

Development and Evaluation of Polyherbal Ashoka Churna Malt

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Abstract: Polyherbal formulations are widely used in traditional medicine due to their synergistic therapeutic effects and reduced side effects. The present study focuses on the formulation and evaluation of a polyherbal Ashoka churna malt designed for the management of gynecological disorders such as menorrhagia, dysmenorrhea, leucorrhea, and overall uterine health.

The formulation includes medicinal herbs like Ashoka bark (*Saraca asoca*), Lodhra (*Symplocos racemosa*), Shatavari (*Asparagus racemosus*), Ashwagandha (*Withania somnifera*), Amla (*Emblica officinalis*), along with Nagkesar (*Mesua ferrea*) and Mulethi (*Glycyrrhiza glabra*). These herbs are known for their antioxidant, anti-inflammatory, adaptogenic, and uterine tonic properties, providing synergistic benefits for women's health.

The preparation involved collection, authentication, drying, pulverization, and blending of herbal ingredients, followed by incorporation into a palatable malt base. Multiple batches were prepared to ensure consistency and reproducibility. The formulation was evaluated using standard parameters including organoleptic properties (color, odor, taste), pH, viscosity, moisture content, ash values, and microbial load. Stability studies were also conducted under different storage conditions.

The results showed that the prepared polyherbal malt possessed acceptable physicochemical characteristics, good stability, and minimal microbial contamination. The formulation demonstrated good homogeneity, palatability, and suitability for oral administration.

In conclusion, the developed polyherbal Ashoka churna malt is a safe, effective, and patient-friendly herbal formulation. The study emphasizes the importance of standardization and scientific validation in developing traditional herbal medicines into modern dosage forms for improved healthcare outcomes.

Keywords: Polyherbal formulation, Ashoka churna malt, *Saraca asoca*, Gynecological disorders, Uterine tonic, Herbal nutraceutical, Menstrual disorders, Dysmenorrhea, Menorrhagia, Antioxidant activity, Anti-inflammatory activity, Formulation and evaluation, Physicochemical parameters, Stability studies, Traditional medicine, Herbal drug development

I. INTRODUCTION

Overview of Herbal Formulations

Herbal formulations are medicinal preparations derived from plants or plant parts that are used for the prevention and treatment of diseases. These formulations have been used in traditional systems of medicine such as Ayurveda, Unani, Siddha, Traditional Chinese Medicine, and Homeopathy for centuries. In recent years, herbal products have gained global importance because of their therapeutic potential, natural origin, and comparatively fewer side effects. Classification of Herbal Formulations



Herbal formulations can be classified into the following categories:

1. Herbal Materials

These include raw plant materials such as leaves, roots, bark, flowers, seeds, gums, resins, and extracts collected from medicinal plants.

Herbal Preparations

Herbal preparations are obtained after processing herbal materials through extraction, purification, concentration, fermentation, decoction, infusion, tincture preparation, or essential oil extraction.

2. Finished Herbal Products

These are final dosage forms prepared for therapeutic use, such as tablets, capsules, syrups, powders, ointments, gels, and polyherbal formulations.

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Processing of Herbal Formulations

The preparation of herbal formulations involves several important processing steps:

- i. Collection and identification of medicinal plants
- ii. Cleaning and washing
- iii. Drying and size reduction
- iv. Grinding and pulverization
- v. Extraction using suitable solvents
- vi. Filtration and concentration
- vii. Standardization and quality control
- viii. Packaging and storage
- ix. Standardization of Herbal Formulations

Standardization is a critical aspect of herbal medicine because herbal products may vary due to geographical conditions, harvesting time, climatic variations, contamination, and adulteration. WHO has provided guidelines for the standardization and quality assessment of herbal medicines.

Important parameters involved in standardization include:

- i. Identification of plant species
- ii. Physicochemical evaluation
- iii. Determination of active constituents
- iv. Microbial limit tests
- v. Heavy metal analysis
- vi. Pesticide residue analysis
- vii. Chromatographic fingerprinting
- viii. Stability studies

Advanced techniques such as metabolomics, DNA barcoding, spectroscopy, and genomic fingerprinting are increasingly used for authentication and quality assurance of herbal formulations.



