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Review Article

**FORMULATION AND EVALUATION OF CHURNA****Sanika Rajendra mule<sup>1\*</sup>, Jayshree paraji nalawade<sup>2</sup>, Sandip revansidha madkar<sup>3</sup>, Mr. Rakesh Thamke<sup>4</sup>, Mrs. Priyanka Deshmukh<sup>5</sup>, Dr. Kavita Kulkarni<sup>6</sup>**<sup>1\*, 2, 3</sup>Student, Shri Sai Institute of Pharmacy and Research, Chh. Sambhajinagar, Maharashtra, India-431001<sup>4, 5</sup>Assistant Professor, Shri Sai Institute of Pharmacy and Research, Chh. Sambhajinagar, Maharashtra, India-431001<sup>6</sup>Principal, Shri Sai Institute of Pharmacy and Research, Chh. Sambhajinagar, Maharashtra, India-431001**Abstract:**

Herbal formulations play an essential role in traditional medicine systems, particularly Ayurveda, where churna (fine herbal powder) is one of the most widely used dosage forms. Churna formulations offer advantages such as rapid absorption, ease of administration, enhanced stability of phytoconstituents, and improved therapeutic efficacy. This review highlights the formulation principles, preparation methods, quality control parameters, and scientific relevance of churna with special emphasis on Triphala churna and its modified formulation incorporating Jati Patra (*Jasminum sambac*). The process involved in churna preparation—drug selection, drying, pulverization, sieving, blending, and storage—is discussed along with pharmacognostic, physicochemical, and phytochemical evaluation techniques. The therapeutic roles of key ingredients—Amla, Bibhitaki, Haritaki, and Jati Patra—are elaborated based on their antioxidant, anti-inflammatory, antimicrobial, gastroprotective, detoxifying, and rejuvenative properties. The review also outlines challenges in herbal formulation development, including standardization, quality consistency, safety, and regulatory considerations. Overall, this work emphasizes the importance of scientific validation, standard evaluation parameters, and integration of traditional knowledge with modern analytical methods to ensure efficacy, safety, and quality of churna formulations.

**KEYWORDS:** Churna; Herbal formulation; Ayurveda; Triphala; Jati Patra; Pharmacognostic evaluation; Physicochemical parameters; Phytochemical screening; Traditional medicine; Herbal standardization.

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**INTRODUCTION:****Herbal Formulation:**

- Herbal formulation shall mean a dosage form consisting of one or more herbs or processed herbs in specified quantities to provide specific nutritional, cosmetic benefits, and/or other benefits meant for use to diagnose treat, mitigate disease of human being or animals and/or to alter the structure or physiology of human being or animals.
- Herbal preparation is obtained by subjecting herbal substances to treatments such as extraction, distillation, fractionation, purification, concentration, or fermentation.
- These include comminuted or powdered herbal substances, tinctures, extracts, essential oils, expressed juices and processed exudates

**Classification of herbal formulation:**

Herbal formulations/ dosage forms can be broadly classified into three categories viz; -

- 1) Traditional dosage forms
- 2) Modern herbal dosage forms
- 3) Novel dosage forms

**1) Traditional dosage forms:**

These are derived from various traditional systems of medicines like Ayurveda, Unani, Homeopathy, etc. eg: pills, powders, semi fluid extracts, pellets, tinctures, etc.

**2) Modern herbal dosage forms:**

These formulations are developed from modern technological processes, modern herbal formulations offer small dosage size, they are user friendly, convenient and have good absorption characteristics.

Ex: tablets, capsules, syrups, solutions, suppositories, injections.

**3) Novel dosage forms:**

With the advancement in different scientific techniques of preparing formulations, novel dosage forms are being developed to overcome the limitations of conventional dosage forms such as tablets, syrups, solutions, etc. Many novel dosage forms have been developed successfully which have offered better acceptance by the health system. A few novel dosages form available in the market are transdermal patches, nasal systems microcapsule, microspheres, liposomes, phytosomes, etc.

**Challenges in Herbal Formulation:**

- A key challenge is to objectively asses conflicting toxicological, epidemiological, and other data and the verification of herbal materials used.
- Management within ranges of risk.
- Communication of uncertainty.
- Pharmacological, toxicological, and clinical documentation.
- Pharmacovigilance

- Understanding why addition of harmful additives works evaluating 'Drug' interactions.
- Constraints with clinical trials and people available.
- Standardization
- Safety, and efficacy assessment.

