

**Pharmaceutical standardization, product development, and quality control  
aspects of pure-up syrup a market product.**

A DISSERTATION REPORT

SUBMITTED IN PARTIAL FULFILLMENT

OF THE REQUIREMENTS FOR THE DEGREE OF

**MASTER OF PHARMACY (AYURVEDA)**

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## Chapter-1

### INTRODUCTION

Pure up syrup is a blood purifier and it relief from various skin disorders. It is specially used in allergic and chronic disorder of skin, infective dermatitis, Eczema, Acne vulgaris and Urticaria. It work by relieves pruritic disorders of skin, relieves allergic conditions, Improve body defense mechanism, correct intractable dermatological conditions and clears chronic recurrent infections.

When the blood is get impure it is firstly affect our skin. Skin care is the sign of healthy life style. Skin is protecting our body from the external environment. Skin disease is caused by external environmental factor like the presence of bacteria and virus. Skin disease can be of four type- bacterial, viral, fungal and congenital skin disorders. When blood is impure due to bad circulation of blood it causes diseases like acne, pustules and rashes. Complication produced from allergy, weak immune system, wrinkles on face; hear loss weakening of eye sight etc. is the symptoms of impure blood.

Acne vulgaris is a common dermatosis affecting more than 85% of adolescents, two-third of adults aged 18 years and older are affected by the acne vulgaris (related to the pilosebaceous follicle). Acne is a chronic inflammatory skin disorder and three major areas of pathophysiology have been identified in acne: hyperkeratinization and obstruction of sebaceous follicles, resulting from abnormal desquamation of follicular epithelium; an androgen-stimulated increase in the production of sebum; and proliferation of *Propionibacterium acnes*, which generates inflammation. Disruption of the preclinical precursor lesion known as the microcomedo produces inflammation, which leads to the pustules and papules of clinical disease and may eventually result in scarring. Rational therapy for acne should be directed at the three factors involved in the pathophysiology of the disease. According to *Ayurveda* acne is termed as *Yovan pidika* which is caused by the aggravation of the *Pitta dosh* which further impaired the *rakta medha dhatu* and cause to produced toxin and blocks the skin pores leads to acne. In *Ayurveda*, acne has been treated mainly by *Shodhana* (purification of body) and *Shamana* (conservative treatment) *Chikitsa* or combination of both. In modern there are the various types of chemicals or there formulations are available. This present review hypothesizes for the comparative assessment of the modern and ancient science treatment used for the management of Acne vulgaris.

The World Health Organization plans to promote an integrated strategy for skin-related neglected tropical diseases that require active detection, treatment and control. The approach is expected to provide a platform for treatment of common skin conditions, resulting in wider public health benefits. Skin examination offers an opportunity to screen people in the communities or children in schools to identify multiple conditions in a single visit. This common approach justifies the integrated delivery of health care interventions to both increase cost-effectiveness and expand coverage. <sup>(4)</sup>

## **Chapter- 2**

### **SCOPE OF STUDY**

Pure up syrup is a marketed herbal combination act on the disease occurred due to impure blood. Our life style has significant impact on daily routine i.e. dietary habits, environmental gasses, polluted water, lack of sleep, junk foods, late night watching TV, skipping breakfast, lack of exercise, excessive stress, daily excessive alcohol taken etc. directly effect on blood to impure and when the blood gets impure it firstly effect on the skin and causes the various kinds of disease like allergic and chronic disorder of skin, infective dermatitis, Eczema, Acne vulgaris and Urticaria and the pure up syrup is intended to use to overcome the associated problems.

As it is syrup there is problems of accurate dosing system, spillage or leakages, problems during transportation, increase the transportation cost, drugs used as an active pharmaceutical ingredients also get diluted due to conversion in liquid form, the diabetic patients cannot get benefit from this syrup as it contain sugar in it. It has more chances of contamination due to repeated exposure to the environmental conditions. These are some various issues which are of concern. To overcome these problems there is need to develop syrup into tablet form.

## **Chapter- 3**

### **OBJECTIVE OF STUDY**

1. Procurement and authentication the herbal material of the formulation
2. To make the dosage form of pure up syrup i.e. tablet
3. To design the SOP of the formulations
4. To perform physiochemical and phytochemical parameters of prepared tablet dosage form
5. To perform stability study of the prepared dosage form

## Chapter-4

### REVIEW OF LITERATURE

#### 4.1 Pure-up syrup Ingredients

It contains the herbs are following with their review of literature

##### 4.1.1. Manjistha

###### 3.1.1.1 Dravyagun vijnana

Manjistha is kept under the rakta prasadan category, mentioned about the gun, synonyms and raktashodhak property

###### 4.1.1.2 priyanighantu

Mention about the Rasa Panchak, and considered as best Rakta shodhak Dravya.

###### 4.1.1.2.3 The Ayurvedic Pharmacopoeia of India <sup>(1)</sup>

Manjistha consists of dried stem of *Rubia cordifolia* Linn. (Fam. Rubiaceae). It is a Perennial herbaceous prickly creeper or climber upto 10m long, found throughout India upto 3750 m.

#### SYNONYMS -

Sansk : Yojnavalli, Vastrarajini, Rakta

Assam : Phuvva

Beng : Manjistha, Manjith

Eng : Indian Maddar

Guj : Manjitha

Hindi : Manjitha, Manjit

Punj : Manjistha, Manjit

Tam : Manjitte

Urdu : Majeeth

#### DESCRIPTION -

a) Macroscopic:

Stem slender, more or less cylindrical, slightly flattened, wiry, about 0.5 cm Thick, brown to purple coloured; surface scabrous, stiff and grooved with longitudinal Cracks; prickles present in the immature stem; nodes distinct having two leaf scars, one on either side; fracture, short.

b) Microscopic:



Mature stem shows exfoliating cork, ruptured at places, forming dome-shaped structure, consisting of 3-12 or more layered radially arranged, squarish and tangentially elongated, thin-walled cells, appearing polygonal in surface view; secondary cortex 3-5 layered consisting of tangentially elongated, thin-walled cells, some of which contain acicular crystals of calcium oxalate as isolated or in bundles; a few cells contain sandy crystals as black granular masses; secondary phloem, a wide zone of reddish color, composed of sieve elements and phloem parenchyma, fibers absent; phloem parenchyma smaller towards inner side gradually becoming larger and tangentially elongated towards periphery, a few cells contain sandy crystals of calcium oxalate; secondary xylem forms a continuous cylinder of reddish color, composed of vessels, tracheids, fibers and xylem parenchyma; vessels numerous, distributed uniformly throughout xylem, larger towards outer side and smaller towards center; in macerated preparation, vessels show great variation in shape and size having lignified walls and pitted thickening; xylem fibers thick-walled, long and short, longer ones have narrow lumen while shorter ones have wide lumen with pitted thickenings; xylem parenchyma also vary in shape and size having pitted or reticulate thickening; center occupied by narrow pith consisting of thin walled, parenchymatous cells, a few cells contain sandy crystals of calcium oxalate.

Powder - Pink; shows numerous fragments of cork, lignified xylem vessels, tracheids, and fibers with pitted and reticulate xylem parenchyma having red colored contents; acicular and sandy crystals as black granular masses.

#### **IDENTITY, PURITY AND STRENGTH -**

Foreign matter not more than 2 Per cent

Total ash not more than 12 Per cent

Acid-insoluble ash not more than 0.5 Per cent

Alcohol-soluble extractive not less than 3 Per cent

Water-soluble extractive not less than 17 Per cent

#### **T.L.C.-**

T.L.C. of the alcoholic extract on Silica gel 'G' plate using n-Butanol : Acetic acid : Water (4: 1 :5) shows in visible light two spots at Rf. 0.92 (grey) and 0.98 (green). Under UV (366 nm) two fluorescent zones are visible at Rf. 0.92 (grey) and 0.98 (pink). On exposure to Iodine vapor six spots appear at Rf. 0.28, 0.37, 0.53, 0.72, 0.92 and 0.98 (all yellow). On spraying with 5%

Methanolic-Sulphuric acid reagent and heating the plate for ten minutes at 110°C six spots appear at Rf. 0.28, 0.37 (both grey), 0.53 (bluish grey), 0.72 (grey), 0.92 (grey) and 0.98 (violet)

**CONSTITUENTS** – Glycosides

**PROPERTIES AND ACTION** -

Rasa : Madhura, Tikta, Kasaya

Guna : Guru

Virya : Ushna

Vipaka: Katu

Karma: Krimighna, Kaphapittasamaka, Svarya, Varnya, Visa, Sothaghna, Kusthaghna, Pramehaghna, Stambhan, Artavajanana, Rassnyana,

**IMPORTANT FORMULATIONS** - Arvindasava, Ashwagandharistha, Usirsava,

Candanasava, Brhanmanjisthadi Kvatha, Manjisthadi Taila, Khadiradi Gutika (Mukha)

**THERAPEUTIC USES**-Yoni Roga, Aksi Roga. slesmaja sotha, Karpa Roga, Manjistha Meha, Raktitisara, Kustha, Visarpa, Prameha, Sarpavisa, Bhagna, Vyanga

**DOSE** - 2-4 g. of the drug.

#### **4.1.2. Gorakhmundi**

##### **4.1.2.1 The Ayurvedic Pharmacopoeia of India** <sup>(12)</sup>

It is also known as Munditika. It consists of dried leaf of Linn. (Fam. Asteraceae). It is an aromatic, much branched herb, 30-60 cm high found abundantly in damp and shady places in plains all over the country, ascending to an altitude of 1,500 m in the hills.

