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RESEARCH ARTICLE

VITEX (VITEX AGNUSCASTUS): A PROMISING MEDICINAL PLANT FOR WOMEN'S REPRODUCTIVE HEALTH

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Abstract

Vitex agnus-castus (family: Lamiaceae), commonly known as chaste tree or monk's pepper, is a well-known medicinal plant traditionally used for the management of various gynecological and reproductive disorders in women. The plant has gained considerable scientific attention due to its role in hormonal regulation,particularly in conditions associated with menstrual irregularities, premenstrual syndrome (PMS), mastalgia, and hyperprolactinemia. This review comprehensively analyzes the traditional uses, phytochemical constituents,pharmacologic al properties, and clinical relevance of Vitex agnus-castus in women's reproductive health. Available evidence suggests that the therapeutic effects of this plant are largely mediated through dopaminergic mechanisms that influence prolactin secretion and restore hormonal balance. The review highlights the potential of Vitex agnus-castus as a safe and effective herbal remedy and emphasizes the need for further well-designed clinical trials to strengthen its integration into evidence-based women's healthcare.

Introduction:-

Medicinal plants have played a pivotal role in the healthcare systems of various cultures since ancient times. In recent decades, there has been a renewed global interest in herbal medicines due to their perceived safety, cost-effectiveness, and holistic mode of action. Among the numerous medicinal plants used for women's health, Vitex agnus-castus occupies a prominent position.Vitex agnus-castus is a deciduous shrub or small tree native to the Mediterranean region and parts of Central Asia. Traditionally, it has been used to treat female reproductive disorders, regulate menstrual cycles, and alleviate symptoms associated with hormonal imbalance. Modern pharmacological and clinical studies have begun to validate many of these traditional claims, making Vitex agnus-castus an important subject of contemporary research in phytomedicine.

Botanical Description and Distribution:

Vitex agnus-castus is a perennial shrub belonging to the family Lamiaceae. It grows up to 3–5 meters in height and is characterized by palmately compound leaves with 5–7 lanceolate leaflets. The plant bears fragrant violet to pale blue flowers arranged in terminal panicles, followed by small, dark-colored drupes resembling peppercorns.The plant is

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widely distributed in the Mediterranean basin, Southern Europe, West Asia, and parts of India. It thrives in riverbanks, coastal regions, and well-drained soils under warm climatic conditions.

Traditional and Ethnomedicinal Uses:
In traditional systems of medicine such as Ayurveda, Unani, and European folk medicine, Vitex agnus-castus has been extensively used for women's reproductive health. The driedfruits are the most commonly used plant part.

Traditionally, the plant has been employed for:
- Regulation of menstrual cycles
- Management of premenstrual syndrome (PMS)
- Relief from mastalgia (breast pain)
- Treatment of infertility associated with luteal phase defects
- Reduction of menopausal symptoms

The name "chaste tree" originates from its historical use in suppressing libido, particularly among monks, reflecting its influence on hormonal pathways.

Objectives:
The present review was undertaken with the following objectives:
1. To compile and analyze traditional and ethnomedicinal uses of Vitex agnus-castus related to women's reproductive health.
2. To summarize the major phytochemical constituents responsible for its therapeutic activity.
3. To review pharmacological and clinical evidence supporting its role in managing reproductive and hormonal disorders.
4. To discuss the possible mechanisms of action involved in hormonal regulation.
5. To identify research gaps and future prospects for the use of Vitex agnus-castus in evidence-based medicine.

Materials and Methods:-
This review is based on an extensive survey of published literature related to Vitex agnus-castus. Relevant research articles, review papers, clinical trial reports, and regulatory documents were collected from scientific databases such as PubMed, Google Scholar, ScienceDirect, and Springer.Keywords including "Vitex agnus-castus", "women's reproductive health", "premenstrual syndrome", "mastalgia", "hyperprolactinemia", and "herbal medicine" were used for literature retrieval. Articles published in English with a focus on phytochemistry, pharmacology, and clinical applications were considered. Duplicate and irrelevant studies were excluded. The collected literature was critically analysed and organised into thematic headings.

Results and Discussion:-
The reviewed literature clearly indicates that Vitex agnus-castus possesses significant therapeutic potential in managing women's reproductive health disorders. The presence of bioactive compounds such as iridoid glycosides, flavonoids, and diterpenoids contributes to its multifaceted pharmacological effects.One of the most important findings across clinical studies is the plant's dopaminergic activity, which leads to suppression of prolactin secretion from the pituitary gland. Elevated prolactin levels are commonly associated with menstrual irregularities, mastalgia, and infertility. By normalizing prolactin levels, Vitex agnus-castus helps restore hormonal balance and improve reproductive function.Clinical trials have demonstrated significant improvement in symptoms of premenstrual syndrome, including breast tenderness, mood changes, headache, and bloating. Compared to placebo, standardized extracts of Vitex agnus-castus showed superior efficacy with minimal side effects. Its role in managing cyclic mastalgia has also been well documented.Although evidence regarding its effectiveness in polycystic ovary syndrome (PCOS) is still limited, preliminary findings suggest that Vitex agnus-castus may support luteal phase function and improve menstrual regularity. The overall safety profile of the plant further supports its use as a complementary or alternative therapeutic option.The results discussed in this review strongly support traditional claims and highlight the relevance of Vitex agnus-castus in modern phytotherapy. However, variability in extract composition and dosage across studies emphasizes the need for standardization and large-scale randomized controlled trials.

