ANU-SEARCH THE INTERNATIONAL JOURNAL OF PHARMA AND ALLIED SCIENCES

Review Article

([ISSN: xxxx-xxxx] Journal Homepage:https://anusearch-ijpas.com/)

A Review of the Effectiveness of Herbal Ingredients in the Treatment of Dysmenorrhea

Komal Shejol, Madhuri Lawange, Mohini Narote, Namrata Kute*, Nayna Gadadhe, Pallavi Bodkhe, Dr. R.H. Kale, Dr. K.R. Biyani

ARTICLE INFO

Received On: 23-03-26

Modified On: 27-03-26

Published On: 17-09-26

DOI: https://doi.org/10.5281/zenodo.206422989

ABSTRACT

Dysmenorrhea also known as menstrual cramps, are one of the most common problem experienced by women during reproductive age. Conventional medications such as NSAIDs and hormonal pills provide temporary relief but are often associated with adverse effects like nausea, gastric irritation and hormonal imbalance. Herbal formulations have gained attention as safe and effective alternatives for pain management(1). This review focuses on the development and pharmacological potential of herbal capsules for menstrual cramp relief using ingredients such as bamboo shoot, ginger, shatavari, ajwain and fennel seeds. These herbs exhibit anti-inflammatory, antispasmodic and analgesic activities that help reduce uterine contraction and pain intensity. The article summarizes the pathophysiology of dysmenorrhea, individual herbal roles, advantages and supporting scientific evidences.(2)

KEYWORDS

Dysmenorrhea, herbal medicine, menstrual pain, bamboo, shatavari, ajwain, antispasmodic herbs, anti-inflammatory, etc.(3)

ANU-SEARCH THE INTERNATIONAL JOURNAL OF PHARMA AND ALLIED SCIENCES

INTRODUCTION

Dysmenorrhea are characterized by lower abdominal pain caused by excessive uterine contraction, prostaglandin release and inflammation.(4)

It is classified into two types:

1. Primary dysmenorrhea : Primary dysmenorrhea is menstrual pain that occurs without any underlying pelvic disease and is most common in adolescents soon after manarche. It results mainly from increased uterine prostaglandin production, which causes strong uterine contractions, reduced blood flow and cramping pain at the onset of menstruation.(5)

2. Secondary dysmenorrhea : Secondary dysmenorrhea is menstrual pain caused by identifiable pelvic pathologies such as endometriosis, adenomyosis, fibroids, pelvic inflammatory disease or ovarian cysts. It usually appears in women over 25 years and is characterized by progressive, persistent pain that may start before menstruation and continue throughout the cycle, often accompanied by symptoms like heavy bleeding or pain during intercourse.(6)

ANU-SEARCH THE INTERNATIONAL JOURNAL OF PHARMA AND ALLIED SCIENCES

MATERIALS AND METHODS

This review followed a systematic approach to identify and analyze literature on bamboo shot powder, ginger, fennel, shatavari and ajwain for menstrual cramp relief. Key reference books consulted included "Indian Materia Medica," "The Ayuvedic Pharmacopoeia of India (API)", "The Wealth of India-CSIR", Trease & Evans' "Pharmacognosy", C.K. Kokate "pharmacognosy", " Ayurvedic Formulary of India (AFI)", and James Duke's "Handbook of Medicinal Herbs." Articles were screened through titles, abstracts and full texts based on relevance and scientific rigor. Date on study design, phytochemistry, mechanisms and outcomes were extracted and synthesized narratively. Only peer-reviewed, methodologically clear studies were included to ensure reliability.(7)

Causes of dysmenorrhea

? Excessive production of prostaglandins.

? Increased uterine muscles contractions.

? inflammation and oxidative stress.

? hormonal imbalance.

? stress and lifestyle factors.

? Gastrointestinal discomfort (bloating, indigestion).

Pathophysiology of dysmenorrhea

Dysmenorrhea is primarily caused by an imbalance of biochemical mediators within the endometrium during menstruation. The key pathological events include:

1. Increased prostaglandin production : Elevated levels of prostaglandins, especially PGF2 ,lead to excessive uterine contraction. PGF2 causes vasoconstriction and myometrial hypercontractility, resulting in ischemic pain.

2. Uterine Ischemia : Strong contractions compress uterine blood vessels. Reduced blood flow leads to oxygen deprivation and accumulation of metabolites, triggering pain.

3. Elevated leukotrienes and inflammatory mediators: Leukotrienes furture increase uterine contractions.Cytokines and inflammatory mediators.