**Advantages of herbal formulation:**

- Low risk of side effects.
- More effectiveness.
- Lower cost.
- Widespread availability.
- Limitations of Herbal drug.
- Eco-friendly.
- Permanent cure.
- Safe, No adverse effect.

**Concept of Ayurveda:**

- Ayurveda is a system of medicines with historical roots in the Indian subcontinent. Ayurveda is one of the oldest system of medicine which came existence in about 900 BC. Before 5000 years ago.
- The word "Ayur" means life and "Veda" means science, literally Ayurveda means science of life.
- Charaka and Sushruta made significantly contributions to Ayurveda.
- The book "Charak Samhita" was written by Charaka and he was known as Father of Ayurveda.
- Ayurveda developed significantly during the Vedic Period and later some of the non-vedic systems such as Buddhism and Jainism also developed medical concepts and practices that appear in the classical Ayurveda texts.
- Dosa balance is emphasized, and suppressing natural urges is considered unhealthy and claimed to lead to illness.
- Ayurveda treatises describe three elemental dosas viz. vata, pitta, kapha, and state that equality (Skt. Samyatva) of the dosas results in health, while inequality (visamatva) results in disease.
- Ayurveda treatises divide medicine into eight canonical components.
- Ayurveda is widely practiced on the Indian subcontinent-more than 90 percent of Indians use some form of Ayurvedic medicines, according to the University of Minnesota's Centre for Spirituality and Healing-and the tradition has gained popularity in the Western world, though it's still considered an alternative medical treatment.
- Ayurveda as a means of preventing and curing illness.

**Branches of Ayurveda:**

The earliest classical Sanskrit works on Ayurveda describe medicine as being divided into eight

components. This characterisation of the physicians' art, 'the medicine that has eight components they are:

1. Kayachikitsa- Internal medicine, medicine of the body. This branch concerned with the overall treatment of the entire body. It also focus on the body's digestive system and metabolism. It may include orally taking medicines as prescribed by the Ayurvedic practitioner and applying oils, lotions, and creams.
2. Kaumara-bhrtiya (pediatrics): This branch is also called kumara Bhritya. It focuses on disease and sickness that manifest in children. It also concerned with pre and postnatal care.
3. Salyatantra: Surgical techniques and the extraction of foreign objects.
4. Shalakyatantra: treatments of ailments affecting ears, eyes, nose, mouth, etc
5. Bhutavidya: Pacification of possessing spirits, and the people whose minds are affected by such possession
6. Agadatantra vishagara-vairoddha Tantra: It includes subject about epidermics, toxins in animals, vegetables, and minerals. It as well contains keys for recognizing those anomalies and their antidotes.
7. Rasayantra: rejuvenation and tonics for increasing lifespan, intellect, and strength.
8. Vajikaranatantra: This involves sexual health and treatment of reproductive problems such as infertility and the insufficiency of essential fluids.

#### Principles of Ayurveda:

##### Components of Ayurvedic treatment:

Treatment in Ayurveda involves involves four components-

- Bhishak (physician/surgeon)
- Rogi (patient)
- Upasthata (Nurse or caregiver)
- Dravyam (Food/ Medicine)

#### Diagnosis of Ayurvedic treatment:

Ayurveda has eight ways to diagnose illness, called Nadi (pulse), Mootra (urine), Mala (stool), jihva (tongue), shabdha (speech), Sparsha (touch), drk (vision), and akriti (appearance). Ayurvedic practitioners approach diagnosis using five senses.

Churna is defined as totally dried raw material which is powdered very minutely to make their small size and again filtered through cloth's grid and obtained fine powder is called as "Churna." A blend of several herbs and spices makes up the powdered mixture known as Churna. Depending on its intention in medicinal, beauty, fennel, dried ground ginger, coriander, and turmeric, In the

Ayurvedic diet, Churna supplement are relied upon for many dietary and nutritional uses. The herbal mixture is through to purify the blood and improve digestion when regularly used. Many Ayurvedic practitioners also use the blend to help prevent or treat infection. The immune system may be improved by ingesting these herbs as well. Several Ayurvedic recipes call for the remedy. Various herbal and fruit extract are sometimes combined with the herbal mixture and sugar to create cough syrup elixirs known as sitopaladi Churna. Such solution has also been known to be helpful in treating conditions such as indigestion, body weakness and chest congestion. Some people use the medicines for allergies as well. Liver detoxification regimens sometimes call for this Ayurvedic mixture. Available in tea, capsule, tablet, liquid, or powder form, it is also commonly used as a laxative. Many practitioners also hail the spice blend as a longevity tonic, using it for general brain and heart health. It has been known to help remedy for high blood pressure.

