INTERNATIONAL JOURNAL OF PHARMACEUTICAL SCIENCES
[ISSN: 0975-4725; CODEN(USA):IJPS00]
Journal Homepage: https://www.ijpsjournal.com

Research Article

Formulation And Evaluation Of Tea Powder From Fenugreek Seeds For The Treatment Of Dysmenorrhea

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ARTICLE INFO

Received: 02 June 2024
Accepted: 07 June 2024
Published: 12 June 2024

Keywords:
Dysmenorrhea, prostaglandins, vasopressin, uterine contractions, fenugreek seeds, analgesic, anti-inflammatory, natural remedy, efficacy.

DOI:
10.5281/zenodo.11608917

ABSTRACT

Dysmenorrhea is thought to be caused by the release of prostaglandins in the menstrual fluid, which causes uterine contractions and pain. Vasopressin also may play a role by increasing uterine contractility and causing ischemic pain as a result of vasoconstriction. Although they were small studies, a few showed that taking fenugreek seed pills or drinking the tea made from the seeds could reduce and shorten the duration of menstrual pain, such as cramps. These women were then able to reduce the number of additional painkillers needed during their menstruation. The study investigated the efficacy of fenugreek seed tea powder in alleviating dysmenorrhea symptoms. Through a randomized controlled trial, participants consuming fenugreek tea experienced significant pain reduction compared to a control group. Analgesic properties of fenugreek were attributed to its anti-inflammatory effects. The findings suggest a promising natural remedy for menstrual pain, warranting further exploration into fenugreek's mechanisms and long-term effects on dysmenorrhea management Dysmenorrhea, a common gynecological condition characterized by painful menstruation, affects millions of women worldwide. Traditional remedies, including herbal treatments, have gained attention for their potential efficacy and minimal side effects. Fenugreek seeds, known for their anti-inflammatory and analgesic properties, have shown promise in alleviating dysmenorrhea symptoms. In this study, we aimed to formulate and develop a tea powder from fenugreek seeds for the treatment of dysmenorrhea. Fenugreek seeds were processed and powdered, followed by rigorous quality control measures to ensure potency and safety.

INTRODUCTION

Several herbal plants have been traditionally utilized for the treatment of dysmenorrhea, providing natural alternatives to conventional medication. Ginger (Zingiber officinale) is renowned for its anti-inflammatory and analgesic

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Relevant conflicts of interest/financial disclosures: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

properties, often consumed as a tea or incorporated into meals to alleviate menstrual pain. Chamomile (Matricaria chamomilla), with its antispasmodic and anti-inflammatory attributes, is favored for its ability to soothe menstrual cramps when consumed as a tea. Peppermint (Mentha piperita), containing menthol, offers muscle-relaxing benefits that may ease uterine contractions and reduce menstrual discomfort, commonly enjoyed as a tea infusion. Lavender (Lavandula angustifolia) aids in stress reduction and muscle tension relief, potentially lessening menstrual cramps through aromatherapy or bath additives. Cinnamon (Cinnamomum verum) is valued for its anti-inflammatory and antispasmodic effects, commonly ingested as a spice or steeped in tea. Fennel (Foeniculum vulgare) seeds, known for their anti-inflammatory and antispasmodic properties, are brewed into a tea to alleviate menstrual pain. Dong Quai (Angelica sinensis), a staple in traditional Chinese medicine, is believed to regulate menstrual cycles and alleviate menstrual discomfort. Additionally, Black Cohosh (Actaea racemosa) and Red Raspberry Leaf (Rubus idaeus) are known for their toning effects on the uterus and are commonly consumed as teas to ease menstrual cramps. Cramp Bark (Viburnum opulus) is valued for its antispasmodic properties and has a history of use in relieving menstrual cramps. However, it is imperative to seek advice from healthcare professionals before integrating herbal remedies into one's healthcare regimen to ensure safety and efficacy, particularly for those with underlying health conditions or taking medications.

