A

(AFI, Part I, 6:13)

Definition:

Tiktaka Ghṛta is a Ghṛta prepation made with the ingredients in the Formulation composition given below with Ghṛta as the basic ingredient.

Formulation Composition:

1.	Paṭola API	*Tricosanthes dioica*	Pl.	48 g
2.	Nimba API	*Azadirachta indica*	St. Bk.	48 g
3.	Kaṭukā API	*Picrorhiza kurroa*		48 g
4.	Dārvī (Dāruharidrā API)	*Berberis aristata*	St.	48 g
5.	Pāṭhā API	*Cissampelos pareira*	Rt.	48 g
6.	Durālabhā (Dhanvayāsa API)	*Fagonia cretica*	Pl.	48 g
7.	Parpaṭa API	*Fumaria parviflora*	Pl.	48 g
8.	Trāyamāṇā API	*Gentiana kurroo*	Pl.	48 g
9.	Jala for decoction reduced to	Water		6.144 l 768 ml
10.	Trāyantī (Trāyamāṇā API)	*Gentiana kurroo*	Pl.	12 g
11.	Musta (Mustā API)	*Cyperus rotundus*	Rz.	12 g
12.	Bhūnimba (Kirātatikta API)	*Swerita chirata*	Pl.	12 g
13.	Kaliṅga (Indrayava API)	*Holarrhena antidysenterica*	Sd.	12 g
14.	Kaṇā (Pippalī API)	*Piper longum*	Fr.	12 g
15.	Candana (Śveta Candana API)	*Santalum album*	Ht. Wd.	12 g
16.	Sarpi (Goghṛta API)	Clarified butter from Cow's milk		576 g

Method of Preparation:

Take all ingredients of pharmacopoeial quality.

Wash, clean and dry the ingredients numbered 1 to 8 of the formulation composition, powder separately and pass through sieve number 44 *(Kvātha Dravyas).*

Wash, clean, dry the ingredients numbered 10 to 15 of the formulation composition powder separately and pass through sieve number 85 (*Kalka Dravyas*).

Add water for decoction to the *Kvātha Dravyas* and soak for four hours, heat and reduce the volume to one-eighth. Filter with *muslin cloth* to obtain *Kvātha.*

Transfer the *Kalka Dravyas* to the wet grinder and grind with sufficient quantity of water to prepare homogeneous blend.

Take *Ghṛta* in a stainless steel vessel and heat mildly to remove moisture if any.

Add increments of *Kalka.* Stir thoroughly while adding *Kvātha.*

Heat for 3 h with constant stirring maintaining the temperature between 50^0 and 90^0 during the first hour of heating. Stop heating and allow to stand overnight.

Start the heating next day and observe the boiling mixture for subsidence of froth *(Phenaśānti)* and constantly check the *Kalka* for formation of *Varti (Madhyamapāka Lakṣaṇa).*

Expose the *varti* to flame and confirm the absence of crackling sound indicating absence of moisture. Stop heating when the *Kalka* forms a *varti* and the froth subsides. Filter while hot (about 80^0) through a *muslin cloth* and allow to cool.

Pack it in tightly closed glass container to protect from light and moisture.

Description:

A light green-coloured, soft, low melting medicated fat, unctuous to touch with specific odour and bitter taste

Identification:

Thin layer chromatography:

Extract 25 ml of formulation with 25 ml *methanol* under reflux on a water bath, filter and concentrate the extract to 10 ml and carry out the thin layer chromatography.

Apply 10 µl on TLC plate and develop the plate to a distance of 8 cm using *toluene: diethyl ether* (1 : 1) as mobile phase. After development, allow the plate to dry in air. Spray the plate with *anisaldehyde-sulphuric acid reagent* followed by heating at 105^0 for about 10 min. It shows major spots at R_f 0.11 (purple), 0.30 (green), 0.38, 0.50 (both blue), 0.65 (pink) and 0.73 (purple) under ultraviolet light (366 nm); and major spots at R_f 0.11 (purple), 0.23 (bluish grey), 0.29 (blue), 0.50 (violet) and 0.66 (purple) in visible light.

Physico-chemical parameters:

Refractive index at 40^0:	1.467 to 1.468,	Appendix 3.1
Specific gravity at 40^0:	0.965 to 0.968,	Appendix 3.1.
Acid value:	Not more than 1.9,	Appendix 3.12
Saponification value:	240 to 255,	Appendix 3.10
Iodine value:	85 to100,	Appendix 3.11
Peroxide value:	Not more than 6.5	Appendix 3.13
Congealing point:	28^0 to18^0,	Appendix 3.4.2

Other requirements:

Mineral oil:	Absent,	Appendix - 3.15
Microbial limits:		Appendix - 2.4
Aflatoxins:		Appendix - 2.7

Storage: Store in a cool place in tightly closed container, protect from light and moisture.

Therapeutic uses: Tṛṣṇā (thirst); Bhrama (vertigo); Dāha (burning sensation); Parīsarpa (erysipelas); Piḍakā (carbuncle); Pittaja Kuṣṭha (diseases of skin due to Pitta Doṣa); Kaṇḍū (itching); Pāṇḍuroga

(anemia); Gaṇḍa (cervical lymphadenitis); Nāḍīvraṇa (sinus); Apacī (chronic lymphadenopathy/scrofula); Visphoṭa (blisterous eruption); Vidradhi (abscess); Gulma (abdominal lump); Śopha (oedema); Unmāda (mania/psychosis); Meda (adipose tissue); Hṛdroga (heart disease); Timira (cataract); Vyaṅga (dark shade on face due to stress and excessive exercise/localized hyper pigmentation of skin); Grahaṇī (malabsorption syndrome); Śvitra (leucoderma/Vitiligo); Kāmalā (jaundice); Bhagandara (fistula-in-ano); Udara (diseases of abdomen); Apasmāra (epilepsy); Pradara (excessive vaginal discharge); Gara (slow/accumulated poison); Arśa (piles); Raktapitta (bleeding disorder).

Dose: 6 to 12 gm twice a day

Anupāna: warm water

TIKTAKA GHṚTA - B

(AFI, Part I, 6:13)

Definition:

Tiktaka Ghṛta is a Ghṛta preparation made with the ingredients in the Formulation composition given below with Mūrcchita Ghṛta as the basic ingredient.

Formulation Composition:

1.	Paṭola API	*Tricosanthes dioica*	Pl.	48 g
2.	Nimba API	*Azadirachta indica*	St. Bk.	48 g
3.	Kaṭukā API	*Picrorhiza kurroa*	Rz.	48 g
4.	Dārvī (Dāruharidrā API)	*Berberis aristata*	St.	48 g
5.	Pāṭhā API	*Cissampelos pareira*	Rt.	48 g
6.	Durālabhā (Dhanvayāsa API)	*Fagonia cretica*	Pl.	48 g
7.	Parpaṭa	*Fumaria parviflora*	Pl.	48 g
8.	Trāyantī (Trāyamāṇā API)	*Gentiana kurroo*	Pl.	48 g
9.	Jala for decoction reduced to	Water		6.144 l 768 ml
10.	Trāyamāṇā API	*Gentiana kurroo*	Pl.	12 g
11.	Musta (Mustā API)	*Cyperus rotundus*	Rz.	12 g
12.	Bhūnimba (Kirātatikta API)	*Swerita chirata*	Pl.	12 g
13.	Kaliṅga (Indrayava API)	*Holarrhena antidysenterica*	Sd.	12 g
14.	Kaṇā (Pippalī API)	*Piper longum*	Fr.	12 g
15.	Candana (Śveta Candana API)	*Santalum album*	Ht. Wd.	12 g
16.	Sarpi (Goghṛta)	Clarified butter from cow's milk		576 g

Method of Preparation:

Take all ingredients of pharmacopoeial quality.

Treat *Ghṛta* to prepare *Mūrcchita Ghṛta* (Appendix 6.2.8.2).

Wash, clean and dry the ingredients numbered 1 to 8 of the formulation composition, powder separately and pass through sieve number 44 *(Kvātha Dravyas).*

Wash, clean, dry the ingredients numbered 10 to 15 of the formulation composition, powder separately and pass through sieve number 85 (*Kalka Dravyas*).

Add water for decoction to the *Kvātha Dravyas* and soak for four hours, heat and reduce the volume to one-eighth. Filter with *muslin cloth* to obtain *Kvātha.*

Transfer the *Kalka Dravyas* to the wet grinder and grind with sufficient quantity of water to prepare homogeneous blend.

Take *Ghṛta* in a stainless steel vessel and heat mildly.

Add increments of *Kalka.* Stir thoroughly while adding *Kvātha.*

Heat for 3 h with constant stirring maintaining the temperature between 50^0 and 90^0 during the first hour of heating. Stop heating and allow to stand overnight.

Start the heating next day and observe the boiling mixture for subsidence of froth *(Phenaśānti)* and constantly check the *Kalka* for formation of *Varti (Madhyamapāka Lakṣaṇa).*

Expose the *Varti* to flame and confirm the absence of crackling sound indicating absence of moisture. Stop heating when the *Kalka* forms a *varti* and the froth subsides. Filter while hot (about 80^0) through a *muslin cloth* and allow to cool.

Pack it in tightly closed glass containers to protect from light and moisture.

Description:

A dark green-coloured, soft, low melting medicated fat, unctuous to touch with slightly characteristic odour and bitter taste

Identification:

Thin layer chromatography:

Extract 25 ml of formulation with 25 ml *methanol* under reflux on a water bath, filter and concentrate the extracts to 10 ml and carry out the thin layer chromatography.

Apply 10 µl of the extract on TLC plate and develop the plate to a distance of 8 cm using *toluene: diethyl ether* (1 : 1) as mobile phase. After development, allow the plate to dry in air. Spray the plate with *anisaldehyde-sulphuric acid reagent* followed by heating at 105^0 for about 10 min. It shows major spots at R_f 0.11 (purple), 0.35 (yellow), 0.48 (blue), 0.64 (pink), 0.73 (purple), 0.77 (pink) under ultraviolet light (366 nm); and major spots at R_f 0.10, 0.37 (both blue), 0.50 (violet), 0.65, 0.76 (both purple) and 0.89 (yellow) in visible light.

Physico-chemical parameters:

Refractive index at 40^0:	1.467 to1.470,	Appendix 3.1
Specific gravity at 40^0:	0.961 to 0.968,	Appendix 3.1.
Acid value:	Not more than 0.56,	Appendix 3.12
Saponification value:	230 to 232,	Appendix 3.10
Iodine value:	86 to 100,	Appendix 3.11
Peroxide value:	Not more than 2.2,	Appendix 3.13
Congealing point:	28^0 to18^0,	Appendix 3.4.2

Other requirements:

Mineral oil:	Absent,	Appendix - 3.15
Microbial limits:		Appendix - 2.4
Aflatoxins:		Appendix - 2.7

Storage: Store in a cool place in tightly closed container, protect from light and moisture.

Therapeutic uses: Tṛṣṇā (thirst); Bhrama (vertigo); Dāha (burning sensation); Parīsarpa (erysipelas); Piḍakā (carbuncle); Pittaja Kuṣṭha (diseases of skin due to Pitta Doṣa); Kaṇḍū (itching); Pāṇḍuroga (anemia); Gaṇḍa (cervical lymphadenitis); Nāḍīvraṇa (sinus); Apacī (chronic

lymphadenopathy/scrofula); Visphoṭa (blisterous eruption); Vidradhi (abscess); Gulma (abdominal lump); Śopha (oedema); Unmāda (mania/ psychosis); Meda (adipose tissue); Hṛdroga (heart disease); Timira (cataract); Vyaṅga (dark shade on face due to stress and excessive exercise/localized hyper pigmentation of skin); Grahaṇī (malabsorption syndrome); Śvitra (leucoderma/vitiligo); Kāmalā (jaundice); Bhagandara (fistula-in-ano); Udara (diseases of abdomen); Apasmāra (epilepsy); Pradara (excessive vaginal discharge); Gara (slow/accumulated poison); Arśa (piles); Raktapitta (bleeding disorder).

Dose: 6 to 12 gm twice a day

Anupāna: Warm water.

GUGGULU

General Description:

Guggulu is an oleoresin *(Niryāsa)* obtained from the plant *Commiphora wightii.* Preparations having the exudates as main effective ingredient are known as *Guggulu.* There are five different varieties of *Guggulu* described in the Ayurvedic texts. However two of the varieties, namely, *Mahiṣākṣa* and *Kanaka Guggulu* are usually preferred for medicinal preparations. *Mahiṣākṣa Guggulu* is dark greenish brown and *Kanaka Guggulu* is yellowish brown in color.