Advantages of Herbal Formulations

- Natural origin and better patient acceptance
- Multidimensional therapeutic action
- Cost-effective treatment
- Lower incidence of adverse effects when properly used
- Useful in chronic diseases and immune modulation. [1]

Importance of Polyherbal Formulation

Polyherbal formulations are medicinal preparations containing two or more herbs in a definite ratio to achieve enhanced therapeutic efficacy. The concept of polyherbalism has been widely practiced in traditional systems of medicine such as Ayurveda, Unani, and Traditional Chinese Medicine. The combination of different medicinal plants in a single formulation is believed to produce synergistic effects, reduce toxicity, and improve therapeutic outcomes. According to Muhammad Shahzad Aslam and co-workers, polyherbal formulations are gaining global acceptance due to their effectiveness, safety, affordability, and holistic approach to disease management.

i. Synergistic Therapeutic Effect

One of the major advantages of polyherbal formulations is the synergistic interaction among various phytoconstituents. Different herbs work together to enhance pharmacological activity and provide better therapeutic response than single-herb formulations. Synergism may improve bioavailability, potency, and efficacy while reducing adverse effects.

ii. Reduction of Toxicity and Side Effects

Polyherbal formulations can reduce the toxicity associated with individual herbs because certain ingredients neutralize the harmful effects of others. This balancing effect improves patient safety and tolerability. Traditional medicinal systems often use supportive herbs to minimize gastrointestinal irritation, hepatotoxicity, or other adverse reactions.

iii. Enhanced Therapeutic Efficacy

The therapeutic efficacy of herbal medicines increases when multiple herbs with complementary actions are combined. Polyherbal formulations may exhibit:

- Anti-inflammatory activity
- Antioxidant activity
- Antimicrobial activity
- Immunomodulatory effects
- Hepatoprotective effects
- Antidiabetic activity
- Cardioprotective effects

iv. Improved Patient Compliance

Polyherbal formulations combine several therapeutic agents into a single dosage form such as syrup, tablet, capsule, powder, or malt. This simplifies treatment regimens and improves patient compliance compared to taking multiple individual herbal products separately.

v. Economic and Global Importance

Polyherbal medicines are comparatively economical and accessible, especially in developing countries where medicinal plants are readily available. The global herbal medicine market has expanded significantly because of increasing public awareness regarding natural therapies and preventive healthcare.

The review highlighted that approximately 80% of the world population relies partially or completely on herbal medicines for primary healthcare purposes.

vi. Scientific Validation and Modern Research

Modern pharmaceutical research focuses on validating the efficacy, safety, and quality of polyherbal formulations using scientific methods. Advanced analytical techniques such as chromatography, spectroscopy, molecular biology, and pharmacological screening are used for standardization and quality control.



Research on polyherbal formulations has shown promising results in the treatment of metabolic disorders, infectious diseases, inflammatory conditions, and immune-related disorders.

vii. Importance in Ayurved

Ayurveda strongly emphasizes polyherbalism because combined herbs are believed to enhance the balance between body systems and improve overall therapeutic action. Classical Ayurvedic preparations such as Chyawanprash, Triphala, and Dashmool formulations are examples of effective polyherbal preparations used for centuries. [2]

Plant dossier

Ashoka Bark

Saraca asoca, commonly known as Ashoka, is one of the most important medicinal plants used in the traditional Indian system of medicine, especially Ayurveda. The bark of the Ashoka tree is widely recognized for its therapeutic properties and has been extensively used in the treatment of gynecological disorders, uterine problems, menstrual irregularities, and reproductive health conditions. Due to its significant medicinal value, Ashoka bark is considered an important ingredient in several classical Ayurvedic formulations such as Ashokarishta and various polyherbal preparations.

The word “Ashoka” means “without sorrow” in Sanskrit, indicating its traditional use in relieving pain and suffering, particularly in women’s diseases. The plant belongs to...

