FORMULATION AND EVALUATION OF TRIPHALA CHURNA

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Abstract

Triphala Churna is a widely recognized classical Ayurvedic polyherbal formulation composed of three medicinal fruits: Emblica officinalis, Terminalia chebula, and Terminalia bellirica. The present study was undertaken to prepare and evaluate Triphala Churna using standard pharmacognostic and physicochemical parameters. The formulation was prepared by drying, pulverizing, sieving, and blending the ingredients in equal proportions.

The evaluation included organoleptic properties, loss on drying, ash values, extractive values, powder flow characteristics, phytochemical screening, microbial load analysis, and heavy metal testing. The results indicated that the formulation complies with standard quality parameters. The study concludes that properly prepared Triphala Churna is safe, stable, and suitable for therapeutic use.

Keywords

Triphala Churna, Ayurveda, Polyherbal formulation, Standardization, Physicochemical evaluation

1. Introduction

Ayurveda is an ancient system of medicine that utilizes herbal formulations for the prevention and treatment of diseases. Triphala is one of the most commonly used formulations in Ayurveda, consisting of Amla (Emblica officinalis), Haritaki (Terminalia chebula), and Bibhitaki (Terminalia bellirica). It is known for its antioxidant, laxative, anti-inflammatory, and immunomodulatory properties.

Standardization of herbal formulations is essential to ensure their quality, safety, and efficacy. Variability in raw materials and preparation methods can influence the final product, making scientific evaluation necessary. This study focuses on the preparation and quality assessment of Triphala Churna.

CHURNA (Powder formulation)

Churna is a finely powdered mixture of dried plant materials, sieved to obtain a uniform particle size. It is widely used in Ayurvedic medicine for various therapeutic purposes such as improving digestion, detoxification, reducing inflammation, and boosting immunity.

MARKETED PREPARATION



Fig. No. 1. Triphala Churna

2. INGREDIENTS

Triphala Ingredients and Preparation



Fig. No. 2. Ingredients Of Triphala

Triphala Facts

- Composed of 3 ingredients: Amla, Behada, and Harada
- Prepared by drying, powdering, and mixing the fruits
- Used as a mild bowel cleanser
- Promotes healthy digestion and regular bowel movements

1) **Amla**

✦ Emblica
✦ Indian gooseberry
✦ Amla

Classification: -

✦ Kingdom: Plantae (Plants)
✦ Subkingdom: Tracheobionta (Vascular plants)

✦ Division: Angiospermae (Flowering plants)✦ Class: Dicotyledonae (Dicotyledons)
✦ Subclass: Rosidae✦ Order: Geraniales
✦ Family: Euphorbiaceae✦ Genus: Emblica
✦ Species: Officinalis Gaertn.

Biological Source: -

Dried and fresh fruits of Emblica officinalis Gaertn. (Phyllanthus emblica Linn.)



Fig. No. 3. Amla

2) Baheda

Synonyms :-

- ✦ Baheda
- ✦ Bibhitaki
- ✦ Terminalia Bellirica

Classification : -

- ✦ Kingdom: Plantae (Plants)
- ✦ Subkingdom: Tracheobionta (Vascular plants)✦ Division: Angiospermae (Flowering plants)
- ✦ Class: Dicotyledonae (Dicotyledons)

-Subclass: Rosidae
-Order: Myrtales

-Family: Combretaceae
-Genus: Terminalia
-Species: T. bellirica
-Taxonomic Hierarchy: Domain: Eukarya
-Kingdom: Plantae

Biological Source:

Dried fruit of Terminalia bellirica



Fig. No. 4. Baheda

3) Hirda

Synonyms

1. Abhya
2. Pathya
3. Kayastha
4. Putna
5. Amrita
6. Haimvati
7. Avyatha
8. Chetki
9. Sreyasi

Botanical Information:

- Botanical Name: Terminalia chebula Retz
- Family: Combretaceae

Classification:

- Kingdom: Plantae
- Subkingdom: Tracheobionta (Vascular plants)
- Superdivision: Spermatophyta (Flowering plants) -
Division: Magnoliophyta
- Class: Magnoliopsida
- Subclass: Rosids
- Order: Myrtales
- Genus: Terminalia L.



Fig.No.5. Hirda

3. Materials and Methods

2.1 Materials :

Dried fruits of all three ingredients were procured from a local market and authenticated. Analytical-grade reagents and chemicals were used for evaluation.

2.2 Preparation of Triphala Churna :

The raw materials were cleaned and shade-dried. Each ingredient was powdered separately using a mechanical grinder and passed through sieve No. 80. Equal quantities of each powder were weighed and thoroughly mixed to obtain a uniform formulation. The final product was stored in an airtight container.

4. Evaluation Parameters

1.Organoleptic Evaluation

Color: Brownish

Odor: Characteristic

Taste: Astringent, bitter, sour

Texture: Fine powder

2. Physicochemical Evaluation

Loss on Drying (moisture content)

Total ash

Acid-insoluble ash

Water-soluble ash

Extractive Values:

Water-and alcholo-soluble extractive values

3. Powder Flow Properties

Bulk density

Tapped density

Angle of repose

4. Phytochemical Screeing

Tests were performed

Tannins

Flavonoids

Glycosides

Phenolic compounds

5. Microbial Analysis

Total bacterial count

Total fungal count

6. Heavy Metal Analysis

Testing for:

Lead, Arsenic, Mercury, cadmium

7. Stability Studies

The formulation was stored under different environmental conditions to evaluate stability and shelf life.

5. Results

Table 1:

Organoleptic Properties

Parameter	Observation
Color	Brown
Odor	Characteristic
Taste	Astringent and bitter
Texture	Fine powder

Physicochemical Parameters

All parameters, including loss on drying, ash values, and extractive values, were found within acceptable limits.

Powder Properties

Bulk and tapped density indicated good packing ability, while the angle of repose suggested satisfactory flow characteristics.

Table 4:

Phytochemical Screening

Constituent	Result
Tannins	Present
Flavonoids	Present
Glycosides	Present
Phenolics	Present

6. Discussion

The prepared Triphala Churna exhibited acceptable organoleptic and physicochemical characteristics, meeting standard quality criteria. The presence of tannins and phenolic compounds supports its antioxidant potential.

The powder demonstrated good flow properties, indicating ease of handling and packaging. Microbial analysis confirmed that the formulation is safe for consumption, as microbial counts were within permissible limits. Heavy metal analysis revealed negligible or no toxic contamination.

Overall, the formulation showed consistency, safety, and therapeutic potential.

7. Conclusion

The study confirms that the prepared Triphala Churna meets standard quality control parameters. When prepared using appropriate methods and standardized procedures, it is safe, stable, and effective for therapeutic use

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