#### Scientific Approach of Ayurveda and Churna

- Ayurvedic principles show that everyone has a particular personality type as shown by the makeup of their doshas, or inner life energies. Your prakriti is your make up when you were born and vikriti is what they now as a result of life's experiences and stresses and imbalances of other elemental influences.
- In order to correct these imbalances, one can use churnas, or Ayurvedic spice powders that are made up of blends of spices. These churnas are made of fresh herbs that have medicinal properties, as well as the ability to neutralize the toxic effects caused by imbalances within the body.
- Ayurvedic churnas combine all six of the Ayurvedic tastes: sweet, sour, salty, pungent, bitter and astringent. They are created through the combination of a number of different fresh herbs and can be added to almost any foodstuff. Not only do churnas improve the taste of the dish and add their own nutritional kick, they also bring out the medicinal qualities of the foods they are added to. Ayurvedic churnas can also be sauteed in ghee before being added to a dish.
- The spices included in Ayurvedic churnas all have strong medicinal properties of their own. Ayurveda has long been touting the health benefits of these herbs. Ground ginger, for example, provides a pungent flavour but also calms the stomach and promotes good digestion.
- Turmeric contains curcumin, which is thought to reduce cholesterol, provide a

boost to the immune system, aid in liver detoxification and improve the body's response to allergens. It is a potent antioxidant, which means it helps the body fight off dangerous molecules known as free radicals, which contribute to your risk for heart disease and cancer.

- Cumin is also known to help the body in its detoxification efforts as well as make digestion smoother. Ayurvedic churnas are thus not only great at enhancing flavour, they also carry a number of health benefits of their own. Since they taste great, this makes it easy to add a healthy kick to nearly every meal you eat.

#### **Types of Churnas**

These are solid dosage form of medicament meant for internal use.

#### **These are two types:**

1. Simple Churnas: It contains only one medicament.
2. Compound Churnas: It contains two or more than two medicaments.

#### **Method of Preparation:**

The drugs are cleaned and dried properly. They are finely powdered and sieved. If more than one drug are present then each one is separately powdered, sieved, accurately weighed and then all mixed together. The powder is fine to the extent of at least 80 mesh sieves. It should not adhere together or become moist. The finer powder has better therapeutic value.

#### **Stability Period of Churnas**

Ayurvedic churnas retain their potency for 1 year  
Storage Condition for Churnas

1. The Ayurvedic Churna (powder) is fine of at least 80 mesh sieves.
2. It should not adhere or bind together or become moist.
3. The finer the powder, the better is its therapeutic value.
4. Churna should be kept in air-tight containers to maintain their self-life.

- These forms of medicaments are prescribed generally because of their particle size.
- Smaller the particle size of churna, better is the effect on the body.
- Churna should be given with other vehicle like honey, milk or churna.
- This make administration of churna easy and increased palatability also enhances therapeutic effect, such vehicles are called as Anupan in Ayurveda.

#### **Uses of churna:**

- It may relieve constipation.
- It may act as a laxative (may increase bowel movement).
- It may enhance digestion.
- It may relieve bloating.
- It may reduce acid reflux.

- It may reduce flatulence.
- It may reduce the occurrence of peptic ulcers.

#### **Quality Aspects of Churnas and Jati Patra**

There are different quality parameters to be considered for the evaluation of Ayurvedic Churnas, they are as follows:

#### **Physiochemical Parameters**

##### **Foreign Matter**

The 50-gm sample was spread in a thin layer, and the pieces of foreign matter were sorted out by visual inspection. The powder of foreign matter was sifted through a 250-micron sieve. All portions of the foreign matter were pooled and weighed.

##### **Loss on Drying**

5 gm of the sample was weighted in a tarred evaporating dish. It was dried at 105°C for 5 hours and weighed. The drying and weighing was continued at 1 hour interval until difference two successive weighing correspond not more than 0.25%.