Before using, *Guggulu* is cleaned in the following manner:

1. Sand, stone, plant debris, glass etc. are first removed.
2. It is then broken into small pieces.
3. It is thereafter bundled in a piece of cloth and boiled in *Dolā Yantra* containing any one of the following fluids.
    a. *Gomūtra*,
    b. *Triphalā Kaṣāya,*
    c. *Nirguṇḍīpatra Svarasa* with *Haridrā Cūrṇa,*
    d. *Vāsāpatra Kaṣāya,*
    e. *Vāsāpatra Svarasa* and
    f. *Dugdha.*

The boiling of *Guggulu* in *Dolā Yantra* is carried on until all the *Guggulu* passes into the fluid through the cloth. By pressing with fingers, much of the fluid that can pass through is taken out. The residue in the bundle is discarded. The fluid is filtered and again boiled till it forms a mass. This mass is dried and then pounded with a pestle in a stone mortar, adding ghee in small quantities till it becomes waxy.

Guggulu cleaned as above, is soft, waxy and brown in color. Characteristics of preparations of *Guggulu* vary depending on the other ingredients added to the preparations.

Guggulu is kept in glass or porcelain jars free from moisture and stored in a cool place. The potency is maintained for two years when prepared with ingredients of plant origin and indefinitely when prepared with metals and minerals.

Note: *Guggulu* formulations can also be prepared in a tablet dosage form, without the use of excipients, but they should comply the general tests for tablets.

GOKṢURĀDI GUGGULU

(AFI, Part-I, 5:3)

Definition:

Gokṣurādi Guggulu Vaṭī is a preparation made with the ingredients in the Formulation composition given below with *Guggulu* as the basic ingredient.

Formulation composition:

1.	Gokṣura API	*Tribulus terrestris*	Fr.	1.344 kg
2.	Jala for decoction	Water		8.064 l
	reduced to API			4.032 l
3.	Guggulu API	*Commiphora wightii*	O.R.	336 g
4.	Śuṇṭhī API	*Zingiber officinale*	Rz.	48 g
5.	Marica API	*Piper nigrum*	Fr.	48 g
6.	Pippalī API	*Piper longum*	Fr.	48 g
7.	Harītakī API	*Terminalia chebula*	P.	48 g
8.	Bibhītaka API	*Terminalia belerica*	P.	48 g
9.	Āmalakī API	*Emblica officinalis*	P.	48 g
10.	Mustā API	*Cyperus rotundus*	Rz.	48 g

Method of preparation:

Take all the ingredients of the pharmacopoeial quality.

Wash, dry and powder the ingredients number 4 to 10 of the formulation composition separately and pass through sieve number 85, weigh them separately in the required quantities and mix.

Crush weighed quantity of *Guggulu Śuddha.*

Wash, dry and powder the *Gokṣura* and pass through sieve number 40. Soak the coarse powder of *Gokṣura* in 8 times of potable water for 12 h. Gently heat the mixture to boil and continue the boiling to reduce the volume of the mixture to half of its original volume.

Stop the boiling and filter while still warm through a *muslin cloth*.

Boil the filtrate (*Kvātha*) in an iron vessel. Add *Śuddha Guggulu* to *Kvātha* and concentrate to *Guḍapāka* (semi-solid) condition.

Add fine powder of mixed ingredients with continuous stirring. Pound the mixture to a semi-solid uniformly mixed mass of suitable plasticity. Use *Ghṛta* for smooth pounding.

Expel the pounded mass through *Vaṭī* machine fitted with a suitable die and cut the *Vaṭīs* to a desired weight.

Roll the *Vaṭīs* on flat surface to round them by circular motion of palm covered with a glove and smeared with *Ghṛta* or use suitable mechanical device.

Dry the rounded *Vaṭīs* in a tray-dryer at a temperature not exceeding 60^0 for 10 to 12 h.

Pack it in tightly closed containers to protect from light and moisture.

Description:

Spherical pills, black in colour with pleasant odour and bitter taste.

Identification:

Microscopy:

Take about 5 g of the sample, powder it and add n-*hexane* (20 ml) stir for 10 min thoroughly over a water-bath; pour out n-*hexane*. Repeat the process thrice adding fresh quantities of n-*hexane*; discard n-*hexane* washings. Wash thoroughly the sediment in hot water. Take a few mg of washed material, stain with *iodine solution* and mount in 50 per cent *glycerine*. Clarify a few mg with *chloral hydrate* and mount in 50 per cent *glycerine*. Observe the following characters in different mounts.

Fragments of testa in surface view showing thick-walled cells with beaded walls and striations, prismatic crystals of calcium oxalate (**Gokṣura**); oval to elliptical, crescent-shaped, simple or 2 to 3 compound starch grains with distinct hilum (**Śuṇṭhī**); fragment of thick-walled epicarp cells in surface view several with beaded walls, and thin cross walls, long fibres with blunt or pegged tips (**Harītakī**);

simple, unicellular or bicellular trichomes with a swollen basal cell (**Bibhītaka**); fragments of parenchyma cells with corner thickenings, minute rosette crystals of calcium oxalate **(Āmalakī)**; dagger or spindle shaped stone cells with wide lumen associated with annular vessels (**Pippalī**); iso diametric or square thick walled stone cells from testa, and hypodermis tissue with group of stone cells among parenchyma **(Mustā)**; fibre sclerids from scale leaves in packed rows **(Marica)**; Abundant stone cells of various shapes and sizes and abundant perisperm cells and minute starch grains in general.

Thin layer chromatography:

Extract 5 g of formulation powder in 75 ml of n-*hexane* under reflux on a water-bath for 30 min. Filter and concentrate the extract to 25 ml and carry out the thin layer chromatography.

Apply 10 µl on TLC plate and develop the plate to a distance of 8 cm using *toluene: acetone* (9 : 1) as mobile phase. After development, allow the plate to dry in air and examine under ultraviolet light (366 nm). It shows major spots at R_f 0.19, 0.37, 0.44 and 0.59 (all fluorescent blue). Spray the plate with *anisaldehyde-sulphuric acid reagent* followed by heating at 105^0 for about 10 min. It shows major spots at R_f 0.37, 0.44 and 0.59 (all pink changing to purple) under visible light.

Physico-chemical parameters:

Loss on drying:	Not more than 15 per cent,	Appendix 2.2.10
Total ash:	Not more than 5 per cent,	Appendix 2.2.3
Acid-insoluble ash:	Not more than 1 per cent,	Appendix 2.2.4
Alcohol-soluble extractive:	Not less than 22 per cent,	Appendix 2.2.7
Water-soluble extractive:	Not less than 29 per cent,	Appendix 2.2.8
*p*H *(1% aqueous solution):*	4.42 to 4.79,	Appendix 3.3

Other requirements:

Microbial Limit:	Appendix-2.4
Aflatoxins:	Appendix-2.7

Storage: Store in a cool place in tightly closed container, protect from light and moisture.

Therapeutic uses: Prameha (increased frequency and turbidity of urine); Mūtrakṛcchra (dysuria); Mūtrāghāta (urinary obstruction); Aśmarī (calculus); Pradara (excessive vaginal discharge); Vātarakta (gout); Vātaroga (disease due to Vāta Doṣa /neurological disease); Śukra Doṣa (vitiation of semen).

Dose: 2 - 3 g daily in divided doses.

Anupāna: Mustā Kvātha, Pāṣāṇabheda Kvātha, Uśīra Kvātha.

KĀÑCANĀRA GUGGULU

(AFI, Part-I, 5:1)

Definition:

Kāñcanāra Guggulu Vaṭī is a preparation made with the ingredients in the Formulation composition given below with *Guggulu* as the basic ingredient.

Formulation composition:

1.	Kāñcanāra API	*Bauhinia variegata*	St. Bk.	480 g
2.	Harītakī API	*Terminalia chebula*	P.	96 g
3.	Bibhītaka API	*Terminalia bellerica*	P.	96 g
4.	Āmalakī API	*Phyllanthus emblica*	P.	96 g
5.	Śuṇṭhī API	*Zingiber officinale*	Rz.	48 g
6.	Marica API	*Piper nigrum*	Fr.	48 g
7.	Pippalī API	*Piper longum*	Fr.	48 g
8.	Varuṇa API	*Crataeva nurvala*	St. Bk.	48 g
9.	Elā (Sūkṣmailā API)	*Elettaria cardamomum*	Sd.	12 g
10.	Tvak API	*Cinnamomum zeylanicum*	St. Bk.	12 g
11.	Patra (Tejapatra API)	*Cinnamomum tamala*	Lf.	12 g
12.	Guggulu API -Śuddha	*Commiphora wightii*	O.R.	996 g

Method of preparation:

Take all the ingredients of the pharmacopoeial quality.

Wash, dry and powder the ingredients number 1 to 11 of the formulation composition separately and pass through sieve number 85, weigh them separately in the required quantities and mix.

Crush weighed quantity of *Guggulu - Śuddha*, add fine powder of other mixed ingredients to it and pound well. Add *Ghṛta* to an extent required to facilitate the pounding and continue pounding till a semi-solid uniformly mixed mass of suitable plasticity is obtained.

Expel the mass through *Vaṭī* machine fitted with a suitable die and cut the *Vaṭīs* to a desired weight.

Roll the *Vaṭīs* on flat surface to round them by circular motion of palm covered with a glove and smeared with *Ghṛta* or use suitable mechanical device.

Dry the rounded *Vaṭīs* in a tray-dryer at a temperature not exceeding 60^0 for 10 to 12 h.

Pack it in tightly closed containers to protect from light and moisture.

Description:

Spherical pills, black or brownish-black in colour, agreeable distinct odour and bitter taste

Identification:

Thin layer chromatography:

Extract 5 g of formulation powder with 75 ml of n-*hexane* under reflux on a water-bath for 30 min. Filter and concentrate the extract to 25 ml and carry out the thin layer chromatography.

Apply 10 µl on TLC plate and develop the plate to a distance of 8 cm using *toluene: acetone* (9 : 1) as mobile phase. After development, allow the plate to dry in air and examine under ultraviolet light. It shows major spots at R_f 0.19, 0.37, 0.44 and 0.59 (all fluorescent blue) under 366 nm; and at R_f 0.35, 0.42 (both black) under 254 nm. Spray the plate with *anisaldehyde-sulphuric acid reagent* followed by heating at 105^0 for about 10 min. It shows major spots at R_f 0.37, 0.44 and 0.59 (all pink changing to purple) in visible light.

Physico-chemical parameters:

Loss on drying:	Not more than 12 per cent,	Appendix 2.2.10

Total ash:	Not more than 9 per cent,	Appendix 2.2.3
Acid-insoluble ash:	Not more than 3.5 per cent,	Appendix 2.2.4
Alcohol-soluble extractive:	Not less than 22 per cent,	Appendix 2.2.7
Water-soluble extractive:	Not less than 23 per cent,	Appendix 2.2.8
*p*H (1% aqueous solution):	4.6 to 4.8,	Appendix 3.3

Other requirements:

Microbial Limit:	Appendix 2.4
Aflatoxins:	Appendix 2.7

Storage: Store in a cool place in tightly closed container, protect from light and moisture.

Therapeutic uses: Gulma (abdominal lump); Gaṇḍamālā (cervical lymphadenitis); Apacī (chronic lymphadenopathy/scrofula); Granthi (cyst); Vraṇa (ulcer); Kuṣṭha (diseases of skin); Bhagandara (fistula-in-ano); Ślīpada (filariasis).

Dose: 2-3 g daily in divided doses.

Anupāna: Muṇḍādi Kvātha, Khadirasāra Kvātha, Harītakī Kvātha, Hot water.

LĀKṢĀ GUGGULU

(AFI, Part-I, 5:8)

Definition:

Lākṣā Guggulu Vaṭī is a preparation made with the ingredients in the Formulation composition given below with *Guggulu* as the basic ingredient.

Formulation composition:

1.	Lākṣā API	*Laccifer lacca*	Res. Enc.	1 Part
2.	Asthisaṃhṛt API	*Cissus quadrangularis*	St.	1 Part
3.	Kakubha (Arjuna API)	*Terminalia arjuna*	St. Bk.	1 Part
4.	Aśvagandhā API	*Withania somnifera*	Rt.	1 Part
5.	Nāgabalā API	*Sida veronicaefolia*	Ar. Pt.	1 Part
6.	Guggulu API - Śuddha	*Commiphora wightii*	O.R.	5 Parts

Method of preparation:

Take all the ingredients of the pharmacopoeial quality.