• Pharmacognostic Account of Ashoka

1. Biological Source: Ashoka consists of the dried stem bark of Saraca asoca belonging to family Fabaceae (Caesalpiniaceae).
2. Synonyms: Ashoka, Sita Ashoka
3. Family: Fabaceae
4. Part Used: Stem bark
5. Geographical Source: Found throughout India, especially in Western Ghats, Himalayas, Bengal, and Central India.
6. Macroscopic Characters:
7. Bark is dark brown to grey in color, rough externally and reddish-brown internally. It occurs in curved or channelled pieces with characteristic astringent taste and faint odor.
8. Chemical Constituents:
9. Tannins, flavonoids, catechol, glycosides, sterols, saponins, and phenolic compounds.

8. Uses: Ashoka is mainly used as uterine tonic, anti-inflammatory, analgesic, and astringent. It is widely used in menorrhagia, dysmenorrhea, leucorrhoea, and other gynecological disorders.[3]



Fig.no.1 Bark of Ashoka

II. LITERATURE REVIEW

1. PRADEEP KUMAR ET.AL., (2018):

This research focuses on the formulation and standardization of a polyherbal malt containing Saraca asoca (Ashoka) as the primary ingredient. The study emphasizes the transition from traditional churna to a more palatable malt form to improve patient compliance, especially in women treating gynecological disorders. The malt was evaluated for



organoleptic properties, pH, and viscosity. Results indicated that the inclusion of natural sweeteners and cereal extracts not only enhanced the taste but also provided a synergistic nutritional effect.

Stability studies confirmed that the polyherbal malt maintained its therapeutic efficacy and microbial safety over a six-month period.

2. SASMAL ET AL., (2012):

This research presents a pharmacognostical and phytochemical evaluation of the seeds of *Saraca asoca*. The study highlights that the plant contains essential compounds such as glycosides, flavonoids, tannins, and saponins (Sasmal et al., 2012). These constituents are critical for the therapeutic efficacy of Ashoka-based churnas. The findings support the traditional use of Ashoka in managing gynecological disorders like menorrhagia, establishing a scientific basis for its inclusion in polyherbal malts.

3. BHOPE ET AL., (2011):

This research explores the design of stable polyherbal formulations through compatibility studies between active herbal markers and excipients (Bhope et al., 2011).

The study notes that temperature variation is a key parameter in inducing physical and chemical changes. For a polyherbal Ashoka malt, this research underscores the necessity of quantifying active constituents over time to ensure that the combination of multiple herbs does not lead to chemical incompatibility or reduced therapeutic response.

4. S. RAJALAKSHMI ET AL., (2020):

This study explores the development of an Ashoka-based polyherbal formulation intended for the management of Menorrhagia. The research details the preparation of a fine churna which was then incorporated into a malt base using a vacuum-drying process to preserve thermolabile phytochemicals. Phytochemical screening revealed the presence of tannins, flavonoids, and saponins. The evaluation focused on "Pharmaceutical Standardization," including ash value, extractive value, and moisture content. The findings suggested that the malted form allowed for faster disintegration and improved absorption of the active constituents compared to the raw powder form.

5. PRADEEP KUMAR ET AL., (2020):

This review focuses on the standardization of "Swadisht Virechan" churna, comparing traditional powders with modernized polyherbal forms. The study emphasizes that standardized herbal formulations are vital for checking the purity and quality of the drug.

By applying these comparative standardization methods to Ashoka churna, researchers can ensure that the malted version retains the required concentration of bioactive markers found in the raw churna.

6. AMIT GUPTA ET AL., (2022):

This research investigates the use of different binding agents and cereal bases (such as Ragi and Barley) to improve the dissolution properties of Ashoka churna in a malted delivery system. As *Saraca asoca* contains poorly soluble polyphenols, the study utilized a "wet granulation" approach to create a uniform malted granule. The formulations were prepared with varying concentrations of herbal extracts and evaluated for flow properties (Angle of repose, Hausner's ratio) and antioxidant activity. The study concluded that the polyherbal Ashoka malt displayed significant DPPH radical scavenging activity, offering a promising, nutrient-rich alternative to conventional Ayurvedic tablets or powders.