Fig 1: Herbs having anti- inflammatory property

Dysmenorrhea is a common gynaecological condition characterized by painful menstrual cramps that occur just before or during menstruation. It affects a significant proportion of menstruating individuals, with symptoms ranging from mild discomfort to debilitating pain. There are two main types of dysmenorrhea: primary and secondary. Primary dysmenorrhea occurs without any underlying pelvic pathology and is typically caused by increased levels of prostaglandins, which are hormone-like substances that trigger uterine contractions. Secondary dysmenorrhea, on the other hand, is associated with underlying medical conditions such as endometriosis, fibroids, or pelvic inflammatory disease. The pain associated with dysmenorrhea can be sharp, throbbing, or cramp-like and may be accompanied by other symptoms such as nausea, vomiting, diarrhea, and fatigue. While dysmenorrhea is a common and often manageable condition, severe pain can significantly impact a person's quality of life, leading to missed school or work days and decreased productivity. Management strategies for dysmenorrhea include pharmacological treatments

such as nonsteroidal anti-inflammatory drugs (NSAIDs), hormonal contraceptives, and pain relievers, as well as non-pharmacological approaches like heat therapy, exercise, dietary changes, and relaxation techniques. It's essential for individuals experiencing severe or debilitating menstrual pain to consult with a healthcare provider for proper diagnosis and management of dysmenorrhea.

Symptoms of dysmenorrhea can vary in severity and may include:

- Cramping or sharp, throbbing pain in the lower abdomen
- Backache
- Nausea
- Vomiting
- Headaches
- Fatigue
- Diarrhoea or constipation

Management of dysmenorrhea typically involves a combination of pharmacological and non-pharmacological approaches. Nonsteroidal anti-inflammatory drugs (NSAIDs), such as ibuprofen or naproxen, are commonly used to alleviate pain by reducing prostaglandin production. Hormonal contraceptives, such as birth control pills or hormonal IUDs, may also help regulate menstrual cycles and reduce the severity of symptoms in some cases. Non-pharmacological interventions for dysmenorrhea include applying heat to the abdomen, engaging in regular exercise, practicing relaxation techniques such as yoga or meditation, and dietary modifications. Some individuals also find relief from complementary therapies such as acupuncture or herbal remedies. While dysmenorrhea is often considered a normal part of the menstrual cycle, persistent or severe symptoms should prompt evaluation by a healthcare provider to rule out underlying conditions and determine the most appropriate treatment approach. It is one of the most frequently reported menstrual disorders, affecting individuals of reproductive age worldwide. Dysmenorrhea can be categorized into two main types:

Table No. 01 – Types Of Dysmenorrhea

Type of Dysmenorrhea	Description
Primary Dysmenorrhea	Occurs without underlying pelvic pathology
	Caused by increased levels of prostaglandins
	Typically begins shortly before or at the onset of menstruation
	Characterized by cramp-like abdominal pain
	May be accompanied by symptoms such as nausea, vomiting, diarrhea, and fatigue
Secondary Dysmenorrhea	Associated with underlying medical conditions
	Examples include endometriosis, fibroids, pelvic inflammatory disease
	Pain is often more severe and may worsen over time
	Symptoms may vary depending on the underlying condition
	Diagnosis and treatment of the underlying condition are essential for management

1. **Primary dysmenorrhea (painful periods without an underlying condition):**

a Estimates suggest that up to 90% of adolescent girls and women experience some degree of pain and discomfort during menstruation.

b Around 20-25% of women are estimated to experience severe, debilitating primary dysmenorrhea that interferes with daily activities.

2. Secondary dysmenorrhea (painful periods due to an underlying condition like endometriosis):

a. The prevalence is more difficult to quantify as it depends on the specific underlying cause.
b. Studies suggest that conditions like endometriosis, which can cause secondary dysmenorrhea, affect around 10-15% of women of reproductive age.