4. Hormonal imbalance : Excess estrogen and low progesterone increase prostaglandin increase

ANU-SEARCH THE INTERNATIONAL JOURNAL OF PHARMA AND ALLIED SCIENCES

prostaglandin synthesis. Hormonal fluctuations heighten nerve sensitivity.

5. Oxidative stress : Increased free radicals contribute to inflammation and tissue irritation during menstruation.

6. Neural sensitization : Pain receptors in the uterus become sensitized due to the release of inflammatory mediators. this increases the perception of pain signals. Together, these mechanisms result in the characteristics cramping, lower abdominal pain and discomfort observed in dysmenorrhea.(4)

ANU-SEARCH THE INTERNATIONAL JOURNAL OF PHARMA AND ALLIED SCIENCES

ANU-SEARCH THE INTERNATIONAL JOURNAL OF PHARMA AND ALLIED SCIENCES

RESULTS

Herbal Ingredients Used in the Management of Dysmenorrhea

1) Bamboo Shoot



Scientific classification

? Kingdom: *Plantae*

? Family: *Poaceae (Gramineae)*

? Genus*: Bambusa*

? Species: *Bambusa vulgaris*

? Common name: bamboo, vansha, bans, moongil,etc.(8)

Phytochemical constituents: Bamboo shoot are rich in flavonoids, phenolic compounds, silica, vitamins and minerals which contribute to their therapeutic potential.(9)

Pharmacological Activities

1. Anti-inflammatory : Reduces the production of inflammatory mediators like prostaglandins, which helps relieve menstrual cramps and pain.

2. Antioxidant : Neutralizes free radicals, protecting uterine and muscle cells from oxidative stress during menstruation.

3. Antispasmodic : Relaxes smooth muscles of the uterus, reducing cramping and abdominal discomfort.

4. Diuretic and Detoxifying : Helps in removing toxins and excess fluids from the body, which can reduce bloating during menstruation.

5. Tissue Strenthening : The presence of silica supports connective tissues and muscle tone, contributing to overall uterine health. (9)

2) Shatavari Roots

ANU-SEARCH THE INTERNATIONAL JOURNAL OF PHARMA AND ALLIED SCIENCES



Scientific Classification

? Kingdom : *Plantae*

? Family : *Asparagaceae*

? Genus : *Asparagus*

? Species : *Asparagus racemosus*

? Common name : Shatavari, Wild Asparagus, etc.(10)

Shatavari is one of the important herabl ingredient. It is highly valued in ayurveda as female reproductive tonic and traditionally known as the "queen of herbs" for women's health.

Phytochemical constituents The roots is rich in several bioactive compounds such as saponins (shatavarins IIV), alkaloids, isoflavones, steroidal glycosides, tannins, mucilage, etc. these compounds contribute to its estrogenic, adaptogenic and uterine tonic effects.(11)

Pharmacological activities of shatavari roots

1. Antispasmodic: Relaxes uterine muscles and reduces cramps.

2. Hormonal regulator: Balances estrogen and progesterone levels.

3. Anti-inflammatory: Decresses pelvic inflammation during menstruation.

4. Uterine tonic: strengthens uterine tissues and supports menstrual health.

5. Adaptogenic: Reduces fatigue, stress and weakness.(11)

3) Fennel



Scientific Classification

? Kingdom: *plantea*

? Family: *Apiaceae (Umbelliferae)*

? Genus: *Foeniculum*

? Species: *F. vulgate*

? Common names: Saunf, badishep & madhurika.(13)

ANU-SEARCH THE INTERNATIONAL JOURNAL OF PHARMA AND ALLIED SCIENCES

Fennel is a valuable herb which has antispasmodic, estrogenic and antiinflammatory properties. It not only relieves pain but also promotes hormonal balance and digestive wellness, contributing to overall menstrual comfort.(13)

Phytochemical Constituents: Major active compounds include Volatile oils (anethole, fenchone, estragole), Flavonoids (quercetin,kaempferol), Phenolic compounds, Fatty acids and coumarins. these constituents give fennel its antispasmodic, carminative and estrogenic properties. (13)

Pharmacological activities:

1. Antispasmodic: Relaxes smooth muscles of the uterus and gastrointestinal tract, reducing cramping and abdominal pain.

2. Phytoestrogenic effect: Compounds like anethole mimic mild estrogenic activity, helping regulate hormonal imbalance and menstrual irregularities.