Wash, dry and powder the ingredients number 1 to 5 of the formulation composition separately and pass through sieve number 85, weigh them separately in the required quantities and mix.

Weigh and crush *Guggulu - Śuddha.* Add equal amount of water and gently boil in an iron vessel to a thick consistency. Add fine powder of mixed ingredients with continuous stirring.

Take out the mass and pound. Use castor oil to an extent required to facilitate the pounding and continue pounding till a semi-solid uniformly mixed mass of suitable plasticity is obtained.

Expel the mass through *Vaṭī* machine fitted with a suitable die and cut the *Vaṭīs* to a desired weight.

Roll the *Vaṭīs* on flat surface to round them by circular motion of palm covered with a glove and smeared with castor oil or use suitable mechanical device.

Dry the rounded *Vaṭīs* in a tray-dryer at a temperature not exceeding 60^0 for 10 to 12 h.
Pack it in tightly closed containers to protect from light and moisture.

Description:

Spherical pills, blackish in colour with agreeable odour and bitter taste.

Identification:

Microscopy:

Take about 5 g of the sample, powder and add n-*hexane* (20 ml) stir for 10 min over a water-bath; pour out *hexane*. Repeat the process thrice adding fresh quantities of *hexane*; discard *hexane*. Wash the sediment thoroughly in hot water. Take a few mg of washed material, stain with iodine solution and mount in 50 per cent *glycerine*. Clarify another few mg with *chloral hydrate* and mount in 50 per cent *glycerine*. Observe the following characters in different mounts.
Fragment of tissues showing idioblast containing raphids, fragments of stem epidermis in surface view with polyhedral, uniformly thick walled cells (**Asthisaṃhṛt**); large rosettes and idioblasts up to 200 µ in size with rhomboidal crystals of calcium oxalate, groups of thick-walled fibres (**Arjuna**); round, simple or 2 to 3 compound starch grains with slit like hilum (**Aśvagandhā**); fragments of stem epidermis in surface view, showing cells with rosette crystals of calcium oxalate, multicellular, stellar trichomes and broken bits of trichomes (**Nāgabalā**) and reddish-coloured crystalline particles of different shapes (**Lākṣā**).

Thin layer chromatography:

Extract 5 g of formulation powder in 75 ml of n-*hexane* under reflux on a water-bath for 30 min. Filter and concentrate the extract to 25 ml and carry out the thin layer chromatography.
Apply 10 µl on TLC plate and develop the plate to a distance of 8 cm using *toluene: acetone* (9:1) as mobile phase. After development, allow the plate to dry in air and examine under ultraviolet light (366

nm). It shows major spots at R_f 0.19, 0.37, 0.44 and 0.59 (all fluorescent blue). Spray the plate with *anisaldehyde-sulphuric acid reagent* followed by heating at 105^0 for about 10 min. It shows major spots at R_f 0.37, 0.44 and 0.59 (all pink changing to purple) under visible light.

Physico-chemical parameters:

Loss on drying:	Not more than 12 per cent,	Appendix 2.2.10
Total ash:	Not more than 11 per cent,	Appendix 2.2.3
Acid-insoluble ash:	Not more than 2.5 per cent,	Appendix 2.2.4
Alcohol-soluble extractive:	Not less than 22 per cent,	Appendix 2.2.7
Water-soluble extractive:	Not less than 17.5 per cent,	Appendix 2.2.8
*p*H (1% aqueous solution):	4.71 to 5.19,	Appendix 3.3

Other requirements:

Microbial Limit:	Appendix 2.4
Aflatoxins:	Appendix 2.7

Storage: Store in a cool place in tightly closed container, protect from light and moisture.

Therapeutic uses: Asthibhaṅga (bone fracture); Asthicyuti (improper alignment of bone); Asthirujā (ostealgia).

Dose: 2 - 3 g daily in divided doses.

Anupāna: Warm water

PAÑCĀMṚTA LAUHA GUGGULU

(AFI Part-II, 5:1)

Definition:

Pañcāmṛta Lauha Guggulu Vaṭī is a brown spherical pill preparation made with the ingredients in the Formulation composition given below with *Guggulu* as the basic ingredient.

Formulation composition:

1.	Rasa (Śuddha Pārada API)	Mercury		48 g
2.	Gandhaka (Śuddha API)	Sulphur		48 g
3.	Tāra (Rajata Bhasma API)	Calcined Rajata		48 g
4.	Abhra (Abhraka Bhasma API)	Calcined Abhraka		48 g
5.	Mākṣika (Bhasma API)	Calcined Mākṣika		48 g
6.	Lauha (Bhasma API)	Calcined Lauha		96 g
7.	Guggulu (Śuddha API)	*Commiphora wightii*	O.R.	336 g
8.	Kaṭu Taila API	*Brassica campestris*	Sd. oil	Q. S.

Method of preparation:

Take all the ingredients of the pharmacopoeial quality.

Weigh separately the ingredients numbered 2 to 6 of the formulation composition separately and pass through sieve numbered 85 in the required quantities and mix.

Prepare *Kajjalī* from *Śuddha Pārada* and *Śuddha Gandhaka*.

Crush weighed quantity of *Śuddha Guggulu*, add fine powder of other mixed ingredients to it and pound well. Add *Kaṭu Taila* to an extent required to facilitate the pounding and continue pounding till a semi-solid uniformly mixed mass of suitable plasticity is obtained.

Expel the mass through *Vaṭī* machine fitted with a suitable die and cut the *Vaṭīs* to a desired weight.

Roll the *Vaṭīs* on flat surface to round them by circular motion of palm covered with a glove and smeared with *Kaṭu Taila* or use suitable mechanical device.

Dry the rounded *Vaṭīs* in a tray-dryer at a temperature not exceeding 60^0 for 10 to 12 h.

Pack it in tightly closed containers to protect from light and moisture.

Description:

Dark brown spherical pills with pleasant odour, sandy sensation on tongue with no characteristic taste

Identification:

Thin layer chromatography:

Extract 5 g of formulation powder with 75 ml n-*hexane* under reflux on a water bath for 30 min, filter and concentrate to 10 ml and carry out the thin-layer chromatography.

Apply 10 µl on a TLC plate. Develop the plate to a distance of 8 cm using n-*hexane: ethyl acetate* (8.5: 1.5) as mobile phase. After development, allow the plate to dry in air and examine under ultraviolet light (366 nm). It shows major spots at R_f 0.10, 0.16, 0.21, 0.38 (all fluorescent blue). Spray the plate with *anisaldehyde sulphuric acid reagent* followed by heating at 105^0 for about 10 min. It shows major spots at R_f 0.14 (purple), 0.22 (greyish green), 0.34 (purplish grey), 0.45 and 0.54 (both purple) in visible light.

Reflux n-*hexane* extracted material with 75 ml of *chloroform* on a water bath for 30 min, filter and concentrate to 10 ml and carry out the thin-layer chromatography.

Apply 10 µl on TLC plate. Develop the plate to a distance of 8 cm using *toluene: ethyl acetate: methanol* (9 : 1 : 1) as mobile phase. After development allow the plate to dry in air and examine under ultraviolet light (366 nm). It shows major spots at R_f 0.11, 0.19, 0.24 (all blue), 0.39, 0.40 (both fluorescent blue), 0.45, 0.45, 0.49 (all faded blue), 0.56, 0.61 (both fluorescent blue). Spray the plate with *anisaldehyde sulphuric acid reagent* followed by heating at 105^0 for about 10 min. It shows major spots at R_f 0.14 (grayish blue), 0.17 (pink), 0.32 (purple), 0.44 (green), 0.61 (purple), 0.71 (greyish green) and 0.81 (greyish green) in visible light.

Physicochemical parameters:

Loss on drying:	Not more than 24 per cent,	Appendix 2.2.10
Total ash:	Not more than 53 per cent,	Appendix 2.2.3
Acid-insoluble ash:	Not more than 36 per cent,	Appendix 2.2.4
Alcoholic-soluble extractive	*:* Not less than 12 per cent,	Appendix 2.2.7
Water-soluble extractive:	Not less than 17 per cent,	Appendix 2.2.8
*p*H *(1% aqueous solution):*	5.0 to 5.5,	Appendix 3.3

Other requirements:

Microbial Limit:	Appendix 2.4
Aflatoxins:	Appendix 2.7

Storage: Store in a cool place in tightly closed container, protect from light and moisture.

Therapeutic Indications: Mastiṣkaroga (Brain disease); Snāyurujā (Pain in ligament); Vātaroga (Disease due to Vāta Doṣa).

Dose: 125 - 250 mg twice a day

Anupāna: Water and milk

PAÑCATIKTA GUGGULU GHṚTA

(A.F.I. Part- I, 6:27)

Definition:

Pañcatikta Guggulu Ghṛta is semisolid preparation made with the ingredients given in the Formulation Composition given below.

Formulation Composition:

1.	Nimbatvak (Nimba API)	*Azadirachta indica*	St. Bk.	480 g
2.	Amṛtā (Guḍūcī API)	*Tinospora cordifolia*	St.	480 g
3.	Vṛṣa (Vāsā API)	*Adhatoda vasica*	Rt.	480 g
4.	Paṭola API	*Trichosanthes dioica*	Lf./Pl.*	480 g
5.	Nidigdhikā (Kaṇṭakārī API)	*Solanum xanthocarpum*	Pl.	480 g
6.	Jala for decoction API	Water		12.288 l
	reduced to			1.5361
7.	Ghṛta (Goghṛta API)	Clarified butter from Cow's milk		768 g
8.	Pāṭhā API	*Cissampelos pareira*	Rt.	12 g
9.	Viḍaṅga API	*Embelia ribes*	Fr.	12 g
10.	Suradāru (Devadāru API)	*Cedrus deodara*	Ht. Wd.	12 g
11.	Gajopakulyā (Gajapippalī API)	*Scindapsus officinalis*	Fr.	12 g
12.	Yavakṣāra (Yava API)	*Hordeum vulgare*	Pl.	12 g
13.	Sarjikākṣāra (Svarjīkṣāra API)			12 g
14.	Nāgara (Śuṇṭhī API)	*Zingiber officinale*	Rz.	12 g
15.	Niśā (Haridrā API)	*Curcuma longa*	Rz.	12 g
16.	Miśī (Miśreyā API)	*Foeniculum vulgare*	Fr.	12 g
17.	Cavya API	*Piper retrofractum*	St.	12 g
18.	Kuṣṭha API	*Saussurea lappa*	Rt.	12 g

19.	Tejovatī API	*Zanthoxylum alatum*	Fr.	12 g
20.	Marica API	*Piper nigrum*	Fr.	12 g
21.	Vatsaka (Kuṭaja API)	*Holarrhena antidysenterica*	St. Bk.	12 g
22.	Dīpyaka (Yavānī API)	*Trachyspermum ammi*	Fr.	12 g
23.	Agni (Citraka API)	*Plumbago zeylanica*	Rt.	12 g
24.	Rohiṇī (Kaṭukā API)	*Picrorrhiza kurrooa*	Rz./Rt.	12 g
25.	Aruṣkara (Bhallātaka-Śuddha API)	*Semecarpus anacardium*	Fr.	12 g
26.	Vacā API	*Acorus calamus*	Rz.	12 g
27.	Kaṇāmūla (Pippalī API)	*Piper longum*	Rt.	12 g
28.	Yuktā (Rāsnā API)	*Pluchea lanceolata*	Rt./Lf.*	12 g
29.	Mañjiṣṭhā API	*Rubia cordifolia*	Rt.	12 g
30.	Ativiṣā API	*Aconitum heterophyllum*	Rt. Tr.	12 g
31.	Viṣā (Ativiṣā Bheda API)	*Aconitum palmatum*	Rt.	12 g
32.	Yavānī API	*Trachyspermum ammi*	Fr.	12 g
33.	Guggulu (Śuddha API)	*Commiphora wightii*	O.R.	240 g

* Actual part used in the formulation.

Method of preparation:

Take all the ingredients of the pharmacopoeial quality.

Wash, dry and powder the ingredients numbered 1 to 3 of the formulation composition separately and pass through sieve number 40.

Soak the coarse powder of ingredients numbered in 4 times of potable water for 12 h. Gently heat the mixture to boil and continue the boiling to reduce the volume of the mixture to one fourth of its original volume.