3. Overall prevalence estimates:

a Systematic reviews indicate that 45-95% of menstruating women experience some form of dysmenorrhea, with a higher prevalence among younger women and adolescents.

b A large cross-sectional study involving over 19,000 women found that around 84% reported experiencing menstrual pain, with 43.1% reporting moderate-to-severe dysmenorrhea. These numbers highlight that dysmenorrhea is an incredibly common issue, with a substantial proportion of women experiencing moderate-to-severe pain during their monthly cycles. The exact prevalence may vary across different populations, age groups, and geographical regions. The high prevalence and potential impact on quality of life, productivity, and healthcare costs make dysmenorrhea a significant public health concern. Better diagnostic methods, treatment options, and awareness are needed to address this widespread issue affecting a large number of women globally. Products like Menstrual Care, Menolive, and PanaNil from Himalaya and Zandu, respectively, contain herbs like Cyperus, Saffron, and Dill, which are traditionally used to manage dysmenorrhea. Similarly, Trifala Churna from Patanjali comprises three fruits – Haritaki, Bibhitaki, and Amalaki – known for their anti-inflammatory and antioxidant properties. While these herbal products are widely available and commonly used for menstrual discomfort, it's essential to consult with a healthcare professional, especially for cases of severe dysmenorrhea or underlying conditions, as some herbs may interact with medications or have potential side effects.

Table No. 02 – Dysmenorrhea Herbal Medicines Available In Market

Company	Product Name	Key Ingredients
Himalaya Herbal Healthcare	Menstrual Care	Cinnamon, Saffron, Bishop's Weed, Dill
Dabur	Stesscom	Shatavari, Ashwagandha, Brahmi, Jatamansi
Baidyanath	Menstrocare	Dashmool, Ashok, Shatavari, Lodhra
Patanjali Ayurved	Trifala churna	Haritaki, Bibhitaki, Amalaki
Zandu	PanaNil	Cyperus, Dill, Ajwain, Cinnamon, Saffron
Himalaya Herbal Healthcare	Menolive	Saffron, Cyperus, Bishop's Weed, Dill
Baidyanath	Rajah Pravartini Vati	Shatavari, Ashwagandha, Gokhru, Khurasani Ajwain
Dabur	Prem PRavartini Vati	Shatavari, Ashwagandha, Gokhru, Ajwain
Patanjali Ayurved	Shatavari Kalpa	Shatavari, Ashwagandha, Gokhru, Ajwain
Himalaya Herbal Healthcare	Shatavari Compound	Shatavari, Ashwagandha, Gokhru, Ajwain

There are some synthetic medicine available in market for dysmenorrhea

1. **Nonsteroidal Anti-Inflammatory Drugs (NSAIDs)**
   - Ibuprofen (e.g., Advil, Motrin)

- Naproxen (e.g., Aleve)
- Aspirin (e.g., Bayer)

2. Hormonal Contraceptives:

- Combined oral contraceptives (containing estrogen and progestin)
- Progestin-only contraceptives (e.g., mini-pills, hormonal IUDs)

3. Antispasmodics:

- Hyoscine (Scopolamine)
- Dicyclomine (Bentyl)

4. Analgesics:

Acetaminophen (Tylenol)

5. Selective Prostaglandin Inhibitors:

- Mefenamic acid (Ponstel)
- Tranexamic acid (Lysteda)

6. Antidepressants (in some cases for pain management):

- Amitriptyline
- Fluoxetine

7. Muscle Relaxants:

- Cyclobenzaprine (Flexeril)
- Baclofen

Side effects of synthetic dysmenorrhea medicines

1. Nonsteroidal Anti-Inflammatory Drugs (NSAIDs):

- Gastric irritation and ulcers
- Increased risk of gastrointestinal bleeding
- Kidney damage with prolonged use

2. Hormonal Contraceptives:

- Nausea and vomiting
- Breast tenderness
- Headaches
- Mood changes
- Increased risk of blood clots

3. Antispasmodics:

- Dry mouth
- Blurred vision
- Constipation
- Urinary retention

4. Analgesics:

- Liver damage with high doses or prolonged use
- Allergic reactions (rare)

5. Selective Prostaglandin Inhibitors:

- Upset stomach
- Diarrhea
- Headache
- Dizziness
- Rash

6. Antidepressants:

- Nausea
- Drowsiness
- Weight gain
- Sexual dysfunction
- Increased suicidal thoughts (rarely)

7. Muscle Relaxants:

- Drowsiness
- Dizziness
- Fatigue
- Dry mouth
- Blurred vision

Due to this side effect and adverse effect of this medicines herbal medicine show less side effect on dysmenorrhea patient and the synthetic medicine are higher in cost , having more side effect but the herbal medicine show less side effect and also cost effective that the reason our project is for the formulating the herbal decoction which is natural, cost effective , having less side effect and show effective result against dysmenorrhea .