**SYNONYMS** -

Sans : Mundi, saravani, Kadamba, Puspika, Alambusta

Assam. : Kamadarus

Beng : Surmuriya, Chhagal Nadi, Mudmudiya

Guj : Gorakhmundi

Hindi : Mundi

Mal : Mirnagnee, Atookamani, Mirangnee

Mar : Mundi, Baras Bondi

Ori : Buikadam

Punj : Gorakhmundi

Tam : Kotook, Karandai, Kottakarhai

Tel : Bodasaramu, Bodataramu

Urdu : Mundi

### **DESCRIPTION -**

a) Macroscopic:

Leaf sessile, 2-7 cm long, 1-1.5 cm wide, obovate-oblong, narrowed to the base, dentate or serrate, hairy, greenish-brown; odour, slightly aromatic, but disappears on long storage; taste, bitter.

b) Microscopic:

Leaf -

Midrib - Shows a single layered epidermis, covered with ordinary trichomes upto 5 cells high and glandular trichomes having unicellular stalk and group of 4-10 cells head, on both surfaces, followed in turn by 4-6 layered collenchyma and 3-4 layered parenchyma cells at both surfaces; vascular bundles 3-4, situated centrally having usual elements, xylem vessels arranged radially.

Lamina - Shows a single layered epidermis having numerous trichomes similar to those of midrib on both surfaces; mesophyll not differentiated into palisade and spongy parenchyma cells; stomata anisocytic present on both surfaces, stomatal index 32-38 on lower surface and 20- 29 on upper surface, stomatal number 47-54 on lower surface and 15-22 on upper surface, vein islet number 20-26. multicellular trichomes, xylem vessels, polygonal, wavy, thin-walled epidermal cells in surface view, stomata, ordinary trichomes upto 5 cells high and glandular trichomes having unicellular stalk and a head of 4-10 cells.

### **IDENTITY, PURITY AND STRENGTH -**

Foreign matter Not more than 2 Per cent

Total ash Not more than 28 Per cent

Acid-insoluble ash Not more than 7 Per cent

Alcohol-soluble extractive Not less than 3 Per cent

Water-soluble extractive Not less than 12 Per cent

### **T.L.C. -**

T.L.C. of the alcoholic extract on Silica gel 'G' plate using Chloroform: Methanol (9: 1) shows three spots at Rf. 0.27, 0.72 and 0.90 (all yellowish green) in visible light. Under U.V. (366 nm) five fluorescent zones are visible at Rf. 0.27, 0.42 (both blue). 0.54 (orange), 0.72 and 0.90 (both blue). On spraying with 5% Vanillin-Sulphuric acid reagent and heating the plate at 110°C for

ten minutes three spots appear at Rf. 0.27, 0.72 (both grey corresponding to Citral) and 0.96 (blue).

**CONSTITUENTS-** Essential Oil.

**PROPERTIES AND ACTION -**

Rasa : Madhura, Katu, Tikta, Kasaya

Guna : Laghu

Virya : Ushna

Vipaka: Katu

Karma: Medhya, Visaghna, Vatakaphahara, Arsadosa, Vinasaka

**IMPORTANT FORMULATIONS -** Navaratnaraja, Mrganka Rasa, Arka Mundi

**THERAPEUTIC USES -** Gandamala, Apachi, Kustha, Krimi, Pandu, Medaroga, Apasmara, Kasa, Mutrakricha, Tvaka Roga, Stana Saithalya, Yoniroga, Amatisar, Amaroga, Vataroga, Gudaroga, Pliharoga, Chardi, Amavata.

**DOSE -** 3-6 g. of the drug.

#### **4.1.3. Chopchini**

##### **4.1.3.1 The Ayurvedic Pharmacopoeia of India<sup>(13)</sup>**

It is also known as mdhusnuhi. It consists of tuberous root of Smilax china Linn. (Fam. Liliaceae), a deciduous climber with sparsely prickled or unarmed stems. It is imported from China and Japan.

#### **SYNONYMS**

Sanskrit : Dvipantara Vaca

Bengali : Chopcheenee, Kumarika, Shukchin

English : China root

Gujrati : Chopcheenee

Hindi : Chopcheenee

Marathi : Chopcheenee

Tamil : Parangichekkai

Telugu : Pirngichekka

#### **DESCRIPTION**

a) Macroscopic

Tubers about 6 to 12 cm long, 2 to 4 cm wide, rough, irregular, cylindrical, curved, slightly tapering with brownish or blackish scars; externally brownish-yellow in colour, and internally brown in colour; fracture, hard; odour not characteristic; taste, slightly bitter.

b) Microscopic

Cortex shows several layers of thin-walled, polygonal, elongated mucilaginous parenchymatous cells, a few cells containing raphides of calcium oxalate; endodermis not distinguished; ground tissue having several vascular bundles consisting of usual elements; fibres long and aseptate; numerous simple and compound starch grains, measuring 16 to 38  $\mu$  in dia. with 2 to more than 9 components mostly spherical to ovoid, having hilum in centre.

Powder: Shows light brown, fragments of mucilaginous parenchymatous cells of cortex fibres and vessels with reticulate thickening; a few scattered needles of calcium oxalate from raphides; numerous simple and compound starch grains measuring 16 to 38  $\mu$  india. with 2 to more than 9 components, mostly spherical to ovoid having hilum in center.

**IDENTITY, PURITY AND STRENGTH**

Foreign matter Not more than 2 per cent

Total Ash Not more than 0.6 per cent

Acid-insoluble ash Not more than 0.006per cent

Alcohol-soluble extractive Not less than 0.8 per cent

Water-soluble extractive Not less than 5 per cent

**T.L.C.**

T.L.C. of the alcoholic extract on precoated Silica gel 'G' plate (0.2 mm thick) using Toluene : Ethyl acetate : Methanol (10 : 10 : 4) as mobile phase and on spraying with Anisaldehyde-Sulphuric acid reagent and heating the plate at 105°C for ten minutes ten spots appear at Rf. 0.09 (dark green), 0.17 (violet), 0.21 (dirty yellow), 0.26 (grey), 0.32 (yellow), 0.48, 0.55 and 0.58 (all violet), 0.73 (greenish blue) and 0.77 (violet).

**CONSTITUENTS** - Saponins, sarsaponin and parallin, which yield isomeric sapogenins, sarsapogenin and smilogenin. It also contains sitosterol and stigmasterol in the free form and as glucosides.

**PROPERTIES AND ACTION**

Rasa : Tikta

Guna : Laghu, Ruksa

Virya : Ushna

Vipaka: Katu

Karma : sothahara, sukrasodhaka, Depana, Mutrala, Raktasodhaka, Rasayana, Tridosahara, Varnya, Vedanasthapana, Nadibalya, Anulomana, svedajanana

**IMPORTANT FORMULATIONS** - Madhusnuhi Rasayana, Chopacinyadi Churna

**THERAPEUTIC USES** - sula, Apasmara, Gandamala, Krimi, Kustha, Praameha, Sandhivata, Unmada, Vibandha, kamphavata, Vatavyadi, Phiranga, Sukravikar.

**DOSE** - 3-6 g powder.

#### **4.1.4. Sariva**

4.1.4.1 The Ayurvedic Pharmacopoeia of India (18)

It is commonly known as sweta sariva. It consists of root of *Hemidesmus indicus* (Fam. Asclepiadaceae). It is a prostrate or semi-erect shrub found throughout India, throughout Central, Western and Southern India upto an elevation of 600 m.