Stop the boiling and filter while still warm through a muslin cloth.

Wash, dry and powder the ingredients number 8 to 32 of the formulation composition separately and pass through sieve number 85, weigh them separately in the required quantities and mix.

Add *Goghṛta* to the filtrate (*Kvātha*) and gently heat to concentrate. Add *Śuddha Guggulu* with continuous stirring. Add powdered ingredients 8 to 32 with continuous stirring in the above mixture to form a semisolid paste, to obtain a semi-solid mass of suitable plasticity.

Pack it in tightly closed containers to protect from light and moisture.

Description:

Dark brown, semi-solid paste, unctuous touch with pleasant and characteristic odour and slightly bitter taste

Identification:

Thin layer chromatography:

Extract 5 g of formulation powder with 75 ml n-*hexane* under reflux on a water bath for 30 min, filter and concentrate the extract to 10 ml and carry out the thin-layer chromatography.

Apply 10 µl on TLC plate and develop the plate to a distance of 8 cm using n-*hexane: ethyl acetate* (8.5 : 1.5) as mobile phase. After development allow the plate to dry in air and examine under ultraviolet light (366 nm). It shows major spots at R_f 0.10, 0.17, 0.38, 0.43, 0.84 (all blue). Spray the plate with *anisaldehyde sulphuric acid reagent* followed by heating at 105^0 for about 10 min. It shows major spots at R_f 0.25 (faded pink), 0.34 (pinkish brown), 0.41, 0.65 (both blue), 0.78 (greenish blue) and 0.92 (blue) in visible light.

Reflux n-*hexane* extracted material with 75 ml of *chloroform* on a water bath for 30 min, filter and concentrate the extract to 10 ml and carry out the thin-layer chromatography. Apply 10 µl on TLC plate and develop the plate to a distance of 8 cm using *toluene: ethyl acetate: methanol* (9 : 1 : 1) as mobile phase. After development allow the plate to dry in air and examine under ultraviolet light (366 nm). It shows major spots at R_f 0.13 (faded blue), 0.44 (fluorescent blue), 0.62, 0.67, 0.76 (all blue). Spray the plate with *anisaldehyde sulphuric acid reagent* followed by heating at 105^0 for about 10 min. It shows major spots at R_f 0.13 (purple), 0.20 (purplish brown), 0.26 (fluorescent purple), 0.30 (purple), 0.45 (blue) and 0.65, 0.76, 0.86 (all purple) in visible light.

Reflux the chloroform extracted material with 75 ml *methanol*, filter and concentrate the extract to 10 ml and carry out thin-layer chromatography.

Apply 10 µl on TLC plate and develop the plate to a distance of 8 cm using *toluene: ethyl acetate* (8 : 2) as mobile phase. After development allow the plate to dry in air and examine under ultraviolet light

(366 nm). It shows major spots at R_f 0.24 (dark blue), 0.48 (greenish blue), 0.55, 0.68, 0.76, 0.84, 0.96 (all fluorescent blue) under 366 nm. Spray the plate with *anisaldehyde sulphuric acid reagent* followed by heating at 105^0 for about 10 min. It shows major spots at R_f 0.24 (yellow), 0.38 (blue), 0.43 (purple), 0.47 (purplish blue), 0.54 (purple), 0.63 (grayish black), 0.70 (purplish blue), 0.78 (purple), 0.89 (bluish purple) and 0.97 (blue) in visible light.

Physico-chemical parameters:

Loss on drying:	Not more than 17 per cent,	Appendix 2.2.10
Total ash:	Not more than 6 per cent,	Appendix 2.2.3
Acid-insoluble ash:	Not more than 1.5 per cent,	Appendix 2.2.4
Alcoholic-soluble extractive:	Not less than 54 per cent,	Appendix 2.2.7
Water-soluble extractive:	Not less than 8 per cent,	Appendix 2.2.8
*p*H *(1% aqueous solution):*	5.3 to 5.5,	Appendix 3.3

Other requirements:

Microbial limit:	Appendix 2.4
Aflatoxins:	Appendix 2.7

Storage: Store in a cool place in tightly closed container, protect from light and moisture.

Therapeutic Indications: Sandhigata Vāta (osteoarthropathy); Asthigata Vāta (Vāta confined to bones); Majjāgata Vāta (bone marrow related disorders); Nāḍī Vraṇa (sinus); Kuṣṭha (Disease of skin); Arbuda (tumour); Bhagandara (fistula in ano); Gaṇḍamālā (goiter/cervical lymphadenitis); Guda Roga (anorectal disease); Meha (excessive flow of urine); Yakṣmā (tuberculosis); Aruci (tastelessness); Śvāsa (asthma); Pīnasa (chronic rhinitis/sinusitis); Kāsa (cough); Śopha (oedema); Hṛdroga (heart disease); Pāṇḍu (anaemia); Mada (intoxication); Vidradhi (abscess); Vātarakta (gout); Ūrdhvajatrugata Roga (disease of head and neck).

Dose: 6-12 g daily in divided doses.

Anupāna: Warm water and milk

PUNARNAVĀ GUGGULU

(AFI Part-II, 5:2)

Definition:

Punarnavā Guggulu Vaṭī is a preparation made with the ingredients in Formulation composition given below with *Guggulu* as the basic ingredient.

Formulation composition:

1.	Punarnavāmūla (Raktapunarnavā API)	*Boerhaavia diffusa*	Rt.	4.800 kg
2.	Rubūkamūla (Eraṇḍa API)	*Ricinus communis*	Rt.	4.800 kg
3.	Śuṇṭhī API	*Zingiber officinale*	Rz.	768 g
4.	Jala for decoction	Water		32 l
	reduced to			4 l
5.	Kauśika (Guggulu API -Śuddha)	*Commiphora wightii*	O.R.	864 g
6.	Eraṇḍa Taila API	*Ricinus communis*	Sd. Oil	192 ml
7.	Trivṛt API	*Ipomoea turpethum*	Rt.	240 g
8.	Nikumbha (Dantī API)	*Baliospermum montanum*	Rt.	48 g
9.	Guḍūcī API	*Tinospora cordifolia*	St.	96 g
10..	Harītakī API	*Terminalia chebula*	P.	96 g
11.	Bibhītaka API	*Terminalia belerica*	P.	96 g
12.	Āmalakī API	*Emblica officinalis*	P.	96 g
13.	Śuṇṭhī API	*Zingiber officinale*	Rz.	96 g
14.	Marica API	*Piper nigrum*	Fr.	96 g
15.	Pippalī API	*Piper longum*	Fr.	96 g
16.	Sindhūttha (Saindhava API)			96 g
17.	Citraka API	*Plumbago zeylanica*	Rt.	96 g
18.	Bhallāta (Bhallātaka API -Śuddha)	*Semicarpus anacardium*	Fr.	96 g

19.	Viḍaṅga API	*Embelia ribes*	Fr.	96 g
20.	Mākṣika Dhātu Cūrṇa (Bhasma API)			12 g
21.	Punarnavā (Rakta-Punarnavā API)	*Boerhaavia diffusa*	Rt.	48 g

Method of preparation:

Take all the ingredients of the pharmacopoeial quality.

Wash, dry and powder the ingredients number 7 to 19 of the formulation composition separately and pass through sieve number 85, weigh them separately in the required quantities and mix.

Crush weighed quantity of *Guggulu-Śuddha.*

Wash, dry and powder the ingredients number 1 to 3 of the formulation composition separately and pass through sieve number 40. Soak the coarse powder mixture in 8 times of potable water for 12 h. Gently heat the mixture to boil and continue the boiling to reduce the volume of the mixture to half of its original volume.

Stop the boiling and filter while still warm through a muslin cloth.

Boil the filtrate *(Kvātha)* in an iron vessel. Add *Śuddha-Guggulu* to *Kvātha* and concentrate to *Guḍapāka* (semi-solid) condition.

Add fine powders of mixed ingredients and *Mākṣika Bhasma* with continuous stirring. Pound the mixture to a semi-solid uniformly mixed mass of suitable plasticity. Use *Ghṛta* for smooth pounding.

Expel the pounded mass through *Vaṭī* machine fitted with a suitable die and cut the *Vaṭīs* to a desired weight.

Roll the *Vaṭīs* on flat surface to round them by circular motion of palm covered with a glove and smeared with *Ghṛta* or use suitable mechanical device.

Dry the rounded *Vaṭīs* in a tray-dryer at a temperature not exceeding 60^0 for 10 to 12 h.

Pack it in tightly closed containers to protect from light and moisture.

Description:

Blackish brown spherical pills with pleasant odour, salty and bitter in taste

Identification:

Thin layer chromatography :

Extract 5 g of formulation powder with 75 ml n-*hexane* under reflux on a water bath for 30 min, filter and concentrate the extract to 10 ml and carry out the thin-layer chromatography. Apply 10 µl on TLC plate and develop the plate to a distance of 8 cm using n-*hexane: ethyl acetate* (9 : 1) as mobile phase. After development allow the plate to dry in air and examine under ultraviolet light (366 nm). It shows major spots at R_f 0.12, 0.19, 0.22, 0.33, 0.51 under 254 nm and 0.10, 0.16 (both fluorescent blue), 0.21 (blue), 0.30 (navy blue), 0.38 (fluorescent blue). Spray the plate with *anisaldehyde sulphuric acid reagent* followed by heating at 105^0 for about 10 min. It shows major spots at R_f 0.18 (faded green), 0.22 (purple), 0.28 (greenish grey), 0.45 (greenish blue) and 0.54 (purple) in visible light.

Reflux n-*hexane* extracted material with 75 ml of *chloroform* on a water bath for 30 min, filter and concentrate the extract to 10 ml and carry out the thin-layer chromatography. Apply 10 µl on TLC plate. Develop the plate to a distance of 8 cm using *toluene: ethyl acetate: methanol* (9 : 1 : 1) as mobile phase. After development allow the plate to dry in air and examine under ultraviolet light. It shows major spots at R_f 0.13, 0.21, 0.29, 0.42, 0.54, 0.61, 0.71 under 254 nm and 0.15, 0.19 (both blue), 0.23 (red), 0.28 (blue), 0.40 (fluorescent blue), 0.45, 0.49, 0.61, 0.66 (all faded blue) under 366 nm. Spray the plate with *anisaldehyde sulphuric acid reagent* followed by heating at 105^0 for about 10 min. It shows major spots at R_f 0.14, 0.20 (both grey), 0.28 (purple), 0.41 (green), 0.61 (faded green), 0.69, 0.74 (both green) and 0.85 (greyish green) in visible light.

Physico-chemical parameters:

Loss on drying:	Not more than 12 per cent,	Appendix 2.2.10
Total ash:	Not more than 15 per cent,	Appendix 2.2.3
Acid-insoluble ash:	Not more than 4 per cent,	Appendix 2.2.4
Water-soluble extractive:	Not less than 45 per cent,	Appendix 2.2.7
Alcoholic-soluble extractive	*:* Not less than 10 per cent,	Appendix 2.2.8
*p*H *(1% aqueous solution):*	4.7 to 5.0,	Appendix 3.3

Other requirements:

Microbial limit:	Appendix 2.4
Aflatoxins:	Appendix 2.7

Storage: Store in a cool place in tightly closed container, protect from light and moisture.

Therapeutic Indications: Vātarakta (Gout); Vṛddhiroga (hydrocoel disease); Gṛdhrasī (sciatica); Jaṅghā-Ūru-Pṛṣṭha-Trika Sthāna and Vastigata Śūla (pain in urinary bladder); Āmavāta (rheumatism).

Dose: 2-3 g daily in divided doses.

Anupāna: Water

SAPTAVIṂŚATIKA GUGGULU

(AFI Part-I, 5:11)

Definition:

Saptaviṃśatika Guggulu Vaṭī is a preparation made with the ingredients in Formulation composition given below with *Guggulu* as the basic ingredient.