Fenugreek:

Fenugreek seeds, derived from the (Trigonella foenum-graecum) plant, have been integral to traditional medicine and culinary practices for centuries. This small, golden-brown seed holds a rich history of medicinal and culinary applications, spanning various cultures and regions. Known for its distinct aroma and slightly bitter taste, fenugreek is a versatile herb commonly used in Indian, Middle Eastern, and North African cuisines. Beyond its culinary uses, fenugreek seeds

have gained recognition for their potential health benefits. These seeds are a rich source of essential nutrients, including protein, fiber, iron, and various vitamins In traditional medicine, fenugreek has been employed to address a range of health concerns. It is particularly noted for its potential to support digestive health, regulate blood sugar levels, and enhance lactation in breastfeeding women. The seeds contain compounds such as saponins and flavonoids, which contribute to their therapeutic property As interest in natural remedies grows, fenugreek seeds have garnered attention for their possible role in managing conditions like diabetes, promoting heart health, and supporting overall well-being. This introduction sets the stage for exploring the multifaceted nature of fenugreek seeds, encompassing both their culinary significance and their potential contributions to health and traditional medicine Fenugreek seeds, scientifically known as Trigonella foenum-graecum, have a diverse range of applications and are deeply rooted in cultural and medicinal traditions. Native to the Mediterranean region, southern Europe, and Western Asia, fenugreek is an annual herb that produces pods containing small, golden-brown seeds.

Culinary Uses:

Fenugreek seeds are a staple in many culinary traditions. They add a unique flavour profile characterized by a combination of bitterness and a subtle nutty taste. Commonly used in Indian dishes, fenugreek seeds are integral to curry blends, spice mixes, and various spice pastes. They are also employed in pickles, lentil dishes, and bread, contributing both flavour and nutritional value.

Nutritional Content:

Fenugreek seeds are a rich source of nutrients. They contain protein, dietary fiber, iron, magnesium, manganese, and various vitamins such as B6. This nutrient profile has led to their recognition as a functional food with potential health benefits.

Medicinal Uses:

In traditional medicine, fenugreek seeds have been used for their potential medicinal properties. They are often associated with digestive health, helping alleviate issues such as indigestion and bloating. Additionally, fenugreek seeds are believed to have anti-inflammatory properties, making them valuable in managing conditions like arthritis.

Blood Sugar Regulation:

Studies have explored fenugreek's role in managing blood sugar levels. Compounds in fenugreek, including soluble fiber and trigonelline, may contribute to improved insulin sensitivity. This has sparked interest in fenugreek as a potential dietary supplement for individuals with diabetes.

Lactation Support:

Fenugreek has a longstanding reputation for supporting lactation in breastfeeding women. It is believed to stimulate milk production, and while research is ongoing, some studies suggest a positive impact on milk volume.

Potential Applications:

Beyond traditional uses, fenugreek seeds are finding applications in modern herbal medicine and as a functional food ingredient. Research continues to explore their potential in areas such as heart health, weight management, and as an anti-inflammatory agent. fenugreek seeds represent a fascinating convergence of culinary tradition and potential health benefits. Their rich history and diverse applications make them a noteworthy element in both the kitchen and the realm of natural remedies.

1. **Fenugreek seeds (Trigonella foenum-graecum):**

- Contain compounds like diosgenin, which has anti-inflammatory and analgesic (pain-relieving) properties.

- Rich in fiber, which can help regulate menstrual flow and alleviate cramps.
- May have antispasmodic effects, relaxing uterine muscles and reducing cramping.

2. Fennel (Foeniculum vulgare):

- Contains anethole, a compound with antispasmodic and anti-inflammatory properties.
- May help relax uterine muscles and alleviate menstrual cramps.
- Has a mild estrogenic activity, which can help regulate menstrual cycles.