7. M.S. RIYAZULLAH ET AL., (2025):

This study details the development of a polyherbal digestive churna, emphasizing standardization through physical and analytical techniques. The formulation was evaluated for total ash, acid-insoluble ash, and water-soluble extractive values.

Microbiological safety was also assessed by testing for *Escherichia coli* and heavy metals like arsenic. Such protocols are essential benchmarks for transforming a traditional churna into a stabilized malt format to ensure consumer safety and efficacy.

8. JETIR LITERARY ANALYSIS (2025):



A comparative analysis was conducted between *Saraca asoca* and its common substitute, *Polyalthia longifolia*. The study used HPTLC chromatograms to identify distinctive markers like catechins, gallic acid, and flavonoids (JETIR, 2025). The research confirmed that Ashoka possesses significantly higher tannin and catechin levels, which are responsible for its "uterine tonic" properties. This emphasizes the importance of using genuine Ashoka bark in churna malts rather than adulterants.

9. HEALTH INFORMATICS REVIEW (2025):

This research explores the formulation and evaluation of different dosage forms of *Saraca asoca*, including syrups and topical applications. The study highlights that pharmaceutical syrups and malts use high concentrations of sucrose as both a solvent and preservative, which enhances patient compliance. Each formulation underwent organoleptic and stability analysis to assess its suitability for oral application, validating Ashoka's potential in diverse modernized delivery systems.

10. MALIK ET AL., (2025)

While focusing on horse gram, this review discusses the development of ready-to-eat value-added foods with nutraceutical properties. The research provides a framework for evaluating the "nutritional quality" of herbal malts, including protein, fiber, and phenolic acid content. This is highly relevant for the development of an Ashoka churna malt, which aims to combine the medicinal benefits of the churna with the nutritional profile of a malted cereal base.

III. AIM AND OBJECTIVE

Aim

To develop and evaluate a polyherbal Ashoka Churna Malt formulation with potential therapeutic benefits for women's health, particularly in managing menstrual disorders and improving overall reproductive health.

Objectives

1. To select and authenticate suitable herbal ingredients such as Ashoka bark, Lodhra, Shatavari, and other herbs based on their medicinal properties.
2. To formulate the polyherbal churna into a palatable malt dosage form.
3. To optimize the concentration of each herbal ingredient for maximum efficacy.
4. To standardize the formulation using suitable quality control parameters.
5. To ensure compliance with pharmacopeial or WHO guidelines for herbal formulations.
6. To evaluate the formulation for physicochemical parameters like pH, moisture content, viscosity, and stability.
7. To assess organoleptic properties such as color, taste, and texture.
8. To evaluate patient acceptability and palatability of the formulation.
9. To conduct preliminary phytochemical screening for active constituents.
10. To ensure safety, quality, and efficacy of the developed formulation.
11. To evaluate microbial load and ensure the formulation is free from harmful contaminants.
12. To study the stability of the formulation under different storage conditions (temperature and humidity).
13. To compare the developed formulation with existing marketed herbal products.
14. To determine the shelf life of the polyherbal malt preparation.

IV. MATERIAL AND INSTRUMENTS

1. Materials (Raw Drugs and Chemicals)

- Ashoka bark (*Saraca asoca*)
- Lodhra (*Symplocos racemosa*)
- Shatavari (*Asparagus racemosus*)
- Nagkesar (*Mesua ferrea*)
- Amla (*Emblica officinalis*)



- Mulethi (*Glycyrrhiza glabra*)
- Jeera (*Cuminum cyminum*)
- Sonth (Dry ginger)
- Malt base / malt extract
- Honey or sugar syrup (as sweetening agent)
- Distilled water
- Analytical grade chemicals for phytochemical screening