##### **Estimation of crude fibre extract**

2 gm of sample was taken in a beaker and 50ml of 10% nitric acid was added. It was heated to boil with stirring (30 sec.). This was strained through fine cloth on a Buchner funnel. The residue was washed with boiling water and transferred to a beaker. 50ml of 2.5% v/v sodium hydroxide solution was added. It was strained and washed with hot water. The residue was transferred in a clean and dried crucible. The residue was weighed and the crude fiber content was determined.

##### **Total Ash value**

About 3 gm accurately weighed powdered sample was incinerated in a silica dish at a temperature not exceeding 450°C until free from carbon. It was then cooled and weighed. The % w/w of ash with reference to the air-dried drug was calculated.

##### **Acid insoluble ash value**

To the crucible containing the total ash was added 25 ml of hydrochloric acid. The crucible was then covered with a watch-glass and the mixture was boiled gently for 5 minutes. The watch-glass was rinsed with 5 ml of hot water and this liquid was added in to the crucible. The insoluble matter was collected on an ashless filter-paper and washed with hot water until the filtrate was neutral. The filter-paper contain the insoluble matter was transferred to the original crucible, dried on a hotplate, and ignite to constant weight. The residue was allowed to cool in a desiccator for 30 minutes and then weighed.

##### **Water soluble ash value**

Total ash obtained was boiled for 5 minutes with 25 ml of water. Insoluble matter was collected in a crucible or an ashless filter paper. Washed with hot water and ignite for 1 minute at temperature not exceeding 450°C. Weight of insoluble matter was subtracted from the weight of the ash, the difference in weight was representing the water-

soluble ash. Percentage of water soluble was calculated with reference to the air dried drug.

#### **Extractive Values: -**

##### **Alcohol soluble extractive value**

5 gm of the air dried coarsely powdered sample was macerate with 100 ml of alcohol of the specified strength in a closed flask for 24 hours. Shaking frequently during 6 hour and allowed to stand for 18 hours. Filter rapidly and evaporate 25 ml of the filtrate to dryness in tarred flat bottomed shallow dish and dry at 105°C to constant weight and weigh.

##### **Water soluble extractive value**

5 gm of the air dried coarsely powdered drug was macerate with 100 ml of distilled water in a closed flask for 24 hours. Shaking frequently during 6 hour and allowed to stand for 18 hours. Filter rapidly and evaporate 25 ml of the filtrate to dryness in tarred flat bottomed shallow dish and dry at 105°C to constant weight and weigh.

#### **Physical Characterization**

Physical characteristics of In-house formulation were done as per pharmacopoeial procedures. The information collected from this evaluation was crucial to avoid ambiguous predictions of stability or solubility of formulation.

##### **Bulk Density**

It is the ratio of given mass of powder and its bulk volume. It is determined by transferring an accurately weighed amount of powder sample to the graduated cylinder with the aid of a funnel. The initial volume was noted.

##### **Tapped Density**

It is measured by transferring a known quantity (25g) of powder into a graduated cylinder and tapping it for a specific number of times. The initial volume was noted. The graduated cylinder was tapped continuously for a period of 10-15 min. The density can be determined as the ratio of mass of the powder to the tapped volume.

$$\text{Tapped volume} = \frac{w}{v_f} \text{ g/ml}$$

Where, W = mass of the powder, Vf = tapped volume.

##### **Carr's index**

It is the propensity of the powder to be compressed. Based on the apparent bulk density and tapped density the percentage compressibility of the powder can be determined using the following formula.

$$\% \text{Compressibility index} = \frac{\text{tapped density} - \text{bulk density}}{\text{tapped density}} \times 100$$

##### **Hausner Ratio**

It indicates the flow properties of the powder. The ratio of tapped density to the bulk density of the powder is called Hausner ratio.

$$\text{Hausner ratio} = \frac{\text{Tapped density}}{\text{bulk density}}$$

##### **Angle of Repose**

The internal angle between the surface of the pile of powder and the horizontal surface is known as the angle of repose. The powder is passed through funnel fixed to a burette at a height of 4 cm. A graph paper is placed below the funnel on the table. The height and the radius of the pile were measured. Angle of repose of the powder was calculated using the formula:

$$\text{Angle of repose} = \tan^{-1} \frac{h}{r}$$

Where, h = height of the pile, r = radius of the pile

##### **Extraction:**

About 250 gm of dry churna was taken in a closed bottle and it was defatted with Petroleum ether. The defatting was continued for 9-10 days with occasional shaking. The Petroleum ether extract was filtered. The mare left after Petroleum ether defatting was taken out and dried under shade to get a dry mass, then extracted with Methanol and water (hydro alcoholic) by using hot percolation extraction. The extraction was continued for 72 hours. The hydro alcoholic extract was concentrated under reduced pressure to a semisolid mass and was made free from solvent. The final obtained extract was weighed; percentage yield was calculated and stored in a cool place.