3. Cinnamon (Cinnamomum spp.):

- Possesses anti-inflammatory and antioxidant properties due to compounds like cinnamaldehyde.
- May help reduce prostaglandin levels, which contribute to menstrual pain and cramping.
- Has a warming effect, which can improve blood circulation and relieve muscle spasms.

4. Ginger (Zingiber officinale):

- Contains gingerols and shogaols, which have potent anti-inflammatory and analgesic effects.
- May inhibit the production of prostaglandins and leukotrienes, reducing menstrual cramps.
- Has antispasmodic effects, helping to relax uterine muscles and alleviate cramping.

The combination of these herbs in a tea powder formulation can potentially provide a synergistic effect in managing dysmenorrhea by targeting various pathways involved in menstrual pain and cramping. Their anti-inflammatory, antispasmodic, and analgesic properties may help reduce uterine contractions, alleviate muscle spasms, and provide relief from menstrual cramps.

PLANT PROFILE

1. **Fenugreek Seeds:**

Fig no 2: fenugreek seeds

Synonym:

Trigonella foenum-graecum

Biological Source:

Fenugreek is an annual plant belonging to the family Fabaceae (legume family).

Scientific Classification:

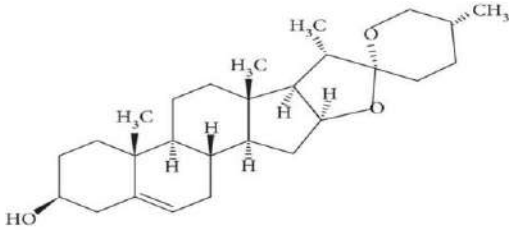
Kingdom: Plantae
Order: Fabales
Family: Fabaceae
Genus: Trigonella
Species: Trigonella foenum-graecum

Common Names: Fenugreek, Greek hay, Methi (Hindi)

Anti-inflammatory Constituents:

- Diosgenin: A steroidal saponin with anti-inflammatory and analgesic properties.

Structure of Fenugreek Seeds:



Anti-inflammatory Property of Fenugreek Seeds:

Diosgenin and its derivatives inhibit the production of pro-inflammatory cytokines and enzymes, such as cyclooxygenase (COX) and lipoxygenase (LOX), which are involved in the inflammatory process.

Fennel:

Fig no 3: fennel

Synonym:

Foeniculum vulgare, Foeniculum officinale

Biological Source:

Fennel is a perennial herb belonging to the family Apiaceae (Umbelliferae).

Scientific Name:

Foeniculum vulgare

Common Names:

Fennel, Sweet fennel, Common fennel

Anti-inflammatory Constituents:

- Anethole: The primary active compound responsible for fennel's anti-inflammatory effects.

Anti-inflammatory Property:

1. Anethole, the major component of fennel essential oil, has been shown to inhibit the production of pro-inflammatory cytokines, such as interleukin-6 (IL-6) and tumor necrosis factor-alpha (TNF-α), by modulating the nuclear factor-kappa B (NF-κB) signaling pathway.

Ginger:

Fig no 4: ginger

Synonym:

Zingiber officinale

Biological Source:

Ginger is a rhizome (underground stem) obtained from the plant Zingiber officinale, which belongs to the family Zingiberaceae.

Scientific Name:

Zingiber officinale

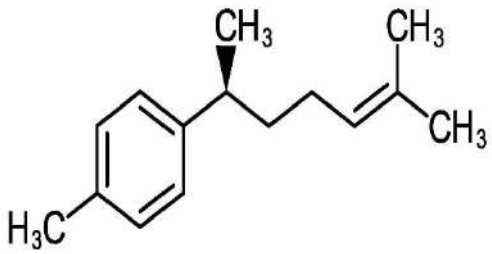
Common Names:

Ginger, Ginger root, Adrak (Hindi)

Anti-inflammatory Constituents:

- Gingerols: The major active compounds responsible for ginger's anti-inflammatory effects, especially 6-gingerol.

Structure of ginger :



Anti-inflammatory Property:

1. Gingerols and shogaols inhibit the production of pro-inflammatory cytokines, such as interleukin-6 (IL-6) and tumor necrosis factor-alpha (TNF-α), by suppressing the activation of nuclear factor-kappa B (NF-κB) and other inflammatory signaling pathways.