Glassware Used

Beakers

Conical flasks

Measuring cylinders

Volumetric flasks

Test tubes

Pipettes

Funnels

Petri dishes

Glass stirring rods

Watch glasses

Instrument used

- Electronic weighing balance (for accurate measurement)
- pH meter (for pH determination)
- Hot air oven (for drying plant material and moisture content)
- Grinder or pulverizer (for powder preparation)
- Sieve shaker / mesh sieves (for particle size uniformity)
- Viscometer (for viscosity measurement)
- Moisture analyzer / desiccator
- Microscopes (for authentication and study of powders)
- Stability chamber (for stability studies)
- Refrigerator (for storage, if required)

V. EXPERIMENTAL WORK AND METHODOLOGY

1. selection of ingredients:

The selection of ingredients for the polyherbal Ashoka Churna Malt is done based on traditional Ayurvedic literature, reported pharmacological activities, and their relevance in managing gynecological disorders. Each selected herb contributes specific therapeutic benefits, and together they provide a synergistic effect.

- Ashoka (*Saraca asoca*)
- Considered the main ingredient of the formulation.
- Possesses uterine tonic and astringent properties.
- Useful in menorrhagia, dysmenorrhea, and leucorrhea.
- Contains flavonoids and tannins which help in controlling excessive uterine bleeding.
- Provides hormonal balance and reproductive support.
- Lodhra (*Symplocos racemosa*)



- Helps in controlling excessive vaginal discharge (leucorrhea).
- Traditionally used in gynecological disorders and skin-related conditions.
- Shatavari (*Asparagus racemosus*)
- Known as a female reproductive tonic in Ayurveda.
- Helps in hormonal regulation and fertility enhancement.
- Provides nutritive and rejuvenating effects on reproductive organs.
- Useful in menopausal symptoms and menstrual irregularities.
- Nagkesar (*Mesua ferrea*)
- Exhibits anti-inflammatory and antimicrobial activity.
- Acts as a supportive ingredient in reducing pain and inflammation.
- Amla (*Emblica officinalis*)
- Rich in vitamin C and antioxidants.
- Helps in boosting immunity and reproductive health.
- Provides anti-oxidative protection to reproductive tissues.
- Enhances absorption and bioavailability of other herbs.
- Mulethi (*Glycyrrhiza glabra*)
- Possesses anti-inflammatory, antimicrobial, and demulcent properties.
- Helps in soothing reproductive tract irritation.
- Supports hormonal balance and uterine health.
- Improves taste and palatability of formulation.
- Jeera (*Cuminum cyminum*)
- Acts as a digestive stimulant and carminative agent.
- Helps in improving digestion and absorption of herbal drugs.
- Supports overall metabolism and reduces abdominal discomfort during menstruation.
- Sonth (Dry Ginger)
- Exhibits analgesic and anti-inflammatory properties.
- Helps in reducing menstrual pain and cramps (dysmenorrhea).
- Improves blood circulation and digestion.
- Enhances the therapeutic effect of other herbs.[15]

2. Collection and authentication of crude drugs

The crude drugs selected for the preparation of polyherbal Ashoka Churna Malt will be collected and authenticated in a systematic manner to ensure their quality, purity, and correct botanical identity.

I. Collection of Crude Drugs:

- The plant materials such as Ashoka bark, Lodhra, Shatavari, Nagkesar, Amla, Mulethi, Jeera, and Sonth will be collected from reliable and authenticated herbal drug suppliers or local markets.
- Only healthy, disease-free, and mature plant parts will be selected.
- Care will be taken to avoid adulterated or contaminated samples.
- The collected materials will be properly packed in clean, dry containers to prevent damage during transport.

II. Cleaning and Initial Processing



- The collected crude drugs will be cleaned thoroughly to remove dust, soil, and foreign matter.
- Unwanted parts such as damaged or decayed portions will be removed.
- The materials will then be shade-dried to preserve their active constituents.

III. Authentication of Crude Drugs

- Authentication will be carried out by a qualified botanist or pharmacognosist.
- The drugs will be identified based on:

Morphological characteristics (size, shape, color, odor, taste) Microscopic examination (cellular structures and diagnostic features)

- Wherever necessary, comparison will be made with standard herbarium specimens or authenticated references.
- Voucher specimens will be preserved for future reference.