##### **Phytochemical Screening:**

The following procedures were adapted to tests for the presence of various chemical constituents in extracts.

Tests for Carbohydrates:

##### **Molish's test (general test):**

To 2-3 ml aqueous extract, added few drops of  $\alpha$ -naphthol solution in alcohol, shaken and added concentrated H<sub>2</sub>SO<sub>4</sub>, from sides of the test tube was observed for violet ring at the junction of two liquids.

##### **A. For Reducing Sugars**

**Fehling's test:** 1 ml Fehling's A and 1 ml Fehling's B solutions was mixed and boiled for one minute. Added equal volume of test solution. Heated in boiling water bath for 5-10 min was observed for a yellow, then brick red precipitate.

**Benedict's test:** Equal volume of Benedict's reagent and test solution in test tube were mixed. Heated on boiling water bath for 5 min. Solution may appear green, yellow or red depending on amount of reducing sugar present in test solution.

**B. Tests for Monosaccharides: - Barfoed's test:** Equal volume of Barfoed's reagent and test solution were added. Heated for 1-2 min, on boiling water bath and cooled. Observed for red precipitate.

##### **C. Tests for Hexose sugars**

**Cobalt-chloride test:** 3 ml of test solution was mixed with 2ml cobalt chloride, boiled and cooled. Added FeCl<sub>3</sub>, drops on NaOH solution. Solution observed for greenish blue (glucose), purplish (fructose) or upper layer greenish blue and lower layer purplish (mixture of glucose and fructose).

##### **D. Tests for Non-reducing sugars**

- Test solution does not give response to Fehling's and Benedict's test.
- Tannic acid test for starch: with 20% tannic acid, test solution was observed for precipitate.

#### Tests for Amino Acids

- Ninhydrin test (general test): - 3 ml t.s. and 3 drops 5% Ninhydrin solution were heated in boiling water bath for 10 min. Observed for purple or bluish colour.

**Test for Tyrosine:** Heated 3 ml t.s. and 3 drops Million's reagent. Solution observed for dark red colour. **Test for Tryptophan:** To 3 ml t.s. added few drops glyoxylic acid and concentrated  $\text{H}_2\text{SO}_4$  observed for reddish violet ring at junction of the two layers.

#### Tests for Glycosides: - A) Tests for Cardiac Glycosides

**Baljet's test:** - A test solution observed for yellow to orange colour with sodium picrate.

**Legal's test (for cardenoloids):** - To aqueous or alcoholic test solution, added 1 ml pyridine and 1 ml sodium nitroprusside observed for pink to red colour.

**Test for deoxy sugars (Kellar-killani test):** - To 2 ml extract added glacial acetic acid, one drop of 5%  $\text{FeCl}_3$ , and concentrated  $\text{H}_2\text{SO}_4$ , observed for reddish brown colour at junction of the two liquid and upper layers bluish green.

**Liberman's test (for Bufadenolids):** - Mixed 3 ml extract with 3 ml acetic anhydride. Heated and cooled. Added few drops concentrated  $\text{H}_2\text{SO}_4$  observed for blue colour.

#### Test for Anthraquinone Glycoside

##### Borntrager's test

Boil powder drug with 5ml of 10% sulfuric acid for two minutes. Filter while hot. Cool the filtrate and shake gently with equal volume of benzene. Separated benzene layer is treated with half of its volume of solution ammonia (10%). Allow to separate. Ammonical layer acquires rose pink colour due to the presence of anthraquinones.

##### Modified Borntrager's test

C-glycosides of anthraquinones require more drastic condition for hydrolysis. Hydrolysis of drug is carried out with 5ml of dilute HCl and 5ml of 5% solution of ferric chloride. Carry out procedure as described under Borntrager's test.