#### **SYNONYMS**

Sanskrit : Ananta, Gopasuta, Sariva

Assamese : Vaga Sariva

Bengali : Anantamul, Shvetashariva

English : Indian Sarasa Parilla

Gujrati : Upalsari, Kabri

Hindi : Anantamul

Kashmiri : Anant mool

Marathi : Upalsari, Anantamula

Oriya : Dralashvan Lai Anantamool

Punjabi : Anantmool, Ushbah

Tamil : Ven Nannar

Telugu : Sugandhi Pala, Tella Sugandhi

#### **DESCRIPTION**

a) Macroscopic

Roots occur in pieces, about 30 cm long and 3-8 mm in diameter, cylindrical, thick, hard, somewhat tortuous, sparsely branched, provided with few thick rootlets and secondary roots,

external appearance dark brown, sometimes with violet grey tinge, centre yellow, woody, surrounded by a mealy white cortical layer, bark brownish, corky, marked with transverse cracks and longitudinal fissures and easily detachable from the hard central core, odour, characteristic, taste, sweetish, slightly acrid and aromatic.

#### b) Microscopic

Transverse section of root shows periderm consisting of three layers of tissues, cork, cork cambium and secondary cortex, cork cells radially flattened and rectangular in appearance filled with dark brown contents giving reactions of tannins, cork cambium, 2 or 3 layered, compressed, and filled with deep brown contents, secondary cortex, 3-4 layers of cells, similar to cork cells, with very little or no dark brown contents, secondary phloem consists of sieve elements, parenchyma, phloem ray cells along with several laticiferous ducts, parenchyma cells filled with starch grains, diameter 7-10  $\mu$ , occasional prismatic crystals of calcium oxalate, cambium very narrow: xylem traversed by narrow medullary rays, vessels and tracheids characterized by the presence of pitted markings, pith absent and central region occupied by woody tissues.

#### **IDENTITY, PURITY AND STRENGTH**

Foreign matter not more than 2 per cent

Total Ash Not more than 4 per cent

Acid-insoluble ash Not more than 0.5 per cent

Alcohol-soluble extractive Not less than 15 per cent

Water-soluble extractive Not less than 13 per cent

**CONSTITUENTS** - Essential oil, saponin, resin, tannins, sterols and glucosides.

#### **PROPERTIES AND ACTION**

Rasa : Madhura

Guna : Guru, Snigdha

Virya : sita

Vipaka: Madhura

Karma: Raktasodhaka, Visaghna, Tridosanasana, Dipana, amanasana, Jvarahara

**IMPORTANT FORMULATIONS** - Sarivadyasava

**THERAPEUTIC USES** - Agnimandya, Aruchi, Atisara, svasa, Jvara, Kasa, Kandu, Kustha, Raktavikara

**DOSE** - 20-30 g of the drug for decoction.

#### **4.1.5. Unnab**

##### **4.1.5.1 The Ayurvedic Pharmacopoeia of India (19)**

It is commonly known as Jujube. It is a deciduous tree, native to the warm-temperate and subtropical regions including North Africa, South Europe, Mediterranean, South and East of Asia and Middle East.

#### **SYNONYMS –**

Sanskrit; Rajabadari Beri

Punjabi; Kul

Bengali; Bogori

Assamese; Bodori

Gujarati; Ber

Hindi; Bor

Marathi; Badaram,

Malayalam; Bogari

Kannada; Vadari

Tamil; Renu

Telugu; Ber

Urdu; Jangri

a) Macroscopic:

The leaves are alternate, entire, with three prominent basal veins, and 2-7 cm long. Some species are deciduous while others evergreen. The flowers are small, inconspicuous yellow-green. The fruit is an edible drupe, yellow-brown, red, or black, globose or oblong, 1-5 cm long, often very sweet and sugary, reminiscent of a date in texture and flavor

b) Microscopic:

Fruit pulp shows single layered epicarp consisting of thin-walled, parenchymatous cells, covered with thin layer of cuticle; mesocarp differentiated into two zones, outer zone consisting of 5-10 layers of rectangular, thin-walled, parenchymatous cells, inner mesocarp consisting of oval to polygonal, thin-walled, crushed parenchymatous cells, most of the mesocarp cells filled with reddish-brown substance, which is tannin when tested; a few fibro-vascular bundles found scattered in this region.



Powder - Orange; shows round to oval, thin-walled, reddish-brown cells of meso carp, slightly thick-walled, polygonal epicarp cells in surface view.

Foreign matter Not more than 1 Per cent,

Total ash Not more than 4.5 Per cent

Acid-insoluble ash Not more than 0.2 Per cent

Alcohol-soluble extractive Not less than 25 Per cent

Water-soluble extractive Not less than 45 Per cent

#### **T.L.C. -**

T.L.C. of the alcoholic extract on Silica gel 'G' plate using n-Butanol : Acetic acid: Water (9: 1: 10) shows under UV (366 nm) a fluorescent zone at Rf. 0.34 (light blue). On exposure to Iodine vapour seven spots appear at Rf. 0.11, 0.17, 0.34, 0.43, 0.54, 0.66 and 0.84 (all yellow). On spraying with 60 % Methanolic-Sulphuric acid reagent and heating the plate for ten minutes at 120°C five spots appear at Rf. 0.17, 0.34 (both black), 0.43, 0.66 and 0.84 (all grey). On spraying with 5% Methanolic-Sulphuric acid reagent and heating the plate for ten minutes at 110°C two spots appear at Rf. 0.17 and 0.34 (both black).

CONSTITUENTS - Vitamin C, Sugars and Minerals.

#### **PROPERTIES AND ACTION -**

Rasa : Madhura, Amla, Kasaya

Guna : Guru, Snigdha

Virya : Ushna

Vipaka : Madhura

Karma : Dipana, Grahi, Ruchya, Vatahara

IMPORTANT FORMULATIONS - Dhanvantara Taila

THERAPEUTIC USES - Daha, Raktavikara, Trishna, Aruchi.

DOSE - 3-6 g. (Dried Pulp).

#### **3.1.6. Rakta chandan**

##### **3.1.6.1 The Ayurvedic Pharmacopoeia of India <sup>(20)</sup>**

Raktachandana consists of heart wood of *Pterocarpus santalinus* (Fam.Fabaceae). It is a medium sized, deciduous tree upto 10-11 m high and 1.5 m in girth, mostly found in Andhra Pradesh and neighboring area of Chennai and Karnataka at an altitude of 150-900 m.

## **SYNONYMS -**

Sansk : Raktanga, Ksudrachndana, Raktasara

Assam : Sandale, Sandal Ahmar

Beng : Raktachandana

Eng : Red Sanders, Red Sandal Wood

Guj : Ratanjali, Lalchandana

Hindi : Raktachandanam, Lalchandana

Mal : Rakta Chandanam

Mar : Rakta Chandana

Punj : Lal Chandan

Tam : Senchandanam

Tel : Erra Chandanam

Urdu : Sandal Surkh

## **DESCRIPTION -**

a) Macroscopic:

Drug occurs as irregular pieces, deep blood-red to dark purplish-red or almost black, hard, but can be easily split, odorless; taste, slightly astringent

b) Microscopic:

Heart wood shows alternating bands of darker and lighter zones; vessels large, mostly isolated and connected by fine, bright red rays, consisting of xylem parenchyma; prismatic crystals of calcium oxalate occur in a few cells; red colouring matter present in a number of cells of vessels and other cells; fibres abundant; xylem rays mostly uniseriate.

Powder - Red or purplish-red; shows a number of fibers, vessels and xylem parenchyma cells and prismatic crystals of calcium oxalate.

## **IDENTITY, PURITY AND STRENGTH -**

Identification -

Fluorescence test on aqueous and alcoholic extracts:-

i) 5 gm. powder extracted in 100 ml of water and filtered shows in day light - pale yellow to brownish-red color; under U.V. light (366 nm) emerald green, and under U.V. light (254 nm) light green.

ii) 5 gm. powder extracted in 100 ml of alcohol and filtered shows in day light brownish –red colour; under U.V. light (366 nm) reddish -brown, and under U.V. light (254 nm) yellowish-green colour.

Foreign matter Not more than 2 Per cent

Total ash Not more than 2 Per cent

Acid-insoluble ash Not more than 0.3 Per cent

Alcohol-soluble extractive Not less than 3 Per cent

Water-soluble extractive Not less than 1 Per cent

#### **T.L.C. -**

T.L.C. of the alcoholic extract on Silica gel 'G' plate using Toluene: Ethylacetate (9:1) shows in visible light a spot at Rf. 0.37 (light pink). Under U.V. (366 nm) five Fluorescent zones are visible at Rf. 0.07 (blue), 0.13 (grey), 0.3e (blue), 0.37 (grey), and 0.57 (blue). On exposure to Iodine vapor eight spots appear at Rf. 0.07, 0.13, 0.16, 0.26, 0.37, 0.43, 0.74 and 0.80 (all yellow). On spraying with Vanillin-Sulphuric acid reagent and heating the plate for ten minutes at 110°C seven spots appear at Rf. 0.04 (violet), 0.07, 0.13 (both light violet), 0.37, 0.43 (both violet), 0.74 and 0.80 (both light violet).