Cinnamon:

Fig no 5: cinnamon

Synonym:

Cinnamomum zeylanicum, Cinnamomum verum

Biological Source:

Cinnamon is obtained from the inner bark of several trees belonging to the genus Cinnamomum.

Scientific Name:

Cinnamomum zeylanicum (Ceylon cinnamon), Cinnamomum cassia (Cassia cinnamon)

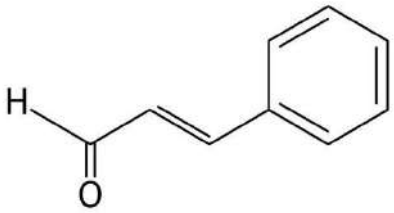
Common Names:

Cinnamon, Ceylon cinnamon, Cassia cinnamon, True cinnamon

Anti-inflammatory Constituents:

- Cinnamaldehyde: The primary active compound responsible for cinnamon's anti-inflammatory effects.

Structure of cinnamon :



Anti-inflammatory Property:

1. Cinnamaldehyde inhibits the production of pro-inflammatory cytokines, such as interleukin-6 (IL-6) and tumor necrosis factor-alpha (TNF-α), by suppressing the activation of nuclear factor-kappa B (NF-κB) and other inflammatory signaling pathways.

Cardamom:

Fig no 6: cardamom

Synonym:

cardamon

Biological Source:

The seeds of several plants in the genera Elettaria and Amomum in the family Zingiberaceae

Scientific Name:

Elettaria cardamomum

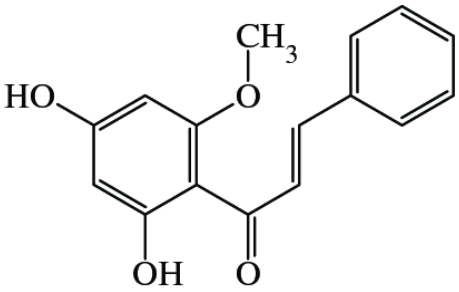
Common Names:

green cardamom, llaichi.

Anti-inflammatory Constituents:

Flavonoids: flavonoids responsible for cardamom anti inflammatory effects

Structure of cinnamon:



MATERIAL AND METHODS :

Ingredient Table –

Table no. 03 – Quantity of herbal ingredients

Sr. No.	Ingredients	Quantity (grams)
1	Fenugreek seeds powder	75
2	Ginger powder	10
3	Cinnamon powder	5
4	Cardamom	5
5	Fennel powder	5

Apparatus Table –

Table no. 04- apparatus and material

Sr. No	Apparatus	Materials
1	Grinder	Stainless steel

2	Extraction container (beaker)	Borosilicate glass
3	Sieves	stainless steel, nylon, brass
4	Round bottom flask	Borosilicate glass
5	Water bath	stainless steel
6	Funnel	Borosilicate glass
7	Stirrer	Borosilicate glass
8	Weighing balance	Stainless steel

Equipment table

Table no. 05 – Equipment and Brand

Sr. no.	Equipment	Brand
1	Analytical equipment	Stainless steel
2	Packaging equipment	Tea bags (muslin cloths)

Extraction –

Method of extraction – Boiling method. Collect the fenugreek seeds as given in table no 3. Collect the fenugreek seeds in separate beaker and wash it. Grind the fenugreek seeds with the help of grinder. Collect the grinded fenugreek seeds powder in beaker. Add water as a solvent in beaker. Extraction here is done by boiling method with the help of heating mantle. Boil the fenugreek powder in water at 100 degrees for 2-4hrs with occasional stirring. After boiling the colour of water changes indicating the process of extraction has occurred. Filter out the extract with the help of funnel, filter paper and collect the extract in beaker.

Formulation of tea powder –

1. Raw Material Preparation:

- Source high-quality fenugreek seeds, ginger, cinnamon, and fennel.
- Clean the raw materials to remove any impurities or contaminants.
- Dry the fenugreek seeds thoroughly.
- Peel and slice or grate the fresh ginger roots.

2. Particle Size Reduction:

- Grind the dried fenugreek seeds into a fine powder using a laboratory grinder or mill.
- Grind the ginger, cinnamon, cardamom and fennel into separate fine powders.