Formulation composition:

1.	Śuṇṭhī API	*Zingiber officinale*	Rz.	1 part
2.	Marica API	*Piper nigrum*	Fr.	1 part
3.	Pippalī API	*Piper longum*	Fr.	1 part
4.	Harītakī API	*Terminalia chebula*	P.	1 part
5.	Bibhītaka API	*Terminalia belerica*	P.	1 part
6.	Āmalakī API	*Emblica officinalis*	P.	1 part
7.	Kuṣṭha API	*Saussurea lappa*	Rt.	1 part
8.	Viḍaṅga API	*Embelia ribes*	Fr.	1 part
9.	Amṛtā (Guḍūcī API)	*Tinospora cordifolia*	St.	1 part
10.	Citraka API	*Plumbago zeylanica*	Rt.	1 part
11.	Śaṭī API	*Hedychium spicatum*	Rz.	1 part
12.	Elā (Sūkṣmailā API)	*Elettaria cardamomum*	Sd.	1 part
13.	Pippalīmūla API	*Piper longum*	Rt.	1 part
14.	Havuṣā (Hapuṣā API)	*Juniperus communis*	Fr.	1 part
15.	Suradāru (Devadāra API)	*Cedrus deodara*	Ht. Wd.	1 part
16.	Tumburu (Tejovatī API)	*Zanthoxylum aromaticum*	Fr.	1 part
17.	Puṣkara API	*Saussurea lappa*	Rt.	1 part
18.	Cavya API	*Piper chaba*	St.	1 part
19.	Viśālā (Rakta Indravāruṇī API)	*Citrullus colocynthis*	Rt.	1 part

20.	Haridrā API	*Curcuma longa*		Rz.	1 part
21.	Dāruharidrā API	*Berberis aristata*		St.	1 part
22.	Viḍa Lavaṇa API				1 part
23.	Sauvarcala Lavaṇa API				1 part
24.	Yavakṣāra (Yava API)	*Hordeum vulgare*	Water soluble ash of Pl.		1 part
25.	Sarjikā Kṣāra (Svarjī Kṣāra API)				1 part
26.	Saindhava Lavaṇa API				1 part
27.	Gajapippalī API	*Scindapsus officinalis*		Fr.	1 part
28.	Guggulu-Śuddha API	*Commiphora wightii*		O.R.	54 parts

Method of preparation:

Take all the ingredients of the pharmacopoeial quality.

Wash, dry and powder the ingredients numbered 1 to 21 and 27 of the formulation composition separately and pass through sieve numbered 85. Powder the ingredients numbered 22 to 26 of the formulation composition separately and pass through sieve number 85. Weigh them all separately in the required quantities and mix.

Crush weighed quantity of *Śuddha-Guggulu*, add fine powder of other mixed ingredients to it and pound well. Add *Ghṛta* in small quantity at regular intervals for smooth pounding and continue pounding till a semi-solid uniformly mixed mass of suitable plasticity is obtained.

Expel the mass through *Vaṭī* machine fitted with a suitable die and cut the *Vaṭīs* to a desired weight.

Roll the *Vaṭīs* on flat surface to round them by circular motion of palm covered with a glove and smeared with *Ghṛta* or use suitable mechanical device.

Dry the rounded *Vaṭīs* in a tray-dryer at a temperature not exceeding 60^0 for 8 to 10 h.

Pack it in tightly closed containers to protect from light and moisture.

Description:

Dark brown spherical pills with spicy pleasant odour, salty, bitter and astringent taste

Identification:

Thin layer chromatography:

Extract 5 g of formulation powder with 75 ml n-*hexane* under reflux on a water bath for 30 min, filter and concentrate the extract to 10 ml and carry out the thin-layer chromatography.

Apply 10 µl on TLC plate and develop the plate to a distance of 8 cm using n-*hexane: ethyl acetate* (8.5 : 1.5) as mobile phase. After development allow the plate to dry in air and examine under ultraviolet light. It shows major spots at R_f 0.12, 0.19, 0.22, 0.51, 0.67 under 254 nm and at 0.10, 0.16 (both fluorescent blue), 0.21 blue,, 0.38 (fluorescent blue) under 366 nm. Spray the plate with anisaldehyde *sulphuric acid reagent* followed by heating at 105^0 for about 10 min. It shows major spots at R_f 0.18 (faded green), 0.22 (purple), 0.28 (greenish grey), 0.34 (purple), 0.45 (greenish blue), 0.54 (purple), 0.68 (brown) in visible light.

Reflux n-*hexane* extracted material with 75 ml of *chloroform* on a water bath for 30 min, filter and concentrate the extract to 10 ml and carry out the thin-layer chromatography. Apply 10 µl on TLC plate and develop the plate to a distance of 8 cm using *toluene: ethyl acetate: methanol* (9: 1: 1) as mobile phase. After development allow the plate to dry in air and examine under ultraviolet light. It shows major spots at R_f 0.13, 0.21, 0.29, 0.42, 0.52, 0.61 under 254 nm and at R_f 0.15, 0.19 (both blue), 0.23 (red), 0.28 (sea green), 0.34, 0.36 (both yellowish green), 0.40 (fluorescent blue), 0.45, 0.49, 0.56, 0.61 (all faded blue) under 366 nm. Spray the plate with *anisaldehyde sulphuric acid reagent* followed by heating at 105^0 for about 10 min. It shows major spots at R_f 0.18 (green), 0.28 (purple), 0.41 (green), 0.51 (faded green), 0.62 (green), 0.70 (greyish green) and 0.77 (green) in visible light.

Physico-chemical parameters:

Loss on drying:	Not more than 13 per cent,	Appendix 2.2.10
Total ash:	Not more than 17 per cent,	Appendix 2.2.3
Acid-insoluble ash:	Not more than 4 per cent,	Appendix 2.2.4
Water-soluble extractive:	Not less than 35 per cent,	Appendix 2.2.7
Alcoholic-soluble extractive	*:* Not less than 25 per cent,	Appendix 2.2.8
*p*H *(1% aqueous solution):*	4.5 to 5.0,	Appendix 3.3

Other requirements:

Microbial limit:	Appendix 2.4
Aflatoxins:	Appendix 2.7

Storage: Store in a cool place in tightly closed container. Protect from light and moisture.

Therapeutic Indications: Hṛcchūla (angina pectoris); Kāsa (cough); Śvāsa (asthma); Pārśvaśūla (inter costal neuralgia); Śotha (inflammation); Arśa (piles); Bhagandara (fistula-in-ano); Kukṣi Rujā (pelvic pain); Vaktra Rujā (pain in mouth); Guda Rujā (pain in anus); Aśmarī (calculus); Mūtrakṛcchra (dysuria); Āntravṛddhi (hernia); Kṛmi (worm infestation); Jvara (fever); Kṣaya (pthisis); Apasmāra (epilepsy); Ānāha (distension of abdomen); Unmāda (psychosis); Kuṣṭha (skin diseases); Udara (diseases of abdomen); Nāḍīvraṇa (sinus); Duṣṭavraṇa (non-healing ulcer); Prameha (increased frequency and turbidity of urine); Ślīpada (filariasis)

Dose: 2-3 g daily in divided doses.

Anupāna: Warm water and honey

SIṂHANĀDA GUGGULU

(AFI, Part-I, 5:12)

Definition:

Siṃhanāda Guggulu Vaṭī is a preparation made with the ingredients in the Formulation composition given below with *Guggulu* as the basic ingredient.

Formulation composition:

1.	Harītakī API	*Terminalia chebula*	P.	48 g
2.	Bibhītaka API	*Terminalia belerica*	P.	48 g
3.	Āmalakī API	*Emblica officinalis*	P.	48 g
4.	Jala for decoction	Water		576 ml
	reduced to			144 ml
5.	Gandhaka-Śuddha API	Sulphur		48 g
6.	Guggulu-Śuddha API	*Commiphora wightii*	O.R.	48 g
7.	Citra (Eraṇḍa API) Taila	*Ricinus communis*	Sd. Oil	30 g

Method of preparation:

Take all the ingredients of the pharmacopoeial quality.

Wash, dry and powder the ingredients numbered 1 to 3 of the formulation composition separately and pass through sieve number 40.

Soak the coarse powder of ingredients numbered 1 to 3 in 4 times of potable water for 12 h. Gently heat the mixture to boil and continue the boiling to reduce the volume of the mixture to one fourth of its original volume.

Stop the boiling and filter while still warm through a muslin cloth.

Powder the *Gandhaka Śuddha* and pass through sieve number 120.

Add *Eraṇḍa Taila* to the filtrate *(Kvātha)* and gently heat to concentrate. Add *Śuddha-Gandhaka* and *Śuddha-Guggulu* with continuous stirring to obtain a semi-solid mass of suitable plasticity.

Expel the mass through *Vaṭī* machine fitted with a suitable die and cut the *Vaṭīs* to a desired weight.

Roll the *Vaṭīs* on flat surface to round them by circular motion of palm covered with a glove and smeared with *Eraṇḍa Taila* or use suitable mechanical device.

Dry the rounded *Vaṭīs* in a tray-dryer at a temperature not exceeding 60^0 for 12 to 15 h.

Pack it in tightly closed containers to protect from light and moisture.

Description:

Spherical pills, brownish-black to black in colour with agreeable odour and bitter taste

Identification:

Thin layer chromatography:

Extract 5 g of formulation powder in 75 ml of n-*hexane* under reflux on a water-bath for 30 min. Filter and concentrate the extract to 25 ml and carry out the thin layer chromatography.

Apply 10 µl on TLC plate and develop the plate to a distance of 8 cm using *toluene : acetone* (9:1) as mobile phase. After development, allow the plate to dry in air and examine under ultraviolet light. It shows major spots at R_f 0.19, 0.37, 0.44 and 0.59 (all fluorescent blue) under 366 nm and at R_f 0.35, 0.42 (both black) under 254 nm. Spray the plate with *anisaldehyde-sulphuric acid reagent* followed by heating at 105^0 for about 10 min. It shows major spots at R_f0.37, 0.44 and 0.59 (all pink changing to purple) in visible light.

Test for sulphur:

Burn 100 mg of tablet powder in flame. The evolution of sulphur dioxide is recognized by its characteristic suffocating odour.

To about 500 mg of tablet powder, add 0.25 g of *zinc* and *sodium carbonate reagent*, mix and transfer into a small test tube. Carefully heat the test tube to a red heat, starting at the upper end and heating

towards the bottom end. Drop the content quickly into about 20 ml of water. Filter and acidify the filtrate with hydrochloric acid. The fumes evolve, which turn the lead acetate paper brown or black.

Physico-chemical parameters:

Loss on drying:	Not more than 12 per cent,	Appendix 2.2.10
Total ash:	Not more than 7 per cent,	Appendix 2.2.3
Acid-insoluble ash:	Not more than 3.5 per cent,	Appendix 2.2.4
Alcohol-soluble extractive:	Not less than 31 per cent,	Appendix 2.2.7
Water-soluble extractive:	Not less than 23 per cent,	Appendix 2.2.8
*p*H (1% aqueous solution):	4.87 to 5.33,	Appendix 3.3

Other requirements:

Microbial Limit:	Appendix 2.4
Aflatoxins:	Appendix 2.7

Storage: Store in a cool place in tightly closed container, protect from light and moisture.

Therapeutic uses: Khañja (limping); Pāṇḍu (anaemia); Āmavāta (rheumatism); Vātarakta (gout); Kuṣṭha (diseases of skin); Vāta Roga (disease due to Vāta Doṣa /neurological disease); Kapha Roga (disease due to Kapha Doṣa); Pitta Roga (disease due to Pitta Doṣa); Paṅgu (paraplegia); Śvāsa (dyspnoea/asthma); Kāsa (cough); Gulma (abdominal lump); Śūla (pain); Udara (diseases of abdomen); Jarā (senility/progeriasis); Palita (graying of hair); Agnimāndya (digestive impairment).

Dose: 2-3 g daily in divided doses.

Anupāna: Warm water.

TRAYODAŚĀṄGA GUGGULU

(AFI, Part-I, 5:4)

Definition:

Trayodaśāṅga Guggulu Vaṭī is a preparation made with the ingredients in the Formulation composition given below with *Guggulu* as the basic ingredient.

Formulation composition:

1.	Babbūla API	*Acacia Arabica*	St. Bk.	1 Part
2.	Aśvagandhā API	*Withania somnifera*	Rt.	1 Part
3.	Hapuṣā API	*Juniperus communis*	Fr.	1 Part
4.	Guḍūcī API	*Tinospora cordifolia*	St.	1 Part
5.	Śatāvarī API	*Asparagus racemosus*	Rt	1 Part
6.	Gokṣura API	*Tribulus terrestris*	Fr.	1 Part
7.	Vṛddhadāru API	*Ipomoea petaloidea*	Rt.	1 Part
8.	Rāsnā API	*Pluchea lanceolata*	Lf.	1 Part
9.	Śatāhvā API	*Anethum sowa*	Fr.	1 Part
10.	Śaṭī API	*Hedychium spicatum*	Rz.	1 Part
11.	Yavānī API	*Trachyspermum ammi*	Fr.	1 Part
12.	Śuṇṭhī API	*Zingiber officinale*	Rz.	1 Part
13.	Guggulu-Śuddha API	*Commiphora wightii*	O.R.	12 Parts
14.	Goghṛta API	Clarified butter from Cow's milk.		1 Part

Method of preparation:

Take all the ingredients of the pharmacopoeial quality.