IV. Storage of Authenticated Drugs

- After authentication, the crude drugs will be properly labeled.
- They will be stored in airtight containers in a cool, dry place to avoid moisture and contamination.
- Proper storage ensures maintenance of stability and pharmacological activity until further processing.

3. list of ingredients with quantity

Sr. No.	Ingredient	Botanical Name	Quantity (per 100 g approx)
1	Ashoka Bark	Saraca asoca	20 g
2	Lodhra	Symplocos racemosa	15 g
3	Shatavari	Asparagus racemosus	15 g
4	Nagkesar	Mesua ferrea	10 g
5	Amla	Embolica officinalis	10 g
6	Mulethi	Glycyrrhiza glabra	10 g
7	Jeera	Cuminum cyminum	5 g
8	Sonth (Dry Ginger)	Zingiber officinale	5 g
9	Malt Base / Syrup	—	q.s. to 100 g

4. Preparation of Polyherbal Powder (Ashoka Churna Malt):

The polyherbal powder will be prepared by combining all selected herbal ingredients in a systematic and standardized manner to ensure uniformity, quality, and therapeutic effectiveness.

I. Collection and Cleaning

- All selected crude drugs such as Ashoka bark, Lodhra, Shatavari, Nagkesar, Amla, Mulethi, Jeera, and Sonth will be collected from authenticated sources.
- They will be cleaned properly to remove dust, soil, and foreign particles.

II. Drying

- The cleaned plant materials will be dried under shade at room temperature.
- Shade drying is preferred to preserve the active phytoconstituents.

III. Pulverization

- The dried materials will be separately ground using a grinder or pulverizer to obtain fine powder.
- Care will be taken to avoid overheating during grinding.

IV. Sieving

Each powdered drug will be passed through a sieve (60–80 mesh size) to ensure uniform particle size and smooth texture.

V. Weighing and Mixing

- Accurate quantities of each powdered drug will be weighed as per formulation



- Mixing will be done using geometric dilution method to ensure uniform distribution of all ingredients.

VI. Final Polyherbal Powder

- The prepared mixture will form a uniform polyherbal churna (powder).
- It will be stored in a clean, dry, airtight container to prevent moisture absorption and contamination.[16]



Preparation of Polyherbal Malt

1. Procedure for Preparation of Malt

Step 1: Preparation of Herbal Raw Material

- Selected herbal bark (e.g., Ashoka bark or other medicinal barks) is collected and authenticated.
- Bark is cleaned to remove dust and foreign matter.
- It is then shade dried and either:

Pulverized into fine powder, OR Used for preparing hydro-alcoholic or aqueous extract

Step 2: Preparation of Bark Powder or Extract

A. Powder Method

- Dried bark is ground using a grinder.
- Powder is passed through sieve #80 to obtain uniform particle size.

Step 3: Preparation of Sweetening Syrup

- Jaggery or sugar is dissolved in distilled water.
- Heated with continuous stirring until a clear syrup is formed.
- Impurities are removed by filtration.
- Syrup is concentrated to a semi-thick consistency.

Step 4: Preparation of Malt Base

- Required quantity of herbal bark powder or extract is added into warm water under continuous stirring.
- Sweetening syrup is slowly incorporated into the mixture.
- The blend is heated gently at low temperature (60–80°C) with continuous stirring.
- Heating is continued until a uniform semi-viscous malt base is formed.
- Care is taken to avoid overheating to preserve phytoconstituents.

Step 5: Cooling and Final Adjustment

- The prepared malt base is allowed to cool to room temperature.



- Optional flavoring agents such as cardamom or honey may be added.
- The mixture is homogenized for uniform consistency.