#### Tests for Saponin Glycosides

- Foam test: The drug extract or dry powder was shaken vigorously with water. Persistent foam was observed.
- Hemolytic test: Added test solution to one drop of blood placed on glass slide. Hemolytic zone whether appeared was observed.

#### Tests for Coumarin Glycosides

Test solution when made alkaline, observed for blue or green fluorescence.

#### Tests for Flavonoids

- **Shinoda test:** - To dried powder or extract, added 5 ml 95% ethanol, few drops concentrated HCl and 0.5 g magnesium turnings. Pink colour was observed.
- To small quantity of residue, added lead acetate solution observed for yellow coloured precipitate.
- Addition of increasing amount of sodium hydroxide to the residue whether showed yellow coloration, which was decolorized after addition of acid was observed.
- **Ferric chloride test:** - Test solution, added few drops of ferric chloride solution observed for intense green colour.

#### Tests for Alkaloids

- **Dragendorff's test:** To 2-3 ml filtrate added few drops Dragendorff's reagent observed for orange brown precipitate.
- **Mayer's test:** - 2-3 ml filtrate with few drops Mayer's reagent observed for precipitate.
- **Hager's test:** - 2-3 ml filtrate with Hager's reagent observed for yellow precipitate.
- **Wagner's test:** - 2-3 ml filtrate with few drops of Wagner's reagent observed reddish brown ppt.

#### Test for Steroids

- **Salkowski test:** Dissolve the extract in chloroform and add equal volume of conc.  $\text{H}_2\text{SO}_4$
- Formation of bluish red to cherry colour in chloroform layer and green fluorescence in the acid layer represents the steroidal components in the tested extract.

#### Test for Fats & Oils

- Place a thick section of drug on glass slide. Add a drop of Sudan Red III reagent. After 2 min. wash with 0% alcohol. Mount in glycerine. Observe under microscope. Oil globules appear red.
- Place little amount of drug sample on the filter paper and stand for 15 minutes. A greasy spot observed due to presence of fats.

#### Tests for Tannins and Phenolic compounds

- To 2-3 ml test solution, added few drops of whether showed following was observed: -
- 5%  $\text{FeCl}_3$  solution: deep blue-black coloured.
- Lead acetate solution: - white precipitate.
- Gelatine solution: - white precipitate.
- Bromine water: discoloration of bromine water.
- Acetic acid solution: red colour solution.

- Potassium dichromate: red precipitate.

## DRUG PROFILE

1.



### Amalaki:

**Fig 4: Fresh fruit of Amalaki**   **Fig 5: Dried fruit of Amalaki**

**Botanical name:** Emblica Officinalis, Phyllanthus emblica

**Botanical source:** Amalaki consist of dried fruit pericarp of Emblica Officinalis Garth. (Phyllanthus emblica linn)

**Synonyms:** Emblic Myrobalan, Indian Gooseberry

**Family:** Euphorbiaceae

**Category:** Antiscorbutic, Antacid, Carminative, Hepato-protective, Raktapitta

### Active Constituent:

1. Amalaki contains not less than 1.0% w/w gallic acid calculated on the dried basis.
2. Tannins, ellagic acid and glucose.
3. Pectins and vitamin c (Ascorbic Acid).

### Uses:

- Strong rejuvenation
- Balances stomach acids
- Promotes Brain health
- Detoxification
- Strengthens immune system
- High vitamin C content
- Maintain skin health
- Prevents premature graying and hair falls

### 2.Bibhitaki:



**Fig 6: Fresh fruit of Bibhitaki**



**Fig 7: Dried fruit of Bibhitaki**

**Biological name:** Terminalia bellirica

**Biological source:** It consist of dried fruit pericarp of Terminalia Bellirica (Gaerth). ROxb

**Synonyms:** Bahera, Baheda, Bellaric Myrobalan.

**Family:** Combretaceae

**Category:** Purgative, expectorant, anti-hyperlipidaemic, svarabheda

**Active Constituents:**

1. Bibhitaki contains not less than 0.3% w/w of ellagic acid and 0.75% w/w gallic acid, calculated on the dried acid.
2. Tannic acid glycosides, chebulagic acid, oxalic acid, mannitol, rhamnose, galactose, glucose, fructose.