Wash, dry and powder the ingredients number 1 to 12 of the formulation composition separately and pass through sieve number 85, weigh them separately in the required quantities and mix.

Crush weighed quantity of *Guggulu-Śuddha*, add fine powder of other mixed ingredients to it and pound well. Add *Ghṛta* in small quantity at regular intervals for smooth pounding and continue pounding till a semi-solid uniformly mixed mass of suitable plasticity is obtained.

Expel the mass through *Vaṭī* machine fitted with a suitable die and cut the *Vaṭīs* to a desired weight.

Roll the *Vaṭīs* on flat surface to round them by circular motion of palm covered with a glove and smeared with *Ghṛta* or use suitable mechanical device.

Dry the rounded *Vaṭīs* in a tray-dryer at a temperature not exceeding 60^0 for 8 to 10 h.

Pack it in tightly closed containers to protect from light and moisture.

Description:

Spherical pills, blackish in colour with agreeable odour and bitter taste

Identification:

Thin layer chromatography:

Extract 5 g of formulation powder in 75 ml of n-*hexane* under reflux on a water-bath for 30 min. Filter and concentrate the extract to 25 ml and carry out the thin layer chromatography.

Apply 10 µl on TLC plate and develop the plate to a distance of 8 cm using *toluene: acetone* (9 : 1) as mobile phase. After development, allow the plate to dry in air and examine under ultraviolet light (366 nm.). It shows major spots at R_f 0.19, 0.37, 0.44 and 0.59 (all fluorescent blue). Spray the plate with *anisaldehyde-sulphuric acid reagent* followed by heating at 105^0 for about 10 min. It shows major spots at R_f 0.40 and 0.61 (all pink changing to purple) in visible light.

Physico-chemical parameters:

Loss on drying:	Not more than 11 per cent,	Appendix 2.2.10

Total ash:	Not more than 15 per cent,	Appendix 2.2.3
Acid-insoluble ash:	Not more than 4 per cent,	Appendix 2.2.4
Alcohol-soluble extractive:	Not less than 17.5 per cent,	Appendix 2.2.7
Water-soluble extractive:	Not less than 21 per cent,	Appendix 2.2.8
*p*H (1% aqueous solution):	4.45 to 5.96,	Appendix 3.3

Other requirements:

Microbial Limit:	Appendix 2.4
Aflatoxins:	Appendix 2.7

Storage: Store in a cool place in tightly closed container, protect from light and moisture.

Therapeutic uses: Kaṭigraha (stiffness in lumbo-sacral region); Gṛdhrasī (sciatica); Hanugraha (lockjaw); Bāhuśūla (pain in arm); Jānustabdhatā (stiffness of the knee); Asthivāta (bone disease due to Vāta Doṣa); Majjāvāta (bone marrow disorder); Snāyuvāta (inflammation of ligaments); Hṛdgraha (cardiac failure); Vāta-Kapha Roga (disease due to Vāta Doṣa and Kapha Doṣa); Yonidoṣa (disorders of female genital tract); Asthibhaṅga (bone fracture); Vidradhi (abscess); Khañjavāta (limping due to vitiation of Vāta).

Dose: 2-3 g daily in divided doses.

Anupāna: Triphalā Kvātha, Madhu, Laśuna Svarasa, Yūṣa, Mandoṣṇa Jala, Milk.

TRIPHALĀ GUGGULU

(AFI, Part-I, 5:5)

Definition:

Triphalā Guggulu Vaṭī is a preparation made with the ingredients in the Formulation composition given below with Guggulu as the basic ingredient.

Formulation composition:

1.	Harītakī API	*Terminalia chebula*	P.	48 g
2.	Bibhītaka API	*Terminalia belerica*	P.	48 g
3.	Āmalakī API	*Emblica officinalis*	P.	48 g
4.	Pippalī API	*Piper longum*	Fr.	48 g
5.	Guggulu API -Śuddha	*Commiphora wightii*	O.R.	240 g

Method of preparation:

Take all the ingredients of the pharmacopoeial quality.

Wash, dry and powder the ingredients number 1 to 4 of the formulation composition separately and pass through sieve number 85, weigh them separately in the required quantities and mix.

Crush weighed quantity of *Guggulu-Śuddha*, add fine powder of other mixed ingredients to it and pound well. Add *Ghṛta* to an extent required to facilitate the pounding and continue pounding till a semi-solid uniformly mixed mass of suitable plasticity is obtained.

Expel the mass through *Vaṭī* machine fitted with a suitable die and cut the *Vaṭīs* to a desired weight.

Roll the *Vaṭīs* on flat surface to round them by circular motion of palm covered with a glove and smeared with *Ghṛta* or use suitable mechanical device.

Dry the rounded *Vaṭīs* in a tray-dryer at a temperature not exceeding 60^0 for 8 to 10 h.

Pack it in tightly closed containers to protect from light and moisture.

Description:

Spherical pills, black in colour with agreeable odour and bitter taste.

Identification:

Microscopy:

Take about 5 g of the sample, powder and add c*hloroform* (20 ml); stir for 10 min over a water-bath; pour out c*hloroform*. Repeat the process thrice adding fresh quantities of c*hloroform*; discard *chloroform*. Wash the sediment thoroughly in hot water. Take a few mg of washed material, stain with iodine solution and mount in 50 per cent *glycerine*. Clarify a few mg with *chloral hydrate* and mount in 50 per cent *glycerine*. Observe the following characters in different mounts.

Fragment of thick-walled epicarp cells in surface view several with beaded walls, and thin cross walls, long fibres with blunt or pegged tips (**Harītakī**); simple, unicellular or bicellular trichomes with a swollen basal cell (**Bibhītaka**); fragments of parenchyma cells with corner thickenings, containing minute rosette crystals of calcium oxalate; fragments of epidermal tissue with silica crystals **(Āmalakī**); perisperm cells (**Pippalī**); abundant sclereids of various sizes and shapes fibres with blunt tips and broad lumen and minute starch grains are common characteristics.

Thin layer chromatography:

Extract 5 g of formulation powder in 75 ml of n-*hexane* under reflux on a water-bath for 30 min. Filter and concentrate the extract to 25 ml and carry out the thin layer chromatography. Apply 10 µl on TLC plate and develop the plate to a distance of 8 cm using *toluene: acetone* (9:1) as mobile phase. After development, allow the plate to dry in air and examine under ultraviolet light (366 nm). It shows major spots at R_f 0.19, 0.37, 0.44 and 0.59 (all fluorescent blue). Spray the plate with *anisaldehyde-sulphuric acid reagent* followed by heating at 105^0 for about 10 min. It shows major spots at R_f 0.40, 0.61 (both pink changing to purple) in visible light.

Physico-chemical parameters:

Loss on drying:	Not more than 13 per cent,	Appendix 2.2.10
Total ash:	Not more than 12 per cent,	Appendix 2.2.3
Acid-insoluble ash:	Not more than 7 per cent,	Appendix 2.2.4
Alcohol-soluble extractive:	Not less than 13.5 per cent,	Appendix 2.2.7
Water-soluble extractive:	Not less than 30 per cent,	Appendix 2.2.8
*p*H (1% aqueous solution)*:*	4.35 to 4.70,	Appendix 3.3

Other requirements:

Microbial Limit:	Appendix 2.4
Aflatoxins:	Appendix 2.7

Storage: Store in a cool place in tightly closed container protect from light and moisture.

Therapeutic uses: Śotha (inflammation); Bhagandara (fistula-in-ano); Arśa (piles); Gulma (abdominal lump).

Dose: 2-3 g daily in divided doses.

Anupāna: Warm water

VĀTĀRI GUGGULU

(AFI, Part-I, 5:10)

Definition:

Vātāri Guggulu Vaṭī is a preparation made with the ingredients in the Formulation composition given below with Guggulu as the basic ingredient.

Formulation composition:

1.	Vātāri Taila (Eraṇḍa API)	*Ricinus communis*	Sd. Oil.	$^{1}/_{8}$ Part
2.	Gandhaka API -Śuddha	Sulphur		1 Part
3.	Guggulu API -Śuddha	*Commiphora wightii*	O.R.	1 Part
4.	Harītakī API	*Terminalia chebula*	P.	1 Part
5.	Bibhītaka API	*Terminalia belerica*	P.	1 Part
6.	Āmalakī API	*Emblica officianalis*	P.	1 Part

Method of preparation:

Take all the ingredients of the pharmacopoeial quality.

Wash, dry and powder the ingredients numbered 4 to 6 of the formulation composition separately and pass through sieve number 85. Powder *Śuddha Gandhaka* to a fine powder and pass through sieve number 85. Weigh all of them separately in the required quantities and mix.

Crush weighed quantity of *Guggulu-Śuddha*, add fine powder of other mixed ingredients to it and pound well. Add *Eraṇḍa Taila* in small quantity at regular intervals for smooth pounding and pound to a semi-solid uniformly mixed mass of suitable plasticity.

Expel the mass through *Vaṭī* machine fitted with a suitable die and cut the *Vaṭīs* to a desired weight.

Roll the *Vaṭīs* on flat surface to round them by circular motion of palm covered with a glove and smeared with *Eraṇḍa Taila* or use suitable mechanical device.

Dry the rounded *Vaṭīs* in a tray-dryer at a temperature not exceeding 60^{0} for 8 to 10 h.

Pack it in tightly closed containers to protect from light and moisture.

Description:

Spherical pills, greyish-black in colour with agreeable odour and bitter taste

Identification:

Microscopy:

Take about 5 g of the sample, powder and add *chloroform* (20 ml); stir for 10 min over a water-bath; pour out *chloroform*. Repeat the process thrice adding fresh quantities of *chloroform*; discard *chloroform*. Wash the sediment thoroughly in hot water. Take a few mg of washed material, stain with iodine solution and mount in 50 per cent *glycerin*. Clarify a few mg with *chloral hydrate* and mount in 50 per cent *glycerin*. Observe the following characters in different mounts.
Fragment of thick-walled epicarp cells in surface view several with beaded walls, and thin cross walls, long fibres with blunt or pegged tips (**Harītakī**); simple, unicellular or bicellular trichomes with a swollen basal cell (**Bibhītaka**); fragments of parenchyma cells with corner thickenings, minute rosette crystals of calcium oxalate (**Āmalakī**); perisperm cells (**Pippalī**); abundant sclereids of various sizes and shapes fibres with blunt tips and broad lumen and minute starch grains are common characteristics.

Thin layer chromatography:

Extract 5 g of formulation powder in 75 ml of n-*hexane* under reflux on a water-bath for 30 min. Filter and concentrate the extract to 25 ml and carry out the thin layer chromatography. Apply 10 µl of n-*hexane* extract on TLC plate and develop the plate to a distance of 8 cm using *toluene: acetone* (9:1) as mobile phase. After development, allow the plate to dry in air and examine under ultraviolet light. It shows major spots at R_f 0.19, 0.37, 0.44 and 0.59 (all fluorescent blue) under 366 nm and at R_f 0.35, 0.42 (both black) under 254 nm. Spray the plate with *anisaldehyde-sulphuric acid reagent* followed by heating at 105^0 for about 10 min. It shows major spots at R_f 0.46, 0.66, 0.76 (both pink changing to purple) in visible light.

Physico-chemical parameters:

Loss on drying:	Not more than 17 per cent,	Appendix 2.2.10
Total ash:	Not more than 5.5 per cent,	Appendix 2.2.3
Acid-insoluble ash:	Not more than 2 per cent,	Appendix 2.2.4
Alcohol-soluble extractive:	Not less than 28 per cent,	Appendix 2.2.7
Water-soluble extractive:	Not less than 26 per cent,	Appendix 2.2.8
*p*H (1% aqueous solution)*:*	4.45 to 4.52,	Appendix 3.3

Other requirements:

Microbial Limit:	Appendix 2.4
Aflatoxins:	Appendix 2.7

Storage: Store in a cool place in tightly closed container, protect from light and moisture.

Therapeutic uses: Āmavāta (rheumatism); Kaṭiśūla (lower backache); Gṛdhrasī (sciatica); Khañja (limping); Vātarakta (gout); Paṅgu (paraplegia); Śotha (inflammation); Dāha (burning sensation); Kroṣṭuśīrṣaka (deformed knee due to chronic arthritis).