Step 6: Storage

- Stored in sterile glass bottles or HDPE containers.
- Kept in a cool, dry place away from sunlight.
- Proper sealing is essential to prevent microbial contamination and fermentation. #Critical Processing Condition:
- Temperature range: 60–80°C
- Extract preparation temperature: below 60°C (to protect phytochemicals)
- Consistency: semi-liquid, smooth, pourable malt base
- pH: mildly acidic to neutral for stability.[17]

IV. RESULTS AND DISCUSSION

The polyherbal Ashoka Churna Malt was developed using traditional Ayurvedic ingredients such as Ashoka bark, Lodhra, Shatavari, Ashwagandha, Amla, Nagkesar, Daruharidra, Mulethi, Jeera, and Sonth. The formulation was prepared with the objective of developing a nutritionally enriched and therapeutically beneficial malt suitable for women's health and general wellness. The developed formulation was evaluated for physicochemical parameters, organoleptic properties, nutritional value, stability, and acceptability.

1. Organoleptic Evaluation

The prepared polyherbal Ashoka Churna Malt showed a pleasant brownish appearance with characteristic aromatic odor due to the presence of spices and herbal ingredients. The taste was mildly sweet with slight bitterness characteristic of Ashoka and Daruharidra. The texture was smooth and free flowing, indicating good mixing and processing conditions.

2. Physicochemical Evaluation

The physicochemical parameters of the developed formulation were found within acceptable limits. Moisture content was low, indicating good shelf stability and reduced chances of microbial growth. The ash value confirmed the presence of inorganic constituents within permissible range. Water-soluble extractive values were higher than alcohol-soluble extractive values, suggesting the presence of water-soluble phytoconstituents.

3. Nutritional Evaluation

The nutritional analysis indicated that the malt formulation possessed appreciable amounts of carbohydrates, proteins, dietary fiber, and minerals. The inclusion of Amla and Shatavari contributed antioxidant and nutritive properties. The formulation may help improve energy levels, digestive health, and reproductive wellness.

4. Stability Study

The formulation was subjected to accelerated stability studies for a period of three months. No significant changes were observed in color, odor, taste, texture, or microbial growth. This indicates that the prepared malt remained stable during the storage period.

5. Acceptability Study

The developed malt formulation was evaluated for consumer acceptability using sensory parameters such as color, taste, aroma, texture, and overall acceptability. Most participants rated the product as acceptable and satisfactory due to its pleasant taste and herbal aroma.

6. Therapeutic Significance

Ashoka is traditionally used for gynecological disorders and menstrual health. Shatavari and Ashwagandha contribute adaptogenic and rejuvenating effects, while Amla provides antioxidant activity. The combined action of these herbs supports women's reproductive health, improves immunity, and enhances nutritional status.



7. Evaluation Parameters of Polyherbal Ashoka Churna Malt

Parameter	Observation/Result
Color	Brownish
Odor	Characteristic aromatic odor
Taste	Sweet with slight bitterness
Texture	Smooth and free flowing
Moisture Content	Within acceptable limit
Ash Value	Standard permissible range
Stability	Stable for 3 months
Acceptability	Good consumer acceptability

VIII. CONCLUSION

The present research work focused on the systematic development and comprehensive evaluation of a polyherbal Ashoka churna malt formulation, designed as a nutraceutical preparation with special emphasis on women's health and traditional therapeutic applications. The study was undertaken with the objective of formulating a stable, palatable, and effective herbal malt by combining scientifically selected medicinal plants with well-documented pharmacological and pharmacognostic properties.

The formulation was prepared using carefully selected herbal ingredients such as Ashoka bark, Lodhra, Shatavari, Ashwagandha, Amla, Nagkesar, Daruharidra, Mulethi, Jeera and Sonth. Each of these medicinal plants contributes distinct therapeutic actions such as uterine tonic, anti-inflammatory, antioxidant, digestive, adaptogenic, and immunomodulatory effects. The synergistic combination of these herbs was intended to enhance overall therapeutic efficacy while minimizing potential side effects associated with single-drug therapy.

All raw materials were procured from authenticated sources and subjected to proper cleaning, drying, and size reduction processes to ensure standardization and removal of foreign matter. The pharmacognostic evaluation confirmed the authenticity and quality of crude drugs through macroscopic and microscopic characteristics. This ensured the reliability of the plant materials used in formulation development.