**CONSTITUENTS** - Glycosides, Coloring Matter.

#### **PROPERTIES AND ACTION -**

Rasa : Madhura, Tikta

Guna : Guru, Ruksha

Virya : sita

Vipaka: Katu

Karma: Pittahara, Vrsya, Visaghna, Netraroga

**IMPORTANT FORMULATIONS** - Candana Bala Laksadi Taila, Candanadi Lauha

**THERAPEUTIC USES** - Chardi, Trishna, Raktadosahara, Tvara, Vrana

**DOSE** - 3-6 g. of the drug (powder).

#### 4.1.7. Sanai

##### 4.1.7.1 The Ayurvedic Pharmacopoeia of India (21)

It is also known as senna or swarnapari. It consists of dried leaves of (Fam.Leguminosae), a small shrub, 60-75 cm high, found throughout the year, cultivated largely in Southern India, especially in districts of Tinnevely, Madurai and Tiruchirapally and has also been introduced in Mysore, fully grown, thick bluish color leaves stripped off by hand, collected and dried in shade for 7-10 days, till assume a yellowish-green color.

#### SYNONYMS

Sanskrit : Madani

Assamese : Sonamukhi

Bengali : Svamamukhi, Sonapata

English : Indian Senna. Tinnevely Senna

Gujrati : Mindhiaval, Sonamukhi

Hindi : Sanaya, Hindisana

Kannada : Nelavarika, Sonamukhi, Nelaavare, Nelavarike, Nela Aanriake

Kashmiri : Sna

Malayalam: Sunnamukhi, Nilavaka, Chinnukki, Adapatiyan

Marathi : Sonamukhi

Oriya : Sunamukhi

Punjabi : Sannamakhi, Sanapati, Sarnapatta

Tamil : Nilapponnai, Avarai

Telugu : Sunamukhi

Urdu : Sena, Barg-e-Sana

#### DESCRIPTION

##### a) Macroscopic

Leaflets, 2.5-6 cm long and 7-15 mm wide at centre, pale yellowish-green, elongated lanceolate, slightly asymmetric at base, margins entire, fiat apex acute with a sharp spine, both surfaces smooth with sparse trichomes, odour, faint but distinctive, taste mucilagenous and disagreeable but not distinctly bitter.

##### b) Microscopic <sup>(9)</sup>

Transverse section of leaflet through midrib shows an isobilateral structure, epidermal cells, straight walled containing mucilage, both surfaces bear scattered, unicellular hair, often conical, curved near base, thick-walled, non-lignified, warty cuticle, stomata, paracytic, numerous on both surfaces, mesophyll consists of upper and lower palisade layers with spongy layer in between, palisade cells of upper surface longer than those of lower surface the latter having wavy anticlinal walls, prismatic crystals of calcium oxalate present on larger veins and clusters of calcium oxalate crystals distributed throughout the palisade and spongy tissues, midrib biconvex, bundles of midrib and larger veins, incompletely surrounded by a zone pericyclic fibers and a crystal sheath of parenchymatous cells containing prismatic crystals of calcium oxalate.

### **IDENTITY, PURITY AND STRENGTH**

Foreign matter Not more than 1 per cent.

Total Ash Not more than 14 per cent

Acid-insoluble ash Not more than 2 per cent

Alcohol-soluble extractive Not less than 3 per cent

Water-soluble extractive Not less than 25 per cent

**CONSTITUENTS** - Anthraquinone, glucoside, flavonoids, steroids and resin.

### **PROPERTIES AND ACTION**

Rasa : Katu, Tikta, Kasaya

Guna : Laghu, Ruksha, Tikshna

Virya : Ushna

Vipaka: Katu

Karma : Rechana

**IMPORTANT FORMULATIONS** - Panchasakra Churna, Sarivadyasava

**THERAPEUTIC USES** - Udararoga, Vibandha

**DOSE** - 0.5-2 g of the drug in powder form.

#### **4.1.8. Neem chal**

##### **4.1.8.1 The Ayurvedic Pharmacopoeia of India<sup>(22)</sup>**

Nimba consists of stem of *Azadirachta indica* (Fam. *Meliaceae*). It is a moderate sized to fairly large evergreen tree, attaining a height of 12-15 m with stout trunk and spreading branches, occurring throughout the country up to an elevation of 900 m.

## **SYNONYMS**

Sanskrit	: Arista, Picumarda
Assamese	: Mahanim
Bengali	: Nim, Nimgacha
English	: Margosa Trees
Gujrati	: Kadvo Limbdo
Hindi	: Nim, Nimb
Kannada	: Bevu, Kahibevu, Nimba, Oilevevu
Marathi	: Balantanimba, Kadunimb, Limba
Oriya	: Nimba
Punjabi	: Nim, Nimba, Bakam
Tamil	: Veppai, Vembu
Telugu	: Vemu, Vepa
Urdu	: Neem

## **DESCRIPTION**

### a) Macroscopic

Bark varies much in thickness according to age and parts of tree from where it is taken; external surface rough, fissured and rusty-grey; laminated inner surface yellowish and foliaceous, fracture, fibrous; odour, characteristic; taste, bitter.

### b) Microscopic

Stem Bark -Shows outer exfoliating pieces hard, woody, considerably thick in older barks; almost entirely dead elements of secondary phloem, alternating with discontinuous tangential bands of compressed cork tissue, former composed of several layers of stone cells occurring in regularly arranged groups together with collapsed phloem elements filled with brown contents; in between the successive zones of cork tissue 3-5 layers of fibre groups with intervening thin-walled and often collapsed phloem elements present; each zone of cork tissue consists of several layers of regular, thin walled cells occasionally with a few compressed rows of thick-walled cells towards outer surface; within exfoliating portion a number of layers of newly formed cork composed of thin walled, rectangular cells and one or two layers of cork cambium, below which a wide zone of secondary phloem present; secondary cortex absent in most cases; secondary phloem commonly composed of well-developed fiber bundles traversed by 2-4 seriate phloem

rays and transversely separated by bands of parenchymatous tissue of phloem; phloem elements of outer bark mostly collapsed; a few fairly large secretory cavities also occur in phloem; most of phloem parenchyma contain starch grains and prismatic crystals of calcium oxalate; starch grains, simple, round with central hilum, measuring 2.75-5  $\mu$  structure of bark varies considerably according to gradual formation of secondary cork bands.

Powder - Reddish-brown; shows numerous prismatic crystals of calcium oxalate, phloem fibers with narrow lumen and pointed ends; cork cells, stone cells mostly in groups, lignified rectangular to polygonal, having wide lumen and distinct striations, simple starch grains, measuring 2.75-5  $\mu$  in diameter.

### **IDENTITY, PURITY AND STRENGTH**

Foreign matter Not more than 2 per cent

Total Ash Not more than 7 per cent

Acid-insoluble ash Not more than 1.5 per cent

Alcohol-soluble extractive Not less than 6 per cent

Water-soluble extractive Not less than 5 per cent

### **T.L.C.**

T.L.C. of alcoholic extract of the drug on Silica gel 'G' plate using Chloroform: Ethylacetate: Formic acid (5:4: 1) shows under U.V. (366nm) three fluorescent zones at Rf. 0.72 (blue), 0.86 (blue), and 0.90 (green). On spraying with 5% Methanolic Phosphomolybdic acid reagent and heating the plate for about ten minutes at 105°C four spots appear at Rf. 0.20, 0.45, 0.63 and 0.90 (all blue).

**CONSTITUENTS** - Bitter principles Nimbin and Nimbiol

### **PROPERTIES AND ACTION**

Rasa : Tikta

Guna : Laghu, Ruksa

Virya : sita

Vipaka: Katu

Karma: Kandughna, Kaphahara, Pittahara, Visaghna, Vranasodhanakara.

