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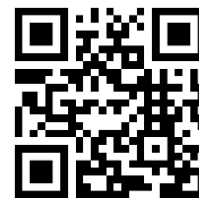


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Pharmacological Evaluation of Chandanushir Kalka and Its Skin-Benefiting Properties with Special Reference to Kikkisa (Striae Gravidarum).

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ABSTRACT: Introduction: Kikkisa in Ayurveda is a physiological condition of pregnancy comparable to striae gravidarum, characterized by burning, itching, discoloration, and stretching of the skin. It affects nearly 70–90% of pregnant women worldwide, commonly appearing on the abdomen, breasts, and groin. Although harmless, it often causes cosmetic concerns. Chandan-Ushir Kalka, described in Ashtanga Hridaya Sharirsthan is recommended for external application in Kikkisa. **Aim :** To evaluate the therapeutic potential of Chandan Ushir Kalka based on the pharmacodynamic properties of its ingredients in the management of Kikkisa. **Objectives:** To review the therapeutic actions of Chandan Ushir Kalka by evaluating the pharmacodynamic properties and individual functions of its constituent ingredients. To analyze the synergistic effects of the ingredients to understand the traditional therapeutic use of the formulation. **Materials And Method:** Relevant information from traditional literature and digital sources was systematically collected and critically analyzed to support a comprehensive and informed discussion. **Observation And Results:** Chandan Ushir Kalka, described in the Ashtanga Hridaya for the management of Kikkisa, was critically reviewed in this study. The pharmacological properties were analyzed based on classical Ayurvedic descriptions and available experimental studies. Both drugs possess sheeta, pittashamaka, anti-inflammatory, antioxidant, and skin-soothing properties, which may help in relieving symptoms associated with Kikkisa. Literature evidence also suggests that these herbs contribute to skin nourishment, improvement of complexion, and protection against oxidative stress, supporting their relevance in the management of pregnancy-related stretch marks. **Conclusion:** Based on the pharmacological properties and experimental studies conducted on the individual drugs, Chandan Ushir Kalka appears to be safe and effective topical formulation for managing Kikkisa.

KEYWORDS: Chandan Ushir Kalka, pharmacodynamic properties, Kikkisa, Striae Gravidarum.

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INTRODUCTION:

Kikkisa described in Ayurveda is considered a physiological condition occurring during pregnancy and is comparable to striae gravidarum in modern medicine. It is commonly associated with symptoms such as burning sensation, itching, discoloration of the skin, and stretching or tearing of the affected area.⁽¹⁾ Striae gravidarum is a very common condition, affecting nearly 70–90% of pregnant women worldwide, depending on factors such as age, skin elasticity, heredity, and excessive weight gain. These stretch marks usually develop over the abdomen, breasts, and groin region..⁽²⁾ Although the condition is not harmful, it often causes cosmetic concerns for many women.

Among the classical Ayurvedic formulations, Chandan-Ushir Kalka, mentioned in Ashtanga Hridaya, is recommended for external application in Kikkisa Vyadhi. This preparation contains Chandan (*Santalum album*) and Ushir (*Vetiveria zizanioides*), two herbs well known for their beneficial effects on skin health.⁽³⁾ Understanding the pharmacodynamics of Ayurvedic drugs is important for scientifically validating their traditional uses. It helps explain the mechanism of action, supports proper dosage, ensures safety, and contributes to the development of evidence-based formulations that can be integrated with modern healthcare. In Ayurveda, Panchavidha Kashaya Kalpana forms the foundation of many pharmaceutical preparations. Among these, Kalka (herbal paste) is a widely used classical dosage form employed in the management of various diseases. Kalka is a semi-solid herbal paste prepared by triturating medicinal drugs and is used both for external applications (Lepa) and internal administration due to its quick

Table No. 1 : Rasapanchaka of Chandanushir Kalka

action and better bioavailability of active constituents. The Chandan Ushir Kalka formulation is used for external application and is indicated in the treatment of Kikkisa (Striae Gravidarum).

Aim

To evaluate the therapeutic potential of Chandan Ushir Kalka based on the pharmacodynamic properties of its ingredients in the management of Kikkisa.

Objectives

To review the therapeutic actions of Chandan Ushir Kalka by evaluating the pharmacodynamic properties and individual functions of its constituent ingredients.

To analyze the synergistic effects of the ingredients to understand the traditional therapeutic use of the formulation

Material And Method

A wide range of classical Ayurvedic literature and recent scholarly works have been examined. Information from both traditional texts and digital sources has been systematically compiled and critically assessed to enable an in-depth and informed discussion.

Ingredients Of Chandan Ushir Kalka

Method of Preparation of Chandan Ushir Kalka

Definition

According to Sharangadhara, Kalka is a soft paste prepared from medicinal drugs. When fresh (wet) drugs are used, they are ground without adding water, whereas dry drugs are triturated with a small amount of water to obtain a paste.

Synonyms - Prakshepa, Avapa, Kalka, Pinda. Based on this reference, Chandana-Ushira Kalka can be prepared using either wet drugs or dry drugs, depending on their availability.

Ingredients & Raspanchaka of Chandan Ushir Kalka

Sr. No	Ingredients	Botanical name	Family	Rasa	Virya	Guna	Vipak	Karma
1.	Chadan ⁽⁵⁾	Santalum Album	Santalaceae	Tikta	Sheeta	Laghu, Ruksha	Katu	Vat pitta shamak
2.	Ushir ⁽⁶⁾	Vetiveria Zizaniodes	Graminae	Tikta, Madhur	sheeta	Laghu, Ruksha	Katu	Kapha Pitta Shamak

Table No. 2 : Therapeutic actions of Chandanushir Kalka

Sr.No.	Ingredients	Ayurvedic Therapeutic actions (Karma)	Modern Therapeutic actions
1	Chadan ⁽⁵⁾	Alhadan, Trushnashamak, Vishaghana, Kandughna, Raktaprasadak, Jwaraghana ⁽⁵⁾	Dahashamak, Grahi, Varya, anti-inflammatory activity, antimicrobial activity, antioxidant activity, anticancer activity, neuroprotective activity, antidiabetic activity, antipruritic activity, and anti-stress (anxiolytic) activity ^{(7) (8)}
2	Ushir ⁽⁸⁾	Vishaghana, Dahashamak, Raktaprasadak, Vranahara ⁽⁶⁾	Visarpahara, Stambhana, Antibacterial, Antimicrobial and Anti-amoebic, anti-inflammatory activity, antimicrobial activity, antioxidant activity, antipyretic activity, hepatoprotective activity, antidiabetic activity, wound healing activity, and anti-stress (anxiolytic) activity. ^{(9) (10)}

Studies On Skin-Promoting Factors Of Chandan (Santalum Album)

Santalum album has been widely investigated for its dermatological and cosmetic benefits. The essential oil obtained from the heartwood of the plant contains major active constituents such as α -santalol and β -santalol, which are responsible for many of its pharmacological activities. These compounds contribute to antioxidant, anti-inflammatory, and antimicrobial effects that support skin protection and repair ⁽¹¹⁾.

Experimental studies have demonstrated that sandalwood oil possesses significant antioxidant activity. In vitro investigations showed that extracts of Santalum album exhibited notable free-radical scavenging ability when evaluated using assays such as DPPH, FRAP, and hydroxyl radical scavenging

methods, indicating its potential to reduce oxidative stress in skin tissues ⁽¹²⁾. Oxidative stress is an important factor involved in skin ageing and tissue damage; therefore, antioxidants present in sandalwood may contribute to maintaining skin health.

Further research evaluating the dermatological potential of sandalwood oil reported that it can reduce reactive oxygen species (ROS) generated by environmental stressors such as pollution and blue-light exposure. The study also demonstrated that sandalwood oil decreased the expression of collagen-degrading enzymes such as matrix metalloproteinase-1 (MMP-1) in human skin models, suggesting a protective role against collagen degradation and skin ageing ⁽¹³⁾.

In addition to antioxidant effects, phytochemical investigations have revealed

that sandalwood contains phenolic compounds, terpenoids, saponins, and tannins, which exhibit antimicrobial activity against several pathogenic microorganisms. These antimicrobial properties help prevent microbial colonization on the skin and may contribute to the healing of damaged skin tissues⁽¹⁴⁾

Because of these combined activities—antioxidant, anti-inflammatory, antimicrobial, and skin-protective—*Santalum album* has been widely incorporated into dermatological preparations and cosmetic formulations intended for maintaining healthy skin and improving complexion.

Studies on Skin-Promoting Factors of Ushira (VETIVERIA ZIZANIOIDES)

Vetiveria zizanioides (Ushira) is an aromatic medicinal plant widely used in traditional medicine for its cooling, anti-inflammatory, and dermatological properties. The essential oil obtained from the roots of *Vetiveria zizanioides* contains several bioactive compounds such as vetiverol, vetivone, and khusimol, which contribute to its therapeutic activities⁽¹⁵⁾. Studies evaluating the antioxidant potential of vetiver root extracts have demonstrated significant free-radical scavenging activity, which helps protect skin cells from oxidative stress. Antioxidants present in vetiver play an important role in preventing cellular damage caused by reactive oxygen species and may support skin protection and repair⁽¹⁶⁾. Phytochemical investigations of *Vetiveria zizanioides* have revealed the presence of phenolic compounds, flavonoids, tannins, and terpenoids. These constituents are known to possess anti-inflammatory, antimicrobial, and antioxidant properties, which may contribute to the maintenance of healthy skin and prevention of microbial infections⁽¹⁷⁾. In addition, studies on the biological activity of vetiver essential oil have demonstrated

antimicrobial effects against several bacterial and fungal pathogens, suggesting its potential use in dermatological preparations and topical formulations. The cooling and soothing properties of Ushira also support its traditional use in conditions associated with skin irritation, inflammation, and excessive heat⁽¹⁸⁾. Because of these pharmacological activities, *Vetiveria zizanioides* is widely incorporated into herbal formulations intended for skin protection, wound healing, and improvement of skin texture, supporting its traditional use in Ayurvedic dermatology.

DISCUSSION:

Kikkisa And Its Modern Correlation

In Ayurveda, Kikkisa is described as a physiological skin condition occurs during seventh month of pregnancy. It develops due to excessive stretching of the abdominal skin due to growth of the fetus. As a result, linear streaks appear over the abdomen, breasts, and thighs, which are referred to as Kikkisa, which can be correlated with striae gravidarum in modern medicine. Initially, these lesions appear as pink or reddish linear bands, which gradually become wider and darker. Over time, they turn into pale, wrinkled, and atrophic marks that follow the natural tension lines of the skin. These stretch marks commonly occur over the abdomen, breasts, hips, and thighs and may produce itching, burning, or discomfort. The condition mainly results from mechanical stress on connective tissue, leading to alterations in collagen and elastic fibers of the skin.⁽¹⁹⁾

Role Of Chandan Ushir Kalka

The herbal drugs Chandan (*Santalum album*) and Ushir (*Vetiveria zizanioides*) possess anti-inflammatory, antioxidant, and skin-protective properties. They also show anti-collagenase and anti-elastase activity, which help maintain skin elasticity and reduce collagen degradation. These actions may help prevent or reduce stretch marks.

Relief Of Symptoms In Kikkisa Vidaha (burning sensation):

Burning sensation occurs due to aggravation of Pitta Dosha and tearing of skin fibers. The Pittashamaka property, along with Tikta and Madhura Rasa and Sheeta Virya, helps reduce burning.

Kandu (itching):

Itching occurs due to dryness and Vata aggravation caused by stretching of skin fibers. Chandan is Vata-Pitta Shamaka, while Ushir is Kapha-Pitta Shamaka, which helps relieve itching.

Vaivarnya (discoloration):

Both drugs belong to Varnya Mahakashaya, helping improve complexion and restore normal skin color.

MODE OF ACTION

When applied externally, the formulation acts through cutaneous absorption. According to Ayurveda, Bhrajak Pitta present in the skin helps in the transformation and absorption of the active components, which pacifies aggravated Vata, Pitta, and Kapha Doshas and relieves local symptoms such as burning, itching, and discoloration.

Due to its anti-inflammatory, antioxidant, and skin-soothing properties, Chandan Ushir Kalka helps reduce burning, itching, and discoloration while improving skin texture and elasticity. Thus, it may be beneficial in the management of Kikkisa (striae gravidarum) and in preventing scar formation.

CONCLUSION:

The ingredients of Chandan Ushir Kalka have been used since ancient times for promoting skin vitality and improving pigmentation. These herbs act as skin-protective and healing agents due to their wound-healing, antimicrobial, anti-inflammatory, and antioxidant properties. Classical Ayurvedic literature also describes their Varnya, Vishaghna, and Raktaprasadaka actions, supporting their use in various skin disorders. Kikkisa, correlated with striae gravidarum,

affects nearly 90% of pregnant women and is mainly associated with Pitta vitiation and excessive stretching of the skin during pregnancy. Application of Chandan Ushir Kalka may help reduce burning sensation, itching, and skin irritation, while promoting skin nourishment and healing of stretch marks. Therefore, this formulation may be considered a potential herbal cosmeceutical preparation for the prevention and management of Kikkisa (striae gravidarum).

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