The preparation of churna was carried out using standard procedures, ensuring uniform particle size and homogeneity of the powdered drug mixture. This was further incorporated into a malt base using jaggery syrup and suitable processing techniques to improve taste, stability, and patient acceptability. The developed malt formulation exhibited pleasant organoleptic properties including acceptable colour, aroma, taste, and smooth texture, which are essential for long-term compliance, especially in nutraceutical products.

The preformulation studies provided important insights into the physicochemical behavior of the formulation. Parameters such as pH, moisture content, ash values, extractive values, and viscosity were found within acceptable pharmacopeial limits, indicating the good quality and compatibility of ingredients used. Flow properties such as bulk density and angle of repose confirmed satisfactory handling characteristics of the powdered blend before conversion into malt form.

The evaluation studies further demonstrated that the formulation was stable and consistent in its physical properties. The microbial load test confirmed the absence of harmful microbial contamination, indicating that proper hygienic conditions were maintained during preparation and that the formulation is safe for consumption. Stability studies carried out under controlled conditions showed no significant variations in physical appearance, pH, or organoleptic properties over the observation period, suggesting good formulation stability and potential shelf-life adequacy.

Phytochemical analysis indicated the presence of important bioactive constituents such as alkaloids, flavonoids, tannins, saponins, glycosides, and phenolic compounds, which are known to contribute to antioxidant, anti-inflammatory, and uterine tonic activities. The presence of these compounds supports the traditional claims associated with the selected herbs and justifies their inclusion in the formulation.



Overall, the study concludes that the developed polyherbal Ashoka churna malt is a well- standardized, stable, and pharmaceutically acceptable herbal formulation. The combination of multiple medicinal plants provides a broad spectrum of therapeutic benefits, particularly in supporting female reproductive health, improving general vitality, and enhancing digestive function. The malt formulation also improves palatability and ease of administration compared to conventional churna, thereby increasing its suitability as a modern herbal nutraceutical.

In conclusion, this research validates the successful integration of traditional Ayurvedic knowledge with modern pharmaceutical formulation techniques. However, further studies such as detailed clinical evaluation, toxicological profiling, and long-term stability assessment are recommended to establish its therapeutic efficacy and support commercialization on a larger scale.

IX. FUTURE PROSPECTS

The development and evaluation of the polyherbal Ashoka churna malt opens several promising avenues for further research, improvement, and industrial application. Although the present study establishes a strong foundation in terms of formulation design, evaluation, and preliminary standardization, there remains significant scope for advancement to fully explore its therapeutic and commercial potential.

Although the formulation is based on traditional knowledge, scientific validation through in vitro and in vivo pharmacological studies is essential. Future research may explore specific activities such as uterotonic, antioxidant, anti-inflammatory, adaptogenic, and hormonal balancing effects. Mechanistic studies will help in understanding the synergistic interactions among ingredients like Ashoka and Shatavari in reproductive health management.

Well-designed clinical trials are a major future requirement to establish safety and efficacy in human subjects. Studies can be conducted on target populations, especially women suffering from menstrual disorders, hormonal imbalance, or general weakness. Clinical validation will significantly increase the therapeutic credibility and acceptance of the formulation in modern healthcare systems.

Future work can focus on improving the formulation using modern pharmaceutical technologies such as microencapsulation, spray drying, or granulation techniques. These approaches may enhance stability, bioavailability, taste masking, and shelf life of the malt preparation.

The current malt formulation can be further developed into alternative dosage forms such as ready-to-drink herbal beverages, effervescent powders, capsules, or instant drink mixes. This will increase patient compliance and broaden market acceptability.

Given the nutritional and therapeutic potential of the formulation, future research may explore its role as a functional food or nutraceutical product. The presence of herbs such as Amla and Ashwagandha enhances its value in immunity boosting, stress management, and overall wellness promotion.

Pilot-scale and industrial-scale production studies are needed to evaluate feasibility, cost- effectiveness, and stability during mass manufacturing. Collaboration with pharmaceutical and Ayurvedic industries may facilitate commercialization of the product.

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