Dose: 2-3 g daily in divided doses.

Anupāna: Warm water

VYOṢĀDI GUGGULU

(AFI, Part-I, 5:9)

Definition:

Vyoṣādi Guggulu Vaṭī is a preparation made with the ingredients in the Formulation composition given below with Guggulu as the basic ingredient.

Formulation composition:

1.	Śuṇṭhī API	*Zingiber officinale*	Rz.	1 Part
2.	Marica API	*Piper nigrum*	Fr.	1 Part
3.	Pippalī API	*Piper longum*	Fr.	1 Part
4.	Citraka API	*Plumbago zeylanica*	Rt.	1 Part
5.	Mustā API	*Cyperus rotundus*	Rz.	1 Part
6.	Harītakī API	*Terminalia chebula*	P.	1 Part
7.	Bibhītaka API	*Terminalia belerica*	P.	1 Part
8.	Āmalakī API	*Emblica officinalis*	P.	1 Part
9.	Viḍaṅga API	*Embelia ribes*	Fr.	1 Part
10.	Guggulu- API Śuddha	*Commiphora wightii*	O.R.	9 Parts

Method of preparation:

Take all the ingredients of the pharmacopoeial quality.

Wash, dry and powder the ingredients numbered 1 to 9 of the formulation composition separately and pass through sieve number 85, weigh them separately in the required quantities and mix.

Crush weighed quantity of *Guggulu-Śuddha*, add fine powder of other mixed ingredients to it and pound well. Add *Eraṇḍa oil* to an extent required to facilitate the pounding and continue pounding till a semi-solid uniformly mixed mass of suitable plasticity is obtained.

Expel the mass through *Vaṭī* machine fitted with a suitable die and cut the *Vaṭīs* to a desired weight.

Roll the *Vaṭīs* on flat surface to round them by circular motion of palm covered with a glove and smeared with *Śuṇṭhī oil* or use suitable mechanical device.

Dry the rounded *Vaṭīs* in a tray-dryer at a temperature not exceeding 60^0 for 10 to 12 h.

Pack it in tightly closed containers to protect from light and moisture.

Description:

Spherical pills, black in colour with pleasant odour and bitter taste

Identification:

Microscopy:

Take about 5 g of the sample, powder it and add n-*hexane* (20 ml) stir for 10 min thoroughly over a water-bath; pour out *hexane*. Repeat the process thrice adding fresh quantities of *hexane*; discard *hexane*. Wash the sediment thoroughly in hot water. Take a few mg of washed material, stain with *iodine* solution and mount in 50 per cent *glycerine*. Clarify another few mg with *chloral hydrate* and mount in 50 per cent *glycerine*. Observe the following characters in different mounts.

Groups of parenchymatous cells, densely packed starch grains, isolated starch grains, simple, oval to rod shaped, measuring 15 to 70 µ in length, hilum eccentric, lamellae distinct, yellow coloured oleo-resin cells, non-lignified, septate fibres some of them bearing marks of adjacent cells pressing against them, 30 to 50 µ broad **(Śuṇṭhī);** groups of isodiameric or slightly elongated stone cells with moderately thickened walls, interspersed with thin walled polygonal parenchyma cells **(Marica)**; groups of elongated, spindle shaped, wide lumened lignified stone cells **(Pippalī);** fibre sclereids from scale leaves in packed rows (**Mustā**); prismatic crystals of calcium oxalate, spiral vessels and stone cells in different shapes and sizes with prominent pits from testa and elongated sclereids with broad lumen and pitted walls (**Viḍaṅga**); short, unicellular, thick walled trichomes with sharp tips and bulbous bases and fragments of polyhedral epidermis showing cicatrices (**Bibhītaka**); groups of parenchymatous epidermal cells having beaded walls, several showing a thin cross wall, crisscross layer of sclerenchymatous fibres **(Harītakī);** thin walled cells of epidermal tissue with paracytic stomata and containing silica crystals, sclereids with pitted wide lumen, parenchymatous tissue with large irregular thick walled cells showing

corner thickenings **(Āmalakī)**; cork cells in surface view, uniseriate and multiseriate ray parenchyma cells, bifurcated short fibres and pitted vessels (**Citraka)**.

Thin layer chromatography:

Extract 5 g of formulation powder in 75 ml of n-*hexane* under reflux on a water-bath for 30 min. Filter and concentrate the extract to 25 ml and carry out the thin layer chromatography. Apply 10 µl of n-*hexane* extract on TLC plate and develop the plate to a distance of 8 cm using *toluene: acetone* (9:1) as mobile phase. After development, allow the plate to dry in air and examine under ultraviolet light (366 nm). It shows major spots at R_f 0.19, 0.37, 0.44 and 0.59 (all fluorescent blue). Spray the plate with *anisaldehyde-sulphuric acid reagent* followed by heating at 105^0 for about 10 min. It shows major spots at R_f 0.45, 0.53, 0.72 and 0.77 (all pink changing to purple) in visible light.

Physico-chemical parameters:

Loss on drying:	Not more than 15 per cent,	Appendix 2.2.10
Total ash:	Not more than 11 per cent,	Appendix 2.2.3
Acid-insoluble ash:	Not more than 3 per cent,	Appendix 2.2.4
Alcohol-soluble extractive:	Not less than 21 per cent,	Appendix 2.2.7
Water-soluble extractive:	Not less than 24 per cent,	Appendix 2.2.8
*p*H (1% aqueous solution)*:*	4.57 to 4.69,	Appendix 3.3

Other requirements:

Microbial Limit:	Appendix 2.4
Aflatoxins:	Appendix 2.7

Storage: Store in a cool place in tightly closed container, protect from light and moisture.

Therapeutic uses: Medoroga (obesity); Kapha Roga (disease due to Kapha Doṣa); Āmavāta (rheumatism),

Dose: 2-3 g daily in divided doses.

Anupāna: Warm water.

YOGARĀJA GUGGULU

(A.F.I. Part-I, 5:7)

Definition:

Yogarāja Guggulu Vaṭī is preparation made with the ingredients in the Formulation Composition, given below, with Guggulu as the basic ingredient.

Formulation Composition:

1.	Citraka API	*Plumbago zeylanica*	Rt.	1 part
2.	Pippalīmūla API	*Piper longum*	Rt.	1 part
3.	Yamānī (Yavānī API)	*Trachyspermum ammi*	Sd.	1 part
4.	Kāravī (Kṛṣṇa Jīraka API)	*Carum carvi*	Fr.	1 part
5.	Viḍaṅga API	*Embelia ribes*	Fr.	1 part
6.	Ajamodā API	*Apium leptophyllum*	Fr.	1 part
7.	Jīraka (Śveta Jīraka API)	*Cuminum cyminum*	Fr.	1 part
8.	Suradāru (Devadāru API)	*Cedrus deodara*	Ht. Wd.	1 part
9.	Cavya API	*Piper chaba*	St.	1 part
10.	Elā (Sūkṣmailā API)	*Elettaria cardamomum*	Sd.	1 part
11.	Saindhava Lavaṇa API	Rock Salt		1 part
12.	Kuṣṭha API	*Saussurea lappa*	Rt.	1 part
13.	Rāsnā API	*Pluchea lanceolata*	Rt./ Lf.*	1 part
14.	Gokṣura API	*Tribulus terrestris*	Fr.	1 part
15.	Dhānyaka API	*Coriandrum sativum*	Fr.	1 part
16.	Harītakī API	*Terminalia chebula*	P.	1 part
17.	Bibhītaka API	*Terminalia belerica*	P.	1 part
18.	Āmalakī API	*Emblica officinalis*	P.	1 part
19.	Mustaka (Mustā API)	*Cyperus rotundus*	Rz.	1 part

20.	Śuṇṭhī API	*Zingiber officinale*	Rz.	1 part
21.	Marica API	*Piper nigrum*	Fr.	1 part
22.	Pippalī API	*Piper longum*	Fr.	1 part
23.	Tvak API	*Cinnamomum zeylancium*	St. Bk.	1 part
24.	Uśīra API	*Vetiveria zizanoides*	Rt.	1 part
25.	Yavāgraja (Yava) Kṣāra API	*Hordeum vulgare*	Water soluble ash of Pl.	1 part
26.	Tālīsa Patra API	*Taxus wallichii*	Lf.	1 part
27.	Patra (Tejapatra API)	*Cinnamomum tamala*	Lf.	1 part
28.	Guggulu API -Śuddha	*Commiphora wightii*	O.R.	27 parts
29.	Sarpi (Goghṛta API)	Clarified butter From Cow's milk		1 part

* Actual part used in the formulation.

Method of preparation:

Take all the ingredients of the pharmacopoeial quality.

Wash, dry and powder the ingredients numbered 1 to 27 of the formulation composition separately and pass through sieve number 85, weigh them separately in the required quantities and mix.

Crush weighed quantity of *Guggulu-Śuddha*, add fine powder of other mixed ingredients to it and pound well. Add *Ghṛta* in small quantity at regular intervals for smooth pounding and continue pounding till a semi-solid uniformly mixed mass of suitable plasticity is obtained.

Expel the mass through *Vaṭī* machine fitted with a suitable die and cut the *Vaṭīs* to a desired weight.

Roll the *Vaṭīs* on flat surface to round them by circular motion of palm covered with a glove and smeared with *Eraṇḍa Taila* or use suitable mechanical device.

Dry the rounded *Vaṭīs* in a tray-dryer at a temperature not exceeding 60^0 for 10 to 12 h.

Pack it in tightly closed containers to protect from light and moisture.

Description:

Dark brown spherical *Vaṭī* with spicy pleasant odour and astringent taste

Identification:

Thin layer chromatography :

Extract 5 g of formulation powder with 75 ml n-*hexane* under reflux on a water bath for 30 min, filter and concentrate to 10 ml and carry out the thin-layer chromatography.

Apply 10 µl on TLC plate and develop the plate to a distance of 8 cm using n-*hexane: ethyl acetate* (8.5 : 1.5) as mobile phase. After development allow the plate to dry in air and examine under ultraviolet light (366 nm). It shows major spots at R_f 0.10, 0.17, 0.38, 0.43, 0.84 (all blue). Spray the plate with *anisaldehyde sulphuric acid reagent* followed by heating at 105^0 for about 10 min. It shows major spots at R_f 0.22 (pink), 0.31 (purple), 0.34 (brown), 0.41 blue, 0.52 (greyish blue), 0.59 (grayish brown), 0.65 (blue), and 0.78 (greenish blue) in visible light.

Physicochemical parameters:

Loss on drying:	Not more than 10 per cent,	Appendix 2.2.10
Total ash:	Not more than 6 per cent,	Appendix 2.2.3
Acid-insoluble ash:	Not more than 1 per cent,	Appendix 2.2.4
Alcohol-soluble extractive:	Not less than 16 per cent,	Appendix 2.2.7
Water-soluble extractive:	Not less than 19 per cent,	Appendix 2.2.8
*p*H *(1% aqueous soluion):*	4.7 to 5.0,	Appendix 3.3

Other requirements:

Microbial Limit:	Appendix 2.4
Aflatoxins:	Appendix 2.7

Storage: Store in a cool place in tightly closed containers, protect from light and moisture.

Therapeutic Indications: Udararoga (diseases of abdomen); Āmavāta (rheumatism); Āḍhyavāta (gout); Kṛmi (worm infestation); Duṣṭavraṇa (non-healing ulcer); Plīhāvṛddhi (splenomegaly); Gulma (abdominal lump); Ānāha (distension of abdomen); Arśa (piles); Agnimāndya (digestive impairment); Daurbalya (weakness); Sandhigata Vāta (osteoarthropathy); Majjāgata Vāta (bone marrow disorders).

Dose: 2-3 g daily in divided doses.

Anupāna: Warm water and milk.