**Uses:**

- Used to treat stomach ulcer.
- It heals wounds.
- Improves blood sugar level.
- Provide anti-inflammatory effect.
- Enhance digestion.
- Relieves constipation.
- Boosts immunity.

**3. Haritaki:**



**Fig 8: Fresh fruit of Haritaki**



**Fig 9: Dried fruit of Haritaki**

**Biological name:** Terminalia chebula

**Biological Source:** Haritaki consist of pericarp of dried fruit of Terminalia chebula Rertz.

**Synonym:** Harad, chebulic myrobalan

**Family:** Combretaceae

**Category:** Purgative, astringent, antiaging, resortative rasayana

**Active Constituent:**

1. Haritaki contains not less than 5% w/w of chebulic acid and not less than 12.5% w/w of chebulic acid, calculated on the dried basis.
2. It also contain anthraquinone glycoside, tannic acid (20-40%) and vitamin C, ellagic acid, triterpenoids, and polyphenolic compounds.

**Uses:**

- Prevent hair loss and dandruff.
- Remove acne and ulcer.
- Prevent diabetes.
- Fight with skin allergies.
- Boost immunity.
- Helps in weight loss.
- Prevents cough and cold.
- Helpful in constipation.

**4. Jatri – Patra**



**Fig 10: Fresh leaves of Jatri-Patra**



**Fig 11: Dried leaves of Jatri-Patra**

**Biological Name:** Jasminum sambac (L.) Aiton, Jasminum officinale Linn. species

**Biological Source:** Jasmine leaves are obtained from the plant Jasminum sambac, a small evergreen shrub belonging to the family Oleaceae. Part used: Leaves (Jati-patra)

**Synonyms:** Jasminum officinale leaf, Common jasmine leaf, Jasmine leaf

**Family:** Oleaceae

**Category:** Anti-inflammatory, Antioxidant, Antibacterial, Woundhealing, Gastroprotective

**Active Constituents:** Jasmine leaves contain: Flavonoids: Quercetin, Rutin, Phenolic compounds, Tannins, Glycosides, Saponins, Alkaloids, Steroids, Trace essential oils. These constituents give anti-inflammatory, antibacterial and antioxidant effects.

**Uses:**

- Medicinal Uses
- Reduces acidity and burning sensation
- Useful in ulcers
- Improves digestion
- Helps in gas & bloating
- Works as anti-inflammatory in gut
- Good for wound healing (external)
- Antibacterial effect for skin

#### DISCUSSION:

- Triphala a churna is an ayurvedic herbal formulation composed of 3 equal proportions of herbal fruits Phyllanthus emblica (Amlaki), Terminalia bellerica (Bibhitaki) and Terminalia chebula (Haritaki).
- In the modified formulation, Jati Patra (Jasmine leaves) is included as an additional supportive ingredient for its aromatic, antioxidant and mild anti-inflammatory properties.
- Triphala is a Tridoshic Rasayana having a balancing and rejuvenating effect on the three constitutional elements that govern human life.
- The inclusion of Jati Patra further supports the calming and soothing effects, helping maintain doshic balance.
- Triphala is rich in antioxidant, antibacterial, antiviral, and anticancer properties. Jati Patra also contains antioxidant compounds and natural aromatic constituents that enhance the overall therapeutic profile of the formulation.
- Various evaluation parameters and quality aspects like total ash, acid insoluble ash, water and alcohol soluble extractive values, loss on drying, flow properties and phytochemical

screening were carried out. When Jati Patra is added, its own phytochemicals (flavonoids, essential oils, phenolics) contribute to the extractive values and overall quality assessment.

#### CONCLUSION:

From the above study it is concluded that Triphala is well known for its gentle effect on bowels, improving peristalsis and cleansing toxic buildup of waste. Ayurveda also views Triphala as a nourishing Rasayana, rejuvenating healthy tissues and supporting graceful aging, which is why it is termed the "Nectar of Life". With the addition of Jati Patra (Jasmine leaves), the formulation gains enhanced soothing, antioxidant and aromatic benefits, contributing to overall wellness.

In Ayurvedic terms, Triphala used in moderation is said to have a beneficial effect on all three doshas Vata, Pitta and Kapha. Jati Patra, being cooling and mildly aromatic, especially supports Pitta balancing and adds gentle calming effects, thus complementing the Tridoshic nature of Triphala.

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