MANJISTHA (RUBIA CORDIFOLIA) AS COSMECEUTICAL REMEDY FOR PREVENTION OF STRIAE GRAVIDARUM

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ABSTRACT

Cosmetics have important place in every women's life since ancient times. Women are more concern about their look during pregnancy as 90% cases develop striae marks on abdomen, breast and thighs or scratch marks due to itching make their look ugly. But there is a difference between cosmetic and cosmeceutical products which restrict sell of cosmetic without medical prescription if it contains ingredients that can penetrate or change the functioning of the skin. Cosmeceuticals are serving as a bridge between personal care products and pharmaceuticals. Manjistha can play a very good role in this burning issue of itching and striae marks due to their medicinal properties. Manjistha as remedy can prevent burning, itching and other fungal or bacterial infection and promotes skin healing by local action on skin and promotes collagen formation due to property of Ropana- Sothehar. Kandughana and Vishghana properties shows antiallergic action, anti bacterial, antifungal action actions prevents skin from secondary infection of skin caused due to itching. Pittashamak property pacify alleviated Dosha and Varnya property promotes skin texture, colour and luster. Manjistha can acts as skin protective drug which is used in Striae gravidarum to relief basic symptom of hypopigmentation, itching burning and maintains skin luster so that drug can be used in cosmeceutical industry for prevention of striae gravidarum.

KEYWORDS: Manjistha, Cosmetic, Cosmeceutics, Striae gravidarum (Kikkisa).

INTRODUCTION

Nature bestowed us with remedy for every problem and Ayurveda being an oldest healing science enriched with various medicinal herbs for management of different disorders by external and internal uses. Ayurveda can offer a smart strategy for new drug discovery. Strategic options based on ethano-pharmacology, reverse pharmacology and traditional medicine offers a good base for alternate natural product drug discovery. Ayurvedic cosmeceuticals dates back to the Indus valley civilization and it is now gaining importance in the beautification and to cure skin ailments. Cosmetics have important place in every women's life since ancient times. Women are more concern about their look during pregnancy as 90% cases develop striae marks on abdomen, breast and thighs or scratch marks due to itching make their look ugly. It is said that healthy glowing skin is indicator of healthy mind. It is hard sometimes to use any synthetic cosmetic during pregnancy. But there is a difference between cosmetic and cosmeceutical products which restrict its sell without medical prescription if it contains ingredients that can penetrate or change the functioning of the skin. Cosmetics assist the beauty of a lady by which she gets mentally healthy status and remain confident.

Cosmeceuticals is the combination of “cosmetic” and “pharmaceutics” and defined as cosmetic-pharmaceutical hybrids intended to enhance health and beauty through ingredients that influence the skin's biological texture and function. Cosmeceuticals are serving as a bridge between personal care products and pharmaceuticals. Cosmeceuticals are the fastest growing segment in skin care market in present era. But there is no promising treatment for striae gravidarum in market of cosmetic and cosmeceutical.

Then in this regard, society look towards Ayurveda to develop better and safer remedy for these trouble causing stria during pregnancy. Manjistha can play a very good role in this burning issue of striae marks and itching due to their medicinal properties. Manjistha can prevent Burning, itching and other fungal or bacterial infection and promotes skin healing by local action on skin and promotes collagen formation. Due to Property of Ropana- sothahar, promotes wound healing and have local anti-inflammatory action helps in odema caused due to itching. Kandughana and Vishghana properties shows antiallergic action, anti bacterial, antifungal action actions prevents skin from secondary infection of skin due to itching. Pittashamak and Varnya property promotes skin texture, colour and luster.

**Manjistha (Rubia cordifolia)**

**Habitat:** Rubia cordifolia is a climbing plant growing in the North-west Himalayas, Nilgiris and other hilly districts of India (Altitude: 1500-2500m).

**Botanical description:** It is Perennial, prostate or climbing herb. Stems sharply 4-angled, minutely prickly; leaves in whorle of 6-8, elliptic to ovate- cordate, long petiolate, flowers in axillary panicles of dichotomous cymes, greenish-yellow; fruits 2-celled, globose, smooth, shining, purplish-black when ripen.
Flowering and fruiting: June-October and Part used: Root and Stem mainly.