**IMPORTANT FORMULATIONS**- Sudarsana Churna, Nimbadi Kvatha Churna, Nimbadi Churna, Panchanimba Churna.

**THERAPEUTIC USES** - Daha, Jvara, Krimiroga, Kandu, Kustha, Prameha, Rakta Pitta, Vrana

**DOSE** - 2-4 g. of the drug in powder form.

#### **4.1.9. Pitpapda**

##### **4.1.9.1 Dravyaguna Vijnana**

Mentioned pitpapda for the treatment of Raktashodhak and Rakta stambhan and also in skin disorders

##### **4.1.9.2 Shankar nighantu**

The synonyms, guna and description of pitpapda have been described

##### **4.1.9.3 Raj Nighantu**

Mentioned the synonyms and guna of pitpapda

##### **4.1.9.4 Dhanvantari Nighantu**

Botanical name, family, synonyms and guna karma of pitpapda have been described

##### **4.1.9.5 The Ayurvedic pharmacopoeia of India**

It consists of dried whole plant of *Fumaria perviflora* (Fam. *Fumaraceae*), a pale green, branched, annual, diffuse herb, about 60 cm high, distributed as a weed of cultivated fields over the greater parts of the country, and also commonly growing on road sides during cold season.

#### **SYNONYMS**

Sanskrit : Varatika, Suksmapatra

Assamese : Shahtaraj

Bengali : Vanshulpha, Bansulpha

Gujrati : Pittapapada, Pitpapado, Pittapapado

Hindi : Pittapapada, Dhamgajra, Pittapapara

Kannada : Kallu Sabbasige, Parpatu, Chaturasigide

Marathi : Pittapapada, Shatara, Parpat

Punjabi : Shahtara, Pittapapara

Tamil : Tura, Tusa

Telugu : Parpatakamu

Urdu : Parpata

#### **DESCRIPTION**

a) Macroscopic

Root- Buff or cream coloured, branched, about 3 mm thick, cylindrical, taste, bitter.



Stem - Light green, smooth, diffused, hollow, about 2 to 4 mm thick; taste, bitter and slightly acrid.

Leaf - Compound, pinnatifid, 5 to 7 cm long, divided into narrow segments; segments 5 mm long and about 1 mm broad, linear or oblong, more or less glaucous, acute or subacute; petiole, very thin, 2.5 to 4.0 cm long; taste, bitter.

Flower - Racemes with 10 to 15 flowers, peduncle upto 3 mm, pedicels about 2 mm, flowers about 7 mm long, bract much longer than the pedicels; sepals 2, white, minute, about 0.5 mm long, triangular ovate, acuminate; corolla in 2 whorls with very small 4 petals, each about 4 mm long; inner petals with a purple or green tip; outer petals with narrow spur, without purple spots stamens 3+3, staminal sheath subulate above, about 4 mm long, stigma 2 lipped.

Fruit - Capsule, 2 mm long and slightly broader, subrotund, obovate, obtuse or subtruncate, obscurely apiculate, rugose when dry; nutlets globose, upto 2 mm long, single seeded.

#### b) Microscopic

Root - Root shows single layered epidermis, followed by 5 or 6 layers of cortex consisting of thin-walled, rectangular, parenchymatous cells, outer 1 or 2 layers irregular and brown in colour; endodermis not distinct; secondary phloem very narrow and consisting of 2 or 3 rows with usual elements; central core shows a wide zone of xylem and consists of usual elements; vessels mostly solitary having reticulate and spiral thickening, medullary ray less developed and mostly uniseriate; fibres moderately long, thick-walled, having narrow lumen and blunt tips.

Stem - Stem shows a pentagonal outline, having prominent angles composed of collenchymatous cells; epidermis single layered of thin-walled, oblong, rectangular cells, covered with thin cuticle; cortex narrow, composed of 2 to 4 layers of chlorenchymatous cells endodermis not distinct; vascular bundles collateral, 5 or 6 arranged in a ring; each vascular bundle capped by a group of sclerenchymatous cells; phloem consists of usual elements; xylem consists of vessels, tracheids, fibres and xylem parenchyma; vessels much elongated, having reticulate, annular or spiral thickening or simple pits; xylem fibres narrow elongated with pointed ends having a few simple pits; centre either hollow or occupied by narrow pith consisting of thinwalled, parenchymatous cells.

Leaf Petiole V-shaped outline; single layer epidermis consisting of thin-walled, parenchymatous cells followed by ground tissue composed of thick-walled round, oval or polygonal, parenchymatous cells, outer cells smaller than inner; collenchymatous cells present at corners;

three vascular bundle scattered in ground tissue, one central and two in wings; vascular bundle consists of phloem and xylem, phloem capped with fibrous sheath, lower epidermis single layered.

Lamina - Shows single layer epidermis' on either side, consisting of thin-walled, rectangular, oval-shaped, parenchymatous cells; mesophyll composed of oval to polygonal thin-walled parenchymatous cells, filled with green pigment and not differentiated into palisade and spongy parenchyma; vascular bundles scattered throughout the mesophyll; stomata anomocytic, present on both surfaces.

Powder - Light greenish-brown; shows fragments of parenchyma; tracheids, fibers, and vessels having simple pits and spiral thickenings; anomocytic stomata and wavy walled epidermal cells in surface view.

### **IDENTITY, PURITY AND STRENGTH**

Foreign matter Not more than 2 per cent

Total Ash Not more than 30 per cent

Acid-insoluble ash Not more than 10 per cent

Alcohol-soluble extractive Not less than 7 per cent

Water-soluble extractive Not less than 29 per cent

### **T.L.C.**

T.L.C. of the alcoholic extract on Silica gel 'G' plate using Chloroform:Methanol (8:2) shows under visible light one spot at Rf. 0.93 (green). Under U.V. (366 nm) eight fluorescent zones are visible at Rf. 0.07 (blue), 0.13 (blue), 0.29 (light blue), 0.50 (light pink), 0.60 (light yellow), 0.67 (yellow), 0.79 (blue) and 0.93 pink). On exposure to Iodine vapour twelve spots appear at Rf. 0.07, 0.10, 0.13, 0.19, 0.29, 0.50, 0.60, 0.67, 0.74, 0.79, 0.86 and 0.93 (all yellow). On spraying with Dragendorff reagent followed by 5% Methanolic-Sulphuric acid reagent one spot appears at Rf. 0.07 (orange).

**CONSTITUENTS** - Alkaloids, Tannins, Sugars and salt of Potassium

### **PROPERTIES AND ACTION**

Rasa : Tikta

Guna : Laghu

Virya : sitta

Vipaka: Katu

Karma: Kaphahara, Pittahara, Samgrahi, Raktadosahara, Rochaka

**IMPORTANT FORMULATIONS** - Pachanamita Kvatha Churna, Tiktaka Ghrita, Mahatiktaka Ghrita, Nalpamaradi Taila, Patoladi Ghrita, Parpatadi Kvatha, Cintamani Rasa

**THERAPEUTIC USES**- Bhrama, Chardi, Daha, Jvara, Raktapitta, Raktavikara.

**DOSE**- 1-3gm.

## Chapter-5

### EQUIPMENT, MATERIAL, AND EXPERIMENTAL SETUP

#### 5.1 Material used

##### 5.1.1 List of the equipment used

S.NO.	Material
1.	Digital balance
2.	Water bath
3.	Hot air oven
4.	Digital pH meter
5.	Muffle furnace
6.	Hot plate
7.	UV spectrometer
8.	Humidity chamber
9.	Abbe's refractometer
10.	UV cabinet
11.	Disintegration apparatus
12.	Dissolution apparatus
13.	Monsanto hardness tester
14.	Roche friability apparatus
15.	Compound microscope
16.	Electron microscope
17.	Mechanical stirrer

##### 5.1.2 List of the chemical used

S. N.	Chemical/consumable
1	Ethanol
2	Hydrochloric acid
3	Mayer Solution

4	Dragondroff Reagent
5	Wagnor Reagent
6	Sudan 111
7	Ferric Chloride
8	Gelatin
9	Sodium Chloride
10	Lead Acetate solution
11	Ethyl Acetate
12	Sulphuric acid
13	Pyrimidin
14	Sodium nitropurisode
15	Alpha naphthol
16	Fehling A
17	Fehling B
18	Biuret reagent
19	Bendict reagent
20	Iodine
21	Lead Acetate
22	Potassium hydroxide
23	Copper sulphate
24	n butanol
25	Acetic acid
26	Chloroform
27	Methanol
28	Glacial acetic acid
29	Toluene
30	Formic acid
31	Silica gel G

### 5.1.3 List of Herbal ingredients used

s.no.	Common Name	Botanical Name	Quantity
1	Manjistha	<i>Rubia cordifolia</i>	1 part
2	Gorakhmundi	<i>Sphearanthus indicus</i>	1 part
3	Chopchini	<i>Smilax china</i>	1 part
4	Sariva	<i>Hemidesmus indicus</i>	1 part
5	Unnab	<i>Zizyphus vulgaris</i>	1 part
6	Rakta chandan	<i>Pterocarpus santalinus</i>	1 part
7	Sanai	<i>Cassia angustifolia</i>	1 part
8	Neem chal	<i>Azadirachta indica</i>	1 part
9	Pitpapda	<i>Fumaria perviflora</i>	1 part
10	Flavored syrup base		Q.S.