Phytochemical Constituents:-

Phytochemical investigations of Vitex agnus-castus have revealed the presence of a wide range of bioactive compounds. Major constituents include:

Iridoid glycosides: agnuside, aucubin
Flavonoids: casticin, vitexin, isovitexin
Diterpenoids: vitexilactone
Essential oils: limonene, cineole, sabinene

These compounds are believed to contribute synergistically to the plant's pharmacological activities, particularly its endocrine-modulating effects.

Pharmacological Activities Relevant to Women's Health:

- **Hormonal Regulation:**

One of the most significant pharmacological properties of Vitex agnus-castus is its ability to regulate hormonal balance. The plant exhibits dopaminergic activity by binding to dopamine D2 receptors in the pituitary gland, leading to reduced prolactin secretion. This mechanism is particularly beneficial in conditions such as hyperprolactinemia, which is associated with menstrual irregularities and infertility.

- **Premenstrual Syndrome (PMS):**

Several clinical studies have demonstrated the effectiveness of Vitex agnus-castus in alleviating PMS symptoms, including mood swings, irritability, breast tenderness, and bloating. The reduction in prolactin levels and modulation of estrogen-progesterone balance play a key role in symptom relief.

- **Mastalgia (Breast Pain):**

Vitex agnus-castus has shown promising results in the treatment of cyclic mastalgia. Regular administration of standardized extracts has been associated with significant pain reduction, making it a preferred herbal alternative to synthetic drugs.

- **Polycystic Ovary Syndrome (PCOS):**

Although evidence is still emerging, Vitex agnus-castus has been reported to improve menstrual regularity in women with PCOS by supporting luteal phase function and hormonal balance.

Tables:

Table 1. Major Phytochemical Constituents of Vitex agnus-castus

PHYTOCHEMICAL GROUP	MAJOR COMPOUNDS	REPORTED BIOLOGICAL ROLE
Iridoid glycosides	Agnuside, Aucubin	Hormonal regulation, antioxidant activity
Flavonoids	Casticin, Vitexin, Isovitexin	Anti-inflammatory, estrogenic modulation
Diterpenoids	Vitexilactone	Dopaminergic activity, prolactin suppression
Essential oils	Cineole, Limonene, Sabinene	Anti-spasmodic, aromatic properties

Table 2. Clinical Evidence of Vitex agnus-castus in Women's Reproductive Disorders

CONDITION	STUDY TYPE	KEY FINDINGS
Premenstrual Syndrome (PMS)	Randomized clinical trials	Significant reduction in breast pain, mood swings, and irritability
Mastalgia	Controlled clinical studies	Effective reduction of cyclic breast pain
Hyperprolactinemia	Observational & clinical trials	Decreased prolactin levels via dopaminergic action
PCOS	Preliminary clinical studies	Improved menstrual regularity and luteal phase support

Table 3. Mechanisms of Action of Vitex agnus-castus

TARGET SITE	MECHANISM	PHYSIOLOGICAL OUTCOME
Pituitary gland, dopamine D2 receptor agonism	Reduced prolactin secretion	Pituitary gland, dopamine D2 receptor agonism
Hypothalamic–pituitary axis	Hormonal modulation	Balanced estrogen–progesterone ratio
Mammary tissue	Prolactin inhibition	Relief from mastalgia

Figures:

Figure 1. Morphology of Vitex agnus-castus.