3. Blending and Mixing:

- Weigh the powdered ingredients in the following ratio:
- Fenugreek seed powder: 50%
- Ginger powder: 20%
- Cinnamon powder: 15%
- Fennel powder: 15%
- cardamom: 15%
- Transfer the powders into a high-speed laboratory blender or a suitable mixing equipment.
- Blend the ingredients thoroughly for 10-15 minutes to ensure a homogeneous mixture.

4. Sieves:

- Pass the homogeneous mixture through a mesh sieve (e.g., 60-80 mesh) to achieve a consistent particle size distribution.

5. Extraction and Concentration:

- Transfer the blended tea powder into a maceration vessel.
- Add a suitable solvent, such as water, in a 1:10 (powder: solvent) ratio.
- Macerate the mixture for 24-48 hours, with occasional stirring.
- Filter the extracted solution using a Buchner funnel and vacuum filtration setup.

6. Packaging and Stability Testing:

- Weigh the concentrated extract or the blended tea powder and transfer it into airtight, moisture-resistant containers.

- Seal the tea bag using appropriate packaging equipment or manual sealing methods.
- Place the packaged samples in stability chambers maintained at different temperature and humidity conditions.

Fig No 7: Colour Of Herbal Tea

Evaluation Parameter

Organoleptic property:

Visual inspection, sensory evaluation is observed by its colour and texture.

Fig no. 08: visual inspection

Determination of PH:

dissolve a known amount of the powder in deionized water, and measure the pH of the resulting suspension using a calibrated pH meter or pH test strips. Report the average pH value obtained from replicate measurements.

Fig no 9 pH meter

Odour of tea powder

Odor identification tests are the most popular olfactory tests. Typically, they require the subject to sniff and odour and then indicate what it smells like, usually by responding to a series of written response alternatives.

Taste tea powder:

They require the subject to Taste of decoction and then indicate what taste like, usually by responding to a series of written response alternatives.

RESULTS AND DISCUSSION

The prepared herbal tea powder shows anti-inflammatory activity by reducing menstrual pain, control the release of prostaglandins in the menstrual fluid. It is cost effective, herbal and has no side effects.

1. **Result of tea powder pH –**

The pH of herbal Tea is determined by using digital pH meter. The pH of tea powder was found to be 6.

2. **Result of Physical Appearance-**

The formulated tea powder is Yellowish Green colour.

3. **Result of odour of tea powder –**

Odor of tea powder was found to be Aromatic

4. **Result of Taste of tea powder-**

Taste of tea powder was found to be Astringency.

Table 4 : Evaluation Test Result

Sr No.	Evaluation Parameters	Result	
		F1	F2
1.	Colour	Yellowish Green	Yellowish Green
2.	Odour	Aromatic	Aromatic
3.	State	powder	powder
4.	pH	Weak Acidic	Weak Acidic

SUMMERY:

The present study focusses on formulation and evaluation of herbal tea powder containing fenugreek seeds, cinnamon, ginger, cardamom, fennel. All these herbs have ability to reduces the menstrual pain in women. Extraction of fenugreek seeds is done by boiling method and extract is collected and mixed. This tea powder help to alleviating dysmenorrhea symptoms.

CONCLUSION

The formulation and development of a fenugreek seed tea powder, combined with ginger, cinnamon, and fennel, was undertaken for the management of dysmenorrhea. Comprehensive evaluations, including phytochemical analysis, quality control, and clinical studies, were conducted. The optimized formulation demonstrated anti-inflammatory, antispasmodic, and analgesic properties, offering a promising natural remedy for alleviating menstrual cramps and associated symptoms. This study highlights the potential of combining traditional herbal knowledge with modern formulation techniques to develop safe and effective herbal products for various health conditions.

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HOW TO CITE: Avantika R. Dongare, Pankaj Vyawhare, Formulation And Evaluation Of Tea Powder From Fenugreek Seeds For The Treatment Of Dysmenorrhea , Int. J. of Pharm. Sci., 2024, Vol 2, Issue 6, 610-622. https://doi.org/10.5281/zenodo.11608917