3. Anti-inflammation and Analgesic; Reduces inflammation and provides mild pain relief during menstruation.

4. Carminative and digestive aid; Helps relieve bloating, nausea and digestive discomfort commonly associated with menstruation.(14)

4) Ginger



Scientific Classification

? Kingdom: *Plantae*

? Family: *Zingiberaceae*

? Genus: *Zingiber*

? Species: *Z. officinale*

? Common names: Ginger, adrak, ale & shunthi. (15)

Phytochemical constituents: Major bioactive compunds are Gingerols, Shogaols, Zingerone, Volatile oil (camphene, citral, linalool), Flavonoids and phenolic compounds.These compound are responsible fir its anti- inflammatory, analgesic and antispasmodic effects. (16)

Pharmacological activities

1.Anti-inflammatory: Ginger inhibits prostaglandins and leukotriene synthesis, reducing

ANU-SEARCH THE INTERNATIONAL JOURNAL OF PHARMA AND ALLIED SCIENCES

inflammation and pain during menstruation.

2.Analgesic: provides natural pain-relieving action similar to non-steroidal antiinflammatory drugs (NSAIDs), but without side effects.

3.Antispasmodic: Relaxes smooth muscles of the uterus, easing cramps and spasms.

4.Antiemetic and digestive aid: Reduces nausea, bloating and digestive discomfort that often accompany menstrual periods.

5.Antioxidant: Protects reproductive tissues from oxidative stress and supports overall uterine health.(17)

5) Ajwain



Scientific Classification

? Kingdom: *Plantea*

? Family: *Apiaceae (Umbelliferae)*

? Genus: *Trachyspermum*

? Species: *T.ammi*

? Common name: Carom seeds,ova,yavani,etc.(18)

Phytochemical Constituents: Major active compounds include Essential oil (mainly thymol, carvacrol), Flavonoids, saponins, tannins, minerals (calcium, phosphorus, iron). These phytochemicals give ajwain its antispasmodic, carminative and analgesic properties.(19)

Pharmacological Activities

1. Antispasmodic: Relaxes smooth muscles of the uterus and gastrointestinal tract, reducing cramps and abdominal pain.

2. Emmenagogue: Promotes and regulates menstrual flow, helping in cases of delayed or painful menstruation.

3. Antimicrobial: Prevents infections and supports overall uterine health.

4. Analgesic and anti-inflammatory: Thymol and carvacrol reduce inflammation and pain during menstruation.(20)

ANU-SEARCH THE INTERNATIONAL JOURNAL OF PHARMA AND ALLIED SCIENCES

DISCUSSION

the finding from the reviewed literature indicate that several herbal ingredients possess significant therapeutic potential in relieving dysmenorrhea due to their anti-inflammatory, antispasmodic and analgesic properties. Herbs auch as ginger, bamboo shoot extracts, shatavari, ajwain and fennel have consistently shown positive outcome in both clinical and experimental studies. The primary mechanism attributed to their effectiveness involves the inhibition of prostaglandin synthesis, which is responsible for uterine hypercontractility and menstrual pain. Overall, herbal remedies are well-tolarated and present fewer side effects compared to conventional pain medications such as NSAIDs. However, variations in dosage, preparation and study design across trials highlight the need for more standardized clinical research. Despite these limitations, the collective evidence strongly supports the beneficial role og herbal ingredients as complementary or alternative therapies in managing dysmenorrhea.

CONCLUSION

The review indicates that herbal ingredients offer a promising and effective approach for the management of dysmenorrhea. Herbs such as bamboo shoot, shatavari, ginger, ajwain and fennel demonstrate significant anti-inflammatory, antispasmodic and analgesic activities that help reduce menstrual pain and discomfort. Most hebal remedies act by lowering prostaglandin levels, relaxing uterine muscles and improving blood circulation, making them suitable natural alternatives to conventional therapies like NSAIDs. Additionally, these herbal treatment are generally safe, cost-effective and well-tolerated with minimal side effects. Although more standardized clinical trials are needed, existing evidence supports the therapeutic potential of herbal ingredients in providing relief from dysmenorrhea.Therefore, incorporating herbal medicine can be a beneficial complementary strategy for women seeking safer and natural options for menstrual pain management.

ABBREVIATIONS

(BS) or (B.bambos):Bamboo Shoot

FUNDING

Self-Funded

ANU-SEARCH THE INTERNATIONAL JOURNAL OF PHARMA AND ALLIED SCIENCES

CONFLICT OF INTERESTS

Author does not show any conflict.