## Chapter- 6

### RESEARCH METHODOLOGY

1. Collection of the ingredients of formulation
2. Authentication of ingredients of formulation
3. Pharmacognostic and phytochemical study of the ingredients
4. Macroscopic and microscopic study
5. Physicochemical analysis of Herbal material
  - a) Foreign matter
  - b) Loss on drying at 110<sup>0</sup>C
  - c) Total Ash at 450<sup>0</sup>C
  - d) Acid insoluble Ash
  - e) Water soluble extractive value
  - f) Bulk and tapped density of powder Herbal material.
  - g) Compressibility index of powder Herbal material
6. Physicochemical parameters of formulations

S.N	Pure-up syrup	Pure-up tablet
1	Total ash (% w/w)	Total ash (% w/w)
2	Acid insoluble ash (% w/w)	Acid insoluble ash (% w/w)
3	pH meter	pH meter
4	Total sugar content (% v/v)	Total sugar content (% v/v)
5	Viscosity	Refractive index on room temperature
6	Wt/ml (g)	Total acidity (% v/v) titrimetric method
7	Specific gravity at 25 <sup>0</sup> C (g/ml)	Reducing sugar (% v/v) titrimetric method
8	Total solid content (% w/v)	Non Reducing sugar (% v/v) titrimetric method
9	Refractive index on room temperature	Shape and appearance

10	Total acidity (%v/v) titrimetric method	Hardness
11	Reducing sugar (%v/v) titrimetric method	Thickness and diameter
12	Non Reducing sugar (%v/v) titrimetric method	Friability
		Weight variation test
		Assay
		Disintegration on time
		Dissolution test(% drug release)



## **Chapter- 7**

### **EXPECTED OUTCOMES**

Blood is explained as reason for life, strength and immunity in Ayurveda. Most of the teenagers approach for its cure and most of the time they option some skin care lotions, soaps, ointments or fresh herbal pastes. But important factors, which lie in blood toxic components, metabolic waste products in blood, hormone imbalances, stress, bad skin health etc. are usually neglected in such incidences. So purity of the blood is very important to cure all type of skin diseases.

By this research we assure that the pharmaceutical product Pure-up syrup is good and acts as a blood purifier by checking its quality, by done the pharmaceutical standardization of the product, by product development and also by the review the therapeutic activity of composition of pure-up syrup.

## Chapter- 8

### PROPOSED WORK PLAN WITH TIMELINES

		<b>PURPOSED WORK PLAN AND TIME LINES</b>																	
		Month																	
Sr. no	Work List	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	Identification of topic	■	■	■															
2	Review of literature			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
3	Procurement of raw material				■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
4	Authentication of raw material						■	■	■	■	■	■	■	■	■	■	■	■	■
5	pharmacognostic & phytochemical study								■	■	■	■	■	■	■	■	■	■	■
6	Perpration of formulation											■	■	■	■	■	■	■	■
7	evaluation of prepared formulation														■	■	■	■	■
8	Stability study of prepared dosage form															■	■	■	■
9	Data interpetation				■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

## Chapter- 9

### RESULT AND DISCUSSION

#### 9.1 Pharmacognostic and physiochemical study of ingredients

##### 9.1.1 Morphology for manjistha dried stem



**Fig 9.1** Morphological characters of Manjistha dried stem



**Fig 9.2** Measurement of dried stem

**Table 9.1** Organoleptic characters of Manjistha dries stem

Sr. no.	Contents	Observation
1.	Color	Red buff color
2.	Odour	Characteristic
3.	Taste	Sweet
4.	Touch	Hard
5.	Texture	Rough longitudinal lines
6.	Fracture	Short
7.	Size	6.5 cm
8.	Shape	Cylindrical

##### 9.1.2 Physicochemical properties of manjistha dried stem

Sr. no.	Parameters	Standard (API)	Raw material (Batch)			
			I	II	III	Mean
1.	LOD	-	1.2%	1.2%	1.4%	1.2%
2.	Foreign matter	NMT 2%	0.8%	1.1%	0.9%	0.9%
3.	Total ash	NMT 12%	8%	6.5%	6.5%	7%

4.	Acid insoluble ash	NMT 0.5%	0.5%	0.5%	0.5%	0.5%
5.	Water soluble extractive value	NLT 3%	18.4%	19.2%	18.1%	18.56%
6.	Acid soluble extractive value	NLT 17%	30.4 %	33.6%	30.4 %	31.4%

\* **API**- Ayurvedic Pharmacopoeia of India, **NMT**- Note More Than, **NLT**- Note Less Than, **LOD**- loss on drying

### 9.2.1 Morphology for Gorkhmundi fruit



**Fig. 9.3** Morphological characters of Gorkhmundi fruit

**Fig. 9.4** Measurement of dried fruit

**Table 9.2** Organoleptic characters of Gorkhmundi fruit

Sr. no.	Contents	Observation
1.	Color	Purplish brown
2.	Odour	Characteristic
3.	Taste	Bitter
4.	Touch	Ripe fruit easily compressed and soft, unripe fruit hard to compress
5.	Texture	Rough
6.	Fracture	Short
7.	Size	1.4 cm
8.	Shape	Oval shaped

## 9.2.2 Physicochemical properties of Gorkhmundi fruit

Sr. no.	Parameters	Standard (API)	Raw material (Batch)			
			I	II	III	Mean
1.	LOD	-	19.06%	18.1%	20.6%	19.4%
2.	Foreign matter	NMT 2%	0.7%	0.9%	0.7%	0.7%
3.	Total ash	NMT 28%	7.5%	8%	8%	7.8%
4.	Acid insoluble ash	NMT 7%	1%	1%	1%	1%
5.	Water soluble extractive value	NLT 12%	18.4%	25.6%	22.4%	22.1%
6.	Acid soluble extractive value	NLT 3%	12%	10.4%	11.2%	11.2%

\* **API**- Ayurvedic Pharmacopoeia of India, **NMT**- Note More Than, **NLT**- Note Less Than, **LOD**- loss on drying

### 9.3.1 Morphology for Chopchini root



**Fig. 9.5** Morphological characters of Chopchini root



**Fig. 9.6** Measurement of dried root

**Table 9.3** Organoleptic characters of Chopchini root

Sr. no.	Contents	Observation
1.	Color	Creemish
2.	Odour	Characteristic
3.	Taste	Bitter
4.	Touch	Hard
5.	Texture	Rough

6.	Fracture	Hard, fibrous hard to pounding
7.	Size	4.6 cm
8.	Shape	Irregular

### 9.3.2 Physicochemical properties of Chopchini root

Sr. no.	Parameters	Standard (API)	Raw material (Batch)			
			I	II	III	Mean
1.	LOD	-	2.2%	2.3%	1.6%	2.03%
2.	Foreign matter	NMT 2%	0%	0%	0%	0%
3.	Total ash	NMT 0.6%	0.5%	0.5%	0.6%	0.5%
4.	Acid insoluble ash	NMT 0.006%	0.5%	0.5%	0.5%	0.5%
5.	Water soluble extractive value	NLT 5%	11.2%	10.4%	8.8%	10.4%
6.	Acid soluble extractive value	NLT 0.8%	14.4%	13.6%	15.2%	14.4%

\* **API**- Ayurvedic Pharmacopoeia of India, **NMT**- Note More Than, **NLT**- Note Less Than, **LOD**- loss on drying

### 9.4.1 Morphology for Sariva



**Fig. 9.5** Morphological characters of Sariva



**Fig. 9.6** Measurement of dried stem

**Table 9.4** Organoleptic characters of Sariva dried Stem

Sr. no.	Contents	Observation
1.	Color	Purplish brown
2.	Odour	Characteristic
3.	Taste	Sweet
4.	Touch	Hard
5.	Texture	Rough , lenticels are present
6.	Fracture	short, fibrous
7.	Size	5.8 cm
8.	Shape	Sub cylindrical

### 9.4.2 Physicochemical properties of Sariva

Sr. no.	Parameters	Standard (API)	Raw material (Batch)			
			I	II	III	Mean
1.	LOD	-	2.2%	2.8	2.2%	2.4%
2.	Foreign matter	NMT1%	0.6%	0.8%	0.8%	0.7%
3.	Total ash	NMT 4%	3.5%	4%	3.5%	3.6%