TAILA

General Description:

Tailas are preparations in which *Taila* is boiled with prescribed liquid media [*Svarasa/Kvātha* Etc.] and a fine paste [*Kalka*] of the drugs specified in the formulation composition. Unless specified otherwise *Taila* means *Tila Taila.*

General Method of Preparation:

1. The *Taila* preferably should be fresh.
2. There are usually three essential components in the manufacture of *Taila Kalpanā.*

    a. *Kalka* [Any liquid medium as prescribed in the composition]
    b. *Kalka* [Fine paste of the specified drug]
    c. *Sneha Dravya [Taila]*
    d. And, occasionally,
    e. *Gandha Dravya* [Perfuming agents]
3. Unless otherwise specified in the verse, if *Kalka* is one part by weight, *Taila* should be four parts and the *Drava Dravya* should be sixteen parts.
4. There are a few exceptions for the above general rule:
    a. Where *Drava Dravya* is either *Kvātha* or *Svarasa*, the ratio of *Kalka* should be one-sixth and one-eighth respectively to that of *Taila.*

        If the *Drava Dravya* is either *Kṣīra* or *Dadhi* or *Māṃsarasa* or *Takra,* the ratio of *Kalka* should be one-eighth to that of *Taila.*

        When flowers are advised for use as *Kalka,* it should be one-eighth to that of *Taila.*
    b. Where the numbers of *Drava Dravyas* are four or less than four, the total quantity should be four times to that of *Taila.*
    c. Where the number of *Drava Dravyas* is more than four, each *Dravya* should be equal to that of *Taila.*

d. If, *Kalka Dravya* is not prescribed in a formulation, the drugs specified for the *Drava Dravya [Kvātha or Svarasa]* should be used for the preparation of *Kalka.*

e. Where no *Drava Dravya* is prescribed in a formulation, four parts of water should be added to one part of *Taila.*

5. In general, the *Taila* should be subjected to *Mūrcchana* process, followed by addition of increments of *Kalka* and *Drava Dravya* in specified ratio. The contents are to be stirred continuously through out the process in order to avoid charring.
6. The process of boiling is to be continued till the whole amount of moisture gets evaporated and characteristic features of *Taila* appears.
7. The whole process of *Pāka* should be carried out on a mild to moderate flame.
8. Three stages of *Pāka* are specified for therapeutic purposes.

a. *Mṛdu Pāka*: In this stage, the *Kalka* looks waxy and when rolled between fingers, it rolls like lac without sticking. The *Taila* obtained at this stage is used for *Nasya* [Nasal instillation].

b. *Madhyama Pāka*: In this stage, the *Kalka* becomes harder and rolls in to *Varti.* It burns without crackling sounds when exposed to fire and *Phena* [Froth] will appear over the *Taila. Taila* obtained at this stage is used for *Pāna* [Internal administration] and *Vasti* [Enema].

c. *Khara Pāka:* Further heating of the *Taila*, leads to *Khara Pāka. Kalka* becomes brittle when rolled in between fingers. The *Taila* obtained at this stage is used only for *Abhyaṅga* [External application].

9. The period of *Pāka* depends upon the nature of liquid media used in the process.

a.	*Takra* or *Āranāla*	5 Nights
b.	*Svarasa*	3 Nights
c.	*Kṣīra*	2 Nights

10. *Pātra Pāka:* It is the process by which the *Taila* is augmented or flavored by certain prescribed substances. The powdered drugs are suspended in a vessel containing warm, filtered *Taila.*

The medicated *Taila* will have the odour, colour and taste of the drugs used in the process. If a considerable amount of milk is used in the preparation, the *Taila* will become thick and may solidify in cold seasons.

Tailas are preserved in good quality of glass, steel or polythene containers. These medicated preparations retain the therapeutic efficacy for sixteen months.

ŚAMBŪKĀDYA TAILA

(AFI, Part II, 8:17)

Definition:

Śambūkādya Taila is a medicated preparation made with the ingredients in the Formulation composition given below with Sarṣapa Taila as the basic ingredient.

Formulation composition:

1.	Kaṭu Taila API	*Brassica campestris*	Sd. Oil	768 g
	Kalka Dravya :			
2.	Śambūka	*Pila globosa*	Entire	250 g
3.	Jala	Water		3 l

Method of Preparation:

Take the raw materials of Pharmacopoeial quality.

Clean live Apple Snail (*Pila globosa)* thoroughly with tap water, and remove the foreign matter.

Boil *Pila globosa* with shell for 20 - 25 min.

Wash and drain the excess water.

Grind entire *Śambūka* to prepare *Kalka.*

Treat *Sarṣapa Taila* to prepare *Mūrcchita Sarṣapa Taila* (Appendix 6.2.8.).

Take *Mūrcchita Sarṣapa Taila* in a stainless steel vessel and heat it mildly.

Add increments of *Śambūka Kalka* and mix. Stir thoroughly while adding the water in specified ratio.

Heat with constant stirring maintaining the temperature between 50^0 and 90^0 during the first hour of heating. Continue heating with constant stirring.

Observe the boiling mixture for appearance of froth.

Expose the oil to flame and confirm the absence of crackling sound indicating absence of moisture.

Stop heating when froth appears and filter while hot (about 80^0) through *muslin cloth* and allow to cool.

Pack it in tightly closed glass containers to protect from light and moisture.

Description:

Medicated oil, yellow in colour, with strong, unpleasant odour

Identification:

Thin layer chromatography :

Extract 5 g of formulation with 50 ml of *methanol* by keeping the mixture for 12 h at 37^0 with occasional shaking. Filter and concentrate the extract to 10 ml and carry out thin layer chromatography.

Apply 10 µl of the extract on TLC plate and develop the plate to a distance of 8 cm using *chloroform: methanol: glacial acetic acid* (9:1:0.2) as mobile phase. After development, allow the plate to dry in air. Spray the plate with *ethanolic sulphuric acid reagent* followed by heating at 105^0 for about 10 min and examine the plate under ultraviolet light (366 nm). It shows major spots at R_f 0.50 (greenish blue), 0.60 (light blue), 0.70 (fluorescent blue) and 0.80 (fluoroscent blue).

Physico-chemical parameters:

Refractive index at 40^0:	1.4710 to 1.4880,	Appendix 3.1
Specefic gravity at 40^0:	0.907 to 0.910,	Appendix 3.2
Saponification Value:	180.0 to 186.0,	Appendix 3.10
Iodine Value:	Not more than 104,	Appendix3.11
Acid Value:	Not more than 2,	Appendix3.12
Peroxide Value:	Not more than 6,	Appendix3.13

Other requirements:

Mineral oil:	Absent,	Appendix 3.15
Microbial Limits:		Appendix 2.4
Aflatoxins:		Appendix 2.7

Storage: Store in a cool place in tightly closed container, protect from light and moisture

Therapeutic Uses: Karṇagata Nāḍīvraṇa (abscess in ear).

Dose: 5-10 drops, for external use, once or twice a day.

KṢĀRASŪTRA (Medicated Thread)

(Suśruta Saṃhitā, Cikitsāsthāna-17 / 26-30)

And

(Cakradatta, Arśa Cikitsā -148)

Definition:

Kṣārasūtra is a medicated device prepared with a linen thread of specified physical characteristics, to meet the quality of the finished product described below, by coating it with layers of materials obtained from plants as mentioned.

1. Linen Thread of 20 gauge, of suitable length			
2. Snuhī Kṣīra API	*Euphorbia neriifolia*	Fresh Stem Latex	Q.S.
3. Apāmārga Kṣāra API	*Achyranthes aspera*	Water soluble ash of Pl.	Q.S.
4. Haridrā API	*Curcuma longa*	Rz.	Q.S.

Method of Preparation:

Spread the surgical linen thread of size 20 throughout the length and breadth of the hanger of the specially designed cabinet known as *Kṣārasūtra* (K.S.) Cabinet.

Smear the thread with latex, uniformly and carefully, all around the thread, with the help of clean gauze piece soaked in the *Snuhī Kṣīra*. After smearing all the threads on the hanger, place the hanger in the *Kṣārasūtra* cabinet for drying.

Close the cabinet properly and dry at 50^0 leaving it overnight. Close all the outlets of the *Kṣārasūtra* cabinet properly in order to prevent the entry of moisture in to the cabinet.

After eleven such coatings with *Snuhī Kṣīra*, process next day for the 12th coat of *Snuhī Kṣīra* and then pass the wet thread through a heap of finely powdered *Apāmārga Kṣāra* immediately.

After smearing all the threads with *Kṣāra*, shake the hanger gently allowing the excess particles of *Kṣāra* to fall down. Place the hanger in the *Kṣārasūtra* Cabinet and dry. Repeat this process till seven coatings of *Snuhī Kṣīra* and *Apāmārga Kṣāra* are achieved, thus completing 18 coatings on the thread.

Perform the remaining 3 coatings with *Snuhī Kṣīra* and fine powder of *Haridrā* as per the above said procedure making a total 21 coatings on the thread.

Put on the ultraviolet lamp of the *Kṣārasūtra* cabinet daily for 20-30 minutes to maintain sterile atmosphere right from the 1st day of coating.

Cut the threads of a uniform length i.e. 30-32 cm for packing as directed.

Put the sealed Glass Tube in a cabinet and expose it to ultraviolet radiation.

Description:

A dark brown coloured thread, with a dry coat of medicament that remains intact on handling and smooth to touch. The thread used is of linen consisting of processed pericyclic fibres from stems of *Linum usitatissimum*, complying with microscopy given below.

Microscopy:

1. Take a thread, wash thoroughly with *chloroform* 2 or 3 times followed by hot water also 3 times to remove the coated materials. Cut the washed thread into small pieces and digest it by boiling with a 10% aqueous solution of *sodium carbonate*. Wash to remove *sodium carbonate* and take small amount of the material on a micro slide and crush it with a glass rod. Mount and observe the characteristics.

a. Fibers with cell walls very thick with uniformly narrow lumen and tapering to a very fine point.

b. Fine, oblique or transverse markings present on the walls, sometimes crossing one another.

2. Take another small portion of the washed material, mount in *Cuoxam* (0.5 g of *copper carbonate* triturated with 10 ml of distilled water, gradually adding strong solution of *ammonia*, specific gravity 0.88, with continued stirring) and observe. No bulbous swelling is present (distinction from cotton).

Physico-chemical Characters:

Length of thread:	29 to 31 cm,	Appendix 7.1.1
Weight:	0.9 to 1 g,	Appendix 7.1.2
Diameter/Thickness:	1.75 to 2.0 mm	Appendix 7.1.3
Tensile Strength:	Breaking load not less than 5 kg,	Appendix 7.1.4
Loss on drying at 105^{0}:	Not more than 5 per cent,	Appendix 7.2.1
Water-soluble extractive:	Not less than 85 per cent,	Appendix 7.2.2
Hexane-soluble extractive:	Not less than 6 per cent,	Appendix 7.2.3
**Sulphated ash:*	80 to 82 per cent,	Appendix 7.6.9
**pH (1% aqueous solution):*	9.3 to 10.5,	Appendix 7.2.4
**Total alkalies (calculated as carbonates):*	Not less than 20% w/w,	Appendix 7.2.6

---

* For these tests and assays, collect sufficient quantity of the coated material from a set of *Kṣārasūtra*, by scraping gently with a spatula.

Assay:

Sodium:	Not less than 1 per cent,	Appendix 7.2.5
Potassium:	Not less than 35 per cent,	Appendix 7.2.5
Curcumin:	Not less than 0.05 per cent,	Appendix 7.2.8
Turmeric:	Not less than 4 per cent,	Appendix 7.2.7
Euphol:	Not less than 3 per cent,	Appendix 7.2.10

Microbial limits: Appendix 2.4

Therapeutic uses: Bhagandara (Fistula-in-ano and other fistulae of perianal region), Nāḍīvraṇa (sinuses), Arśa (haermorrhoids), Duṣṭa Nāḍīvraṇa (chronic-infected, non-healing ulcers), Vraṇa (ulcers), Vidradhi (abscesses of different location, Pilonidal sinus, Injection sinus), Arbuda (tumor), Adhimāṃsa (external growth of muscle and skin), Yoni Arśa (vaginal polyps).

Contraindications:

The sinuses which are connected with the following lesions away from the ano-rectal canal viz. Osteomyelitis of pelvic bones, Osteomyelitis of femur, Tuberculosis of hip joint, Tuberculosis of spine, Intra abdominal cold abscesses, Chronic/acute ulcerative colitis, Regional ileitis, Appendicitis, Intestinal & pelvic malignancies, Venereal diseases, Strictures of urethra causing urethral sinuses, Cases of RVF and VVF and Cron's disease etc.

Note: competent surgeon should make judicious decision on such conditions if *Kṣārasūtra* application is needed along with systemic treatment (Medical/Surgical).

Packing, Labeling and Storage: Giving a single fold, keep the thread inside a polythene sachet, pack in a glass tube, and seal it along with a silica bag (as desiccant). Label each pack as per requirement.

Storage: Keep in moisture free condition, away from direct sunlight & heat.