Cultivation: The tolerable thermal range for the species varies from 15-35°C in high altitude of Himalayas. The plant prefers loose, moist, light soil with some shade. As the root goes deep into soil, porous well-aerated soils are beneficial for cultivation. Irrigation is recommended at weekly intervals to maintain moist conditions in the beds. For vegetative propagation, pieces of the stem are planted directly.\(^{16}\)

**Varieties of Rubia in India** \(^{17}\)

*R. cordifolia* is a common plant in almost all parts of south India. *R. tinctorium* is not reported from south India.

The stem pieces are adulterants, and samples derived from Sikkim and North East hills are originated from *R.Sikkimensis* Kurz. It is seen that *R. cordifolia* is a complex group, exhibiting a wide range of morphological characters.

Red color dye is present in both root and stem of *Manjistha*. *Manjistha* has been used as natural colorants and natural dye. Basically the pigments purpurin and munjistin are present in roots. In ancient times, it was used as a coloring material for clothes and described as “Lohita varna ” like blood in color and “lata” as it is a creeper in nature.\(^{18}\)

At the time of “Yajnopavita Sanskar” in Hindu dharma rituals clothes were coloured by it. However, no therapeutic uses are documented so far in these Vedic treatises.\(^{19}\)

**MATERIAL AND METHODS**

The following are the process and eligibility criteria for the inclusion of data pertaining to this review are Data collection from various Ayurvedic treatise, text book of Ayurveda, Ayurvedic Pharmacopoeia of India, Thesis/ dissertations available. Various search engines were undertaken in Google search, Medscape, Pubmed and other relevant databases using Keywords like *Manjistha, Rubia cordifolia* and striae gravidarum.

**LITERARY OBSERVATION**

**Kikkisa**

Acharya Charak while describing about formation and condition of foetus advised the Antenatal Care of *Garbhini* (pregnant women) and proper diet regime with or without medication in 7th month of pregnancy and a disease called *Kikkisa* develops during this period.

*Acharya Vagbhhatt* follows the concept of *Charak* but states that *Doshas* resides in *Hridya* and causes itching and burning.

*Acharya Bhel* follows the *Charak* and *Vagbhhatt*.

Acharya Harita in *Harit Samhita* has not described about development of *Kikkisa*. But he has enlisted eight disorders of pregnancy and includes “Vivarnata” which is a symptom of *Kikkisa*.

If we look etiology behind the formation of these stretch marks termed as *Kikkisa* (striae gravidarum) in literatures it is stated that growing foetus in uterus displaces all the body *Doshas* upwards, thus vitiating the *Doshas*. Vitiated *Doshas* causes *Twak prasaran* (stretching of skin), *Pitta* leads to *Vidaah* and *Vaivarnya* (burning and depigmentation) and *Kaph* causes itching and the combination of these changes as *Kikkisa*. *Kikkisa* is related to Striae gravidarum in modern concepts.\(^{20-23}\)

**Striae gravidarum**: Striae gravidarum generally develops in the last trimester (after 28 weeks) of pregnancy in about 90% of cases. In Modern Era, Striae distensa is a condition of disfiguring cutaneous condition characterized by linear smooth bands of atrophic appearing skin which occurs in areas of dermal damage produced by stretching. When the striae are present during pregnancy are called as Striae Gravidarum. Striae are seen in 90% of pregnant women due to combination of hormonal factors (e.g.:adrenocortical hormones, estrogen and relaxin) along with increased lateral stress on connective tissues leads breaking of fibres. The natural evolution of striae is for the red to purple, raised wavy lesions (striae rubra) to fade and leave white atrophic lesions with a wrinkly surface(striae alba).

Striae gravidarum are slightly depressed linear marks with varying length and breadth found in pregnancy and represent the scar tissues in the deeper layer of the cutis. Striae gravidarum generally develops in the last trimester (after 28 weeks) of pregnancy. Although it can also appear suddenly at the end of pregnancy due to mechanical stretching effect by growing foetus in uterus rather lacking of rapid healing rate in comparison to rapid increase in size.\(^{24-27}\)

**Treatment in literature**\(^{28-31}\)

We found *Manjistha* in combination of other drugs used in Treatment of *Kikkisa*.

Like Pestled Leaves of *Nimba, Kola, Sursa* and *manjistha*. *(Ch. Sha. 8/32, A.S. Sha. 3/10)*, Decoction of *Patol, Nimba*, *Manjistha* and *Surasha* *(A.H. Sha. 1/61)*.