4.	Acid insoluble ash	NMT 0.5%	0.5%	0.5%	0.5%	0.5%
5.	Water soluble extractive value	NLT 13%	16%	12.8%	14.4%	14.4%
6.	Acid soluble extractive value	NLT 15%	16.8%	15.2%	14.9%	15.6%

\* **API**- Ayurvedic Pharmacopoeia of India, **NMT**- Note More Than, **NLT**- Note Less Than, **LOD**- loss on drying

### 9.5.1 Morphology for Unnab



**Fig. 9.7** Morphological characters of Unnab

**Fig. 9.8** Measurement of dried fruit

**Table 9.5** Organoleptic characters of Unnab dried fruit

Sr. no.	Contents	Observation
1.	Color	Purplish brown
2.	Odour	Characteristic
3.	Taste	Sweet
4.	Touch	Hard
5.	Texture	Rough , lenticels are present
6.	Fracture	short, fibrous
7.	Size	1.6 cm
8.	Shape	Sub cylindrical



### 9.5.2 Physicochemical properties of Unnab

Sr. no.	Parameters	Standard (API)	Raw material (Batch)			
			I	II	III	Mean
1.	LOD	-	3.6%	4.2%	5.4%	4.4%
2.	Foreign matter	NMT2%	0%	0%	0%	0%
3.	Total ash	NMT 4.5%	3%	2.5%	3%	2.8%
4.	Acid insoluble ash	NMT 0.2%	0.5%	0.5%	0.5%	0.5%
5.	Water soluble extractive value	NLT 45%	46.4%	48.8%	44%	46.4%
6.	Acid soluble extractive value	NLT 25%	25.6%	29.6%	27.2%	27.4%

\* **API**- Ayurvedic Pharmacopoeia of India, **NMT**- Note More Than, **NLT**- Note Less Than, **LOD**- loss on drying

### 9.6.1 Morphology for Raktachandan heart wood



**Fig. 9.9** Morphological characters of Raktachandan

**Fig. 9.10** Measurement of heartwood

**Table 9.6** Organoleptic characters of Raktachandan

Sr. no.	Contents	Observation
1.	Color	Purplish brown
2.	Odour	Characteristic
3.	Taste	Sweet
4.	Touch	Hard

5.	Texture	Rough , lenticels are present
6.	Fracture	short, fibrous
7.	Size	3.5 cm
8.	Shape	Sub cylindrical

### 9.6.2 Physicochemical properties of Raktachandan heart wood

Sr. no.	Parameters	Standard (API)	Raw material (Batch)			
			I	II	III	Mean
1.	LOD	-	2.8%	2.8%	1.8%	2.4%
2.	Foreign matter	NMT2%	0%	0%	0%	0%
3.	Total ash	NMT 2%	1.5%	1.5%	1.5%	1.5%
4.	Acid insoluble ash	NMT 0.3%	0%	1.5%	0%	0.3%
5.	Water soluble extractive value	NLT 1%	26.4%	23.2%	24.8%	24.8%
6.	Acid soluble extractive value	NLT 3%	12.8%	9.6%	9.6%	10.6%

\* **API**- Ayurvedic Pharmacopoeia of India, **NMT**- Note More Then, **NLT**- Note Less Then, **LOD**- loss on drying

### 9.7.1 Morphology for Sannai



**Fig. 9.9** Morphological characters of Sannai



**Fig. 9.10** Measurement of dried leaf

**Table 9.7** Organoleptic characters of Sannai dried leaf

Sr. no.	Contents	Observation
1.	Color	Purplish brown
2.	Odour	Characteristic
3.	Taste	Sweet
4.	Touch	Hard
5.	Texture	Rough , lenticels are present
6.	Fracture	short, fibrous
7.	Size	3.4 cm
8.	Shape	Sub cylindrical

### 9.7.2 Physicochemical properties of Sannai

Sr. no.	Parameters	Standard (API)	Raw material (Batch)			
			I	II	III	Mean
1.	LOD	-	2.4%	2.6%	2.5%	2.5%
2.	Foreign matter	NMT1%	0.9%	0.8%	0.8%	0.8%
3.	Total ash	NMT 14%	10%	10.5%	11.5%	10.6%
4.	Acid insoluble ash	NMT 2%	1.5%	1%	1%	1.6%
5.	Water soluble extractive value	NLT 25%	30.4%	36.8%	28%	31.73%

6.	Acid soluble extractive value	NLT 3%	10.4%	11.2%	9.6%	10.4%
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\* **API**- Ayurvedic Pharmacopoeia of India, **NMT**- Note More Than, **NLT**- Note Less Than, **LOD**- loss on drying

### 9.8.1 Morphology for Neem bark



**Fig. 9.11** Morphological characters of  
Neem

**Fig. 9.12** Measurement of dried bark

**Table 9.8** Organoleptic characters of Neem dried bark

Sr. no.	Contents	Observation
1.	Color	Brownish red
2.	Odour	Characteristic
3.	Taste	Bitter
4.	Touch	Hard
5.	Texture	Rough
6.	Fracture	short, fibrous
7.	Size	5 cm
8.	Shape	Flat pieces

## 9.8.2 Physicochemical properties of Neem

Sr. no.	Parameters	Standard (API)	Raw material (Batch)			
			I	II	III	Mean
1.	LOD	-	1.2%	1.4%	1.2%	1.2%
2.	Foreign matter	NMT2%	1.1%	1.2%	1.1%	1.1%
3.	Total ash	NMT 7%	6%	6.5%	7.5%	6.6%
4.	Acid insoluble ash	NMT 1.5%	1%	0.5%	1%	0.8%
5.	Water soluble extractive value	NLT 5%	15.2%	13.6%	12%	13.6%
6.	Acid soluble extractive value	NLT 6%	9.6%	9.6%	10.4%	9.8%

\* **API**- Ayurvedic Pharmacopoeia of India, **NMT**- Note More Than, **NLT**- Note Less Than, **LOD**- loss on drying

## 9.9.1 Morphology for Pitpapda



**Fig. 9.13** Morphological characters of pitpapda **Fig. 9.14** Measurement of dried whole plant

**Table 9.9 Organoleptic characters of Pitpapda whole plant**

Sr. no.	Contents	Observation
1.	Color	Purplish brown
2.	Odour	Characteristic
3.	Taste	Sweet
4.	Touch	Hard
5.	Texture	Rough , lenticels are present
6.	Fracture	short, fibrous
7.	Size	7.6 cm
8.	Shape	Sub cylindrical

**9.9.2 Physicochemical properties of Pitpapda**

Sr. no.	Parameters	Standard (API)	Raw material (Batch)			
			I	II	III	Mean
1.	LOD	-	10.06%	10.05%	10.06%	10.05%
2.	Foreign matter	NMT2%	0.03%	0.04%	0.03%	0.03%
3.	Total ash	NMT 30%	8.5%	14.5%	13%	12%
4.	Acid insoluble ash	NMT 10%	1.5%	1.5%	1%	1.16%
5.	Water soluble extractive value	NLT 29%	31.2%	28.8%	30.4	30.1%
6.	Acid soluble extractive value	NLT 7%	8.8%	10.4%	11.2%	10.1%

\* **API**- Ayurvedic Pharmacopoeia of India, **NMT**- Note More Than, **NLT**- Note Less Than, **LOD**- loss on drying

## Chapter-10

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# Chapter-11

## Appendix

### I. Presented the poster in “ International Conference of Pharmacy” at Lovely Professional University



**LOVELY PROFESSIONAL UNIVERSITY**  
Transforming Education Transforming India

**AN AYURVEDIC APPROCH FOR THE PREVENTION OF ALZHEIMER'S DISEASE: A REVIEW**



**Society of Pharmaceutical Education & Research (SPER)**

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#### Abstract

Alzheimer's starts early in life and progresses to a point where we can detect noticeable declines in cognitive functions, such as memory gaps or loss. Alzheimer's disease (AD) is a degenerative brain disorder. It breaks down and destroys brain cells and the neurons that connect brain cells to one another. This damage causes a decline in memory, behaviour, and mental capabilities. Herbal medicine treatment for AD becomes very popular now a day because of their activities against AD and slowing down the progression of it. Many herbal medicines have been researched and the benefits derived from using these medicines for AD and dementias are promising. Also, these herbs are inexpensive and can be easily available. The results shown that the treatment with herbal medicines are promising also with fewer adverse effects. Instead of using synthetic drugs with more side effects, herbals supplements can be used as their substitutes. In the review, we tried to present some of herbal drugs which are using now a day for the treatment of AD.