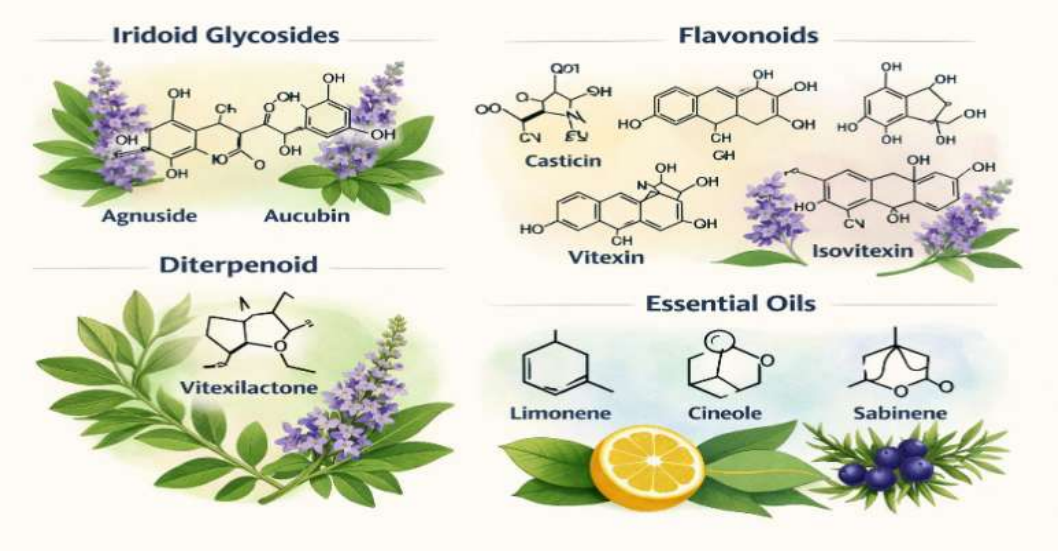
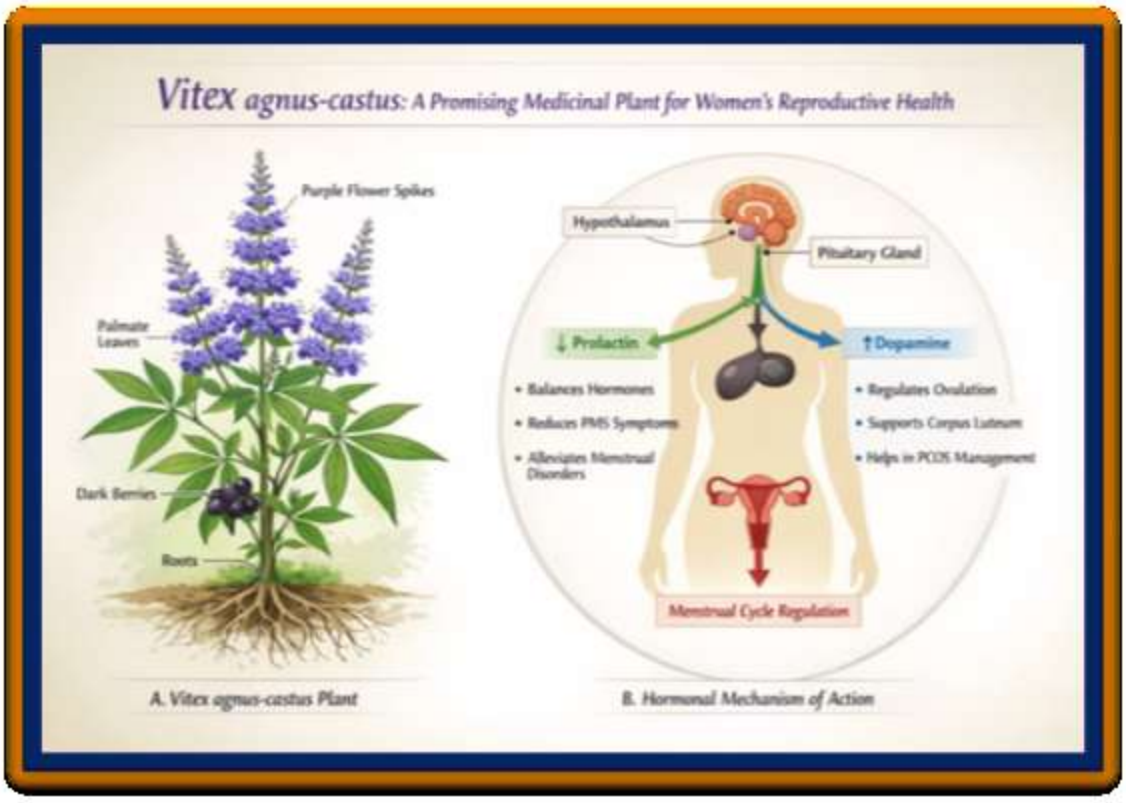


Figure 2. Mechanism of Action of Vitex agnus-castus in Women's Reproductive Health.



Conclusion:-

This review clearly establishes Vitex agnus-castus as a scientifically validated, reliable, and highly promising medicinal plant for the management of women's reproductive health disorders. Both traditional knowledge and contemporary clinical evidence strongly support its effectiveness in conditions such as menstrual irregularities, premenstrual syndrome (PMS), mastalgia, and hyperprolactinemia, which are largely associated with hormonal imbalance.The therapeutic efficacy of Vitex agnus-castus is primarily attributed to its rich phytochemical composition, including iridoid glycosides, flavonoids, and diterpenoids, which exert dopaminergic activity at the pituitary level and regulate prolactin secretion. Through modulation of the hypothalamic–pituitary–ovarian axis, the plant helps restore hormonal equilibrium, improve luteal phase function, and alleviate a wide range of gynaecological symptoms.These findings highlight the potential of Vitex agnus-castus as a safe, effective, and well-tolerated over-the-counter herbal alternative to prescription medications for PMS management. Its favourable safety profile, clinical acceptance, and patient compliance further strengthen its role in integrative, evidence-based women's healthcare. Nevertheless, standardized formulations and well-designed, large-scale clinical trials remain essential to optimize dosage, confirm long-term safety, and facilitate wider clinical adoption.

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