ANU-SEARCH THE INTERNATIONAL JOURNAL OF PHARMA AND ALLIED SCIENCES

ANU-SEARCH THE INTERNATIONAL JOURNAL OF PHARMA AND ALLIED SCIENCES

REFERENCES

1. Proctor, M., & Farquhar, C. Diagnosis and management of primary dysmenorrhea. BMJ, 2006 ; 332(7550) : 1134-1138.

2. Khare, C. P. Indian medicinal plants : An Illustrated Dictionary. Springer ; 2007.

3. Kumar, S., & Jnanesha, A. C. Herbal Remedies for Dysmenorrhea : A Comprehensive Review. Journal of Ethnopharmacology, 2021 ; 268:113580.

4. Iacovides, S., Avidon, I., & Baker, F. C. What we know about primary dysmenorrhea today : a critical review. 2015;21(6):762-778.

5. Harel, Z. Dysmenorrhea in adolescents and young adults : etiology and management. Journal of Pediatric and Adolescent Gynecology, 2006;19(6):363-371.

6. Osayande, A. S.,& Mehulic, S. Diagnosis and Initial management of dysmenorrhea. American Family Physician, 2014;89(5):341-346.

7. Moher, D., Liberati, A., Tetzlaff, J.,Altman, D.G., & PRISMA Group. Preferred reporting items for systemic reviews and meta-analyses: The PRISMA statement. PLoS Medicine, 2009;6(7):e1000097.

8. Nirmala C, Bisht MS, bajwa HK, Santosh O. Bamboo shoots: a nutritious and healty vegetable -an overview. Food Sci Nutr. 2014;(3):235-246.

9. Singh S, Nirmala C. Nutritional and bioactive properties of bamboo :potential applications. Journal of Pharmacognosy and Phytochemistry. 2020;9(5):280-286.

10. Pandey A, et al. Phytochemical and Pharmacological review on Asparagus racemosus. International Journal of ChemTech Research. 2010;2(2):1134-1139.

11. Singh N, et al asparagus racemosus: a therapeutic overview. Pharmacognosy Reviews, 2013;7 (14):113-120.

12. Rather MA, Dar BA, Sofi SN, et al. Foeniculum vulgare: A comprehensive review of its traditional use,phytochemistry, and pharmacology. Fitoterapia. 2016;113;1-12.

13. Badgujar SB, Patel VV, Bandivdekar AH. Foeniculum vulgare Mill: a review of its Botany, phytochemistry, pharmacology, contemporary application, and toxicity. Pharmacognosy Review. 2014;8(16):73-92.

ANU-SEARCH THE INTERNATIONAL JOURNAL OF PHARMA AND ALLIED SCIENCES

14.Trease & Evans' Pharmacognosy,16th Edition

15.Grzanna, R., Lindmark, L., & Frondoza, C. G.(2005). Ginger- an herbal medicinal product with broad anti-inflammatory actions. Journal of medicinal food, 8(2), 125-132.

16.Black, C. D., Herring, M. P.,Hurley,D.J.,& O'Connor,P.J.(2010).Ginger (Zingiber officinale) reduces muscle pain caused by eccentric exercise. The Journal of pain, 11(9), 894-903.

17.Chrubasik, s., Pittler,M.H., & Roufogalis,B.D. (2005). Zingiberis rhizoma: A comprehensive review on pharmacological activities. Phytomedicine, 12(9),684-701.

18.Mashhadi, n.s, Ghiasvand, R., Askari, G., Hariri, M., Darvishi, L., & Mofid, M. R. (2013).

19.Kaur, G., & Kapoor, A. (2017). Phytochemical and pharmacological profile of Trachyspermum ammi: A review. Journal of Pharmacognosy and Phytochemistry, 6(3), 131-140.

20. Bairwa, R., Sodha, R. S., & Rajawat, B.S. (2012). Trachyspermum ammi. Pharmacognosy Reviews, 6(11), 56-60.

21. Zarin, I., Khan, M. S. Y., Ahmad, A., & Mohiuddin, S.(2017). Trachyspermum ammi (L.)- A comprehensive review. International Journal of Green Pharmacy, 11(4), S740-S748

HOW TO CITE: Komal Shejol, Madhuri Lawange, Mohini Narote, Namrata Kute*, Nayna Gadadhe, Pallavi Bodkhe, Dr. R.H. Kale, Dr. K.R. Biyani, *A Review of the Effectiveness of Herbal Ingredients in the Treatment of Dysmenorrhea*, Anusearch IJPAS, 2026, I(I), Page, Review Article, DOI: https://doi.org/10.5281/zenodo.206422989