**Keywords:** Alzheimer's disease, , Ayurveda, Memory gaps

#### Introduction

Alzheimer's is the most common cause of dementia in adult life and is associated with the selective damage of brain regions and neural circuits critical for memory and cognition. According to the principles of Ayurveda, Alzheimer's is caused as a result of the imbalance in vata. This imbalance is quite common as a person begins to grow in age. Alzheimer's disease affects the vata – in the tissues of the central nervous system of the body – mainly the brain which then slowly becomes imbalanced.

#### Herbs used in treatment Alzheimer's disease



**Alzheimer's disease**

- Bacopa monnieri (Brahmi)**: Protein kinase activity and protein content of the hippocampus were increased, improvement in learning capacity.
- Lawsonia inermis (Mechandi)**: It affected 5-HT and noradrenaline-mediated behavior.
- Cestella asiatica (Mandookparni)**: decreased brain levels of malondialdehyde (MDA) with a simultaneous increase in the level of glutathione.
- Convolvulus pluricaulis (Shankhpushpi)**: The drug decreased the acetylcholine (ACh) content of the whole brain homogenate.
- Eugenia caryophyllus (Laung)**: reduced hydrolysis of ACh by AChE.
- Glycyrrhiza glabra (Yastimadhu, Mulethi)**: reduced ACh content in the whole brain but increased it in the cortex.
- Tinospora cordifolia (Gole, Guduchi)**: reduced ACh content in the whole brain but increased it in the cortex.



**Symptoms of Alzheimer's disease**

- Memory loss
- Forgetting words or inoperative words
- Problems speaking, reading, writing, understanding
- Disorientation to time and place
- Disorientation to time and place
- Poor or decreased judgment
- Drastic changes in personality

#### Mechanism of cause of Alzheimer's disease

- Missense mutation in APP, PS1 and PS2 genes
- Increased A beta42 production and accumulation
- A beta oligomerization and deposition as diffuse plaques
- subtel effect of Abeta oligomers on synapses
- Microglial and astrocytic activation
- Progressive synaptic and neuritic injury
- Altered neuronal ionic homeostasis; oxidative injury
- Altered kinase phosphatase activities
- Widespread neuronal dysfunction and cell death with transmitter deficits
- **Dementia**

#### Plant based marketed formulations used for treatment of Alzheimer's

- Mentat (Himalaya)**- Improved learning and memory retrieval.
- Trasina (Deys Pharmaceuticals)**- Improved both memory and cholinergic markers (e.g., ACh concentration, choline acetyl transferase activity) and muscarinic cholinergic receptor binding in frontal cortex and hippocampus.
- Syrup Shankhpushpi (Baidyanath)**- Reduction in brain AChE activity. Improvement in learning learning.
- Vidyarthi Amrit (Maharishi Ayurved)**- The drug caused a decrease in AChE and L-glutamate and an increase in L-aspartate and GABA levels of whole brain tissue.
- Dimagh Pushtak Rasayan (Baidyanath)**- Memory-enhancing.
- Geriforte (Himalaya)**- increasing feeling of well-being, physical efficiency, and improvement in mental functions.

#### Conclusion

A better understanding of dementia disorders, as well as their diagnosis and treatment, will make it possible for affected individuals and their caretakers to live their lives more fully and meet daily challenges. There is many herbs and herbal preparations which are used now a day and have clinically tested for the treatment of Alzheimer's and have less side effects.

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INTERNATIONAL CONFERENCE OF PHARMACY (ICP-2017) ON 7<sup>TH</sup> AND 8<sup>TH</sup> APRIL-2017  
AT: LOVELY PROFESSIONAL UNIVERSITY

II. Presented the poster in “Seminar on scope and development of Entrepreneurship in Pharma and Recent Advances in Pharmaceutical Research” at HHRC, Amritsar

## Management of Acne: An assessment



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**Abstract:**

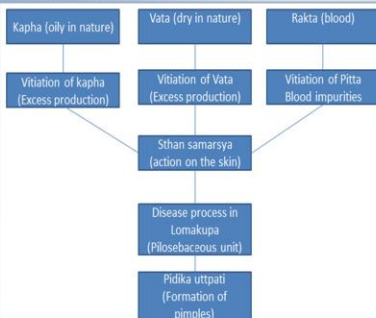
Acne vulgaris is a common dermatosis affecting more than 85% of adolescents, two-third of adults aged 18 years and older are affected by the acne vulgaris (related to the pilosebaceous follicle). Acne is a chronic inflammatory skin disorder and three major areas of pathophysiology have been identified in acne: hyperkeratinization and obstruction of sebaceous follicles, resulting from abnormal desquamation of follicular epithelium; an androgen-stimulated increase in the production of sebum; and proliferation of *Propionibacterium acnes*, which generates inflammation. Disruption of the preclinical precursor lesion known as the microcomedo produces inflammation, which leads to the pustules and papules of clinical disease and may eventually result in scarring. Rational therapy for acne should be directed at the three factors involved in the pathophysiology of the disease. According to *Ayurveda* acne is termed as *Yovan pidika* which is caused by the aggravation of the *Pitta dosh* which further impaired the *rakta medha dhatu* and cause to produced toxin and blocks the skin pores leads to acne. In *Ayurveda*, acne has been treated mainly by *Shodhana* (purification of body) and *Shamana* (conservative treatment) *Chikitsa* or combination of both. In modern there are the various types of chemicals or there formulations are available. This present review hypothesizes for the comparative assessment of the modern and ancient science treatment used for the management of Acne vulgaris.

**Keywords:** Acne, Yovan pidika, Dermatitis, Hyperkeratinization

**Introduction**

Acne is a common chronic inflammatory condition related to the pilosebaceous follicle. There are 79-95% cases of acne in the ages of 16-18 years according to many research studies. In India, research studies have reported acne in 50.6% of boys and 38.13% of girls in the age group of 12-17 years. In modern medicine, treatment mainly includes prolonged use of antibiotics, comedolytic and anti-inflammatory agent. In Ayurveda, Treatments have been used to treat acne i.e. Shodhana (purification of body) and Shamana (conservative treatment by oral and topical medicines).

**Pathophysiology (Ayurveda)**



**Pathophysiology (Modern)**



**Types of acne**



**Treatment (Ayurveda)**

S.no	Herbs	Ancient topical preparations	Some Ayurvedic proprietary medications
1.	Lodhra	Jatiphadi Lepa	Pure up syrup shree Dhanwanary herbal (O)
2.	Vacha	Lodhradi Lepa	Pimplex Cream Unexo (T)
3.	Dhanyaka	Manjishthadi Lepa	Purim Tablet Himalaya(O)
4.	Yashtimadhu	Kumkumadi Taila	Raktashodhaka Baldyanatha(O)
5.	Shalmali	Majishthadi Taila	Ari cleanse Capsule Ari Healthcare(O)
6.	Daruharidra	Marichadi Lepa	Skinelle Cream Charaka(T)
7.	Jatiphala	Haridradi Taila	Acno capsules shree Dhanwanary herbe (O)
8.	Manjishtha	Kanaka Taila	Acne-n-pimple cream Himalaya(T)
9.	Nimba	Sarshapa Taila	Clarina anti-acne face wash gel Himalaya(T)
10.	Khadira	Haridradi Taila	Clarina Anti acne cream Himalaya(T)

**Treatment (Modern)**

S.no.	Topical (T)	Oral (O)
1.	Retinoids (Tretinoin, Isotretinoin, etc.)	Antibiotics
2.	Benzoyl peroxide	OC Pills (Estrogen + Progesterin)
3.	Antibiotics (Erythromycin, Tetracycline, etc.)	Aldosterone antagonist
4.	Topical combinations (Erythromycin + Benzoyl peroxide), (Adapalene + Benzoyl peroxide), etc.	Corticosteroids
5.	Salicylic acid	Retinoids (Isotretinoin)
6.	Azelaic acid	Oral Combinations (Trimethoprim + Sulfamethoxazole 80)

**General causes of Acne**



**Conclusion**

In this assessment observed that both sciences have shown similarity in the understanding of acne vulgaris in terms of causative factors, onset of symptoms, pathophysiology and methods of treatment of acne vulgaris. Ayurveda believes in expelling the root causes of acne by advising Shodhana Chikitsa. Modern science also aims at eliminating one of the main factors of acne i.e. P. acnes bacteria by advising oral as well as local antibiotics. Effective treatment modalities are available in both the sciences, but sometimes adverse effects of modern medicines limit their use.

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