Treatment of *Kikkisa* is given only in *Charak Samhita, Astang Sangraha, Astang Hridaya* and *Bhela Samhita*.

**Therapeutic Indication**

Therapeutic indication for both internal and external use in skin disease described in Literature and Ayurvedic Materia Medica like *Charak Samhita (C.Ci), Sushruta Samhita (S.Su, S.Gi, S.Sh), Astangh Hridaya (A.H.U) and Bhav Prakash (Bh.P)*.

<table>
<thead>
<tr>
<th>Indications</th>
<th>Formulation</th>
<th>Use</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kushta, Kilasa, Premaha</td>
<td>Madhuka asava</td>
<td>Int.</td>
<td>C.Ci-15/146</td>
</tr>
<tr>
<td>Vrana</td>
<td>Vrana Ropan</td>
<td>Ext.</td>
<td>S.SU.-37/23</td>
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<tr>
<td>Pitta saman varga</td>
<td>Drugs</td>
<td>Int.- Ext.</td>
<td>S.SU-40/8</td>
</tr>
<tr>
<td>Vrana</td>
<td>Vrana ropan tail</td>
<td></td>
<td>S.Ci-2/73</td>
</tr>
<tr>
<td>Vyanga, Neelika, Paphole, Kusthanasa, Vipadikahar</td>
<td>Ghrita paka mardon</td>
<td>Ext.</td>
<td>S.Ci-26/38-41</td>
</tr>
</tbody>
</table>
Pittaj roga  | Lodhradi Asthapana Basti  | S.CI-38/55
---|---|---
Vyanga, Neelika  | Manjisthadi tail  | Ext. A.H.U-32/31
Sarva kushtha  | Bhrit manjisthadi kwath  | Int. S.Sh.-M-2
Vyanga  | Mukha kantikar lepa  | Ext. S.Sh.-U-11/9
Vyanga  | Vyangahaar lepa  | Ext. S.Sh.-U-11/12
Kushtha  | Brihat Manjisthadi kwath  | Int. Bh.P-54/104-106
Kushtha  | Laghu manjisthadi kwath  | Int. Bh.P-54/99-100
Kushtha  | Madhuyam manjisthadi kwath  | Int. Bh.P-54/101-103

**Medicinal Properties In Ayurvedic Materia Medica**

Properties of Manjistha IN API(32) and Bhav prakash

Nighantu (33);  
Rasa : Kashya, Tikta, Madhura  
Guna : Guru  
Virya : Usna  
Vipaka : Katu  

**Table 2: Properties of Manjistha in literature**(34-36)

<table>
<thead>
<tr>
<th>Literature</th>
<th>Rasa</th>
<th>Guna</th>
<th>Veerya</th>
<th>Vipaka</th>
<th>Karma</th>
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<tr>
<td>Dhanvantari Nighantu</td>
<td>Madhura Kashaya</td>
<td>Guru</td>
<td>Usnaa</td>
<td>Madhur</td>
<td>Kapha-Vrana-Meha-Asra-Visha-Aamyajeeata</td>
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<tr>
<td>Kaiyadev Nighantu</td>
<td>Kashya Tikta</td>
<td>Guru</td>
<td>Usnaa</td>
<td>Madhur</td>
<td>Yoniroghana</td>
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<tr>
<td>Raaj Nighantu</td>
<td>Madhura Kashaya</td>
<td>Guru</td>
<td>Usnaa</td>
<td>Vrana-Meha-Jwara-Sleshma-Visha-Netramayapaha</td>
<td></td>
</tr>
</tbody>
</table>

In Charak Samhita Manjistha Categorized under (37)

1. Vishaghana mahakashya  
2. Varnya dashemani  
3. Jwara Ghana

In Sushruta Samhita classified into(38-39)

1. Priyangvadi gana  
2. Ambasthadi gana  
3. Pitta sanshaman

**Chemical Constituents of Manjistha**

Major chemical constituents are Rubifollic acid, Rubicummaric acid (two pentacyclic triterpenes), Ruberythric acid, Rubuanin, Rubiadin, mollugin, lucidin, Purpurin, pseudo purpurin, xanthopurpurin, manjisthin, ten fatty acid with saturated and unsaturated long chains, Naphthoquinones, Naphthhydroquinones, six Anthraquinones, Free alizarin and its glucoside, oleanolic acid acetate, β-stosoter scopoletol, glucosides, flavonoids, phenols and saponin. The roots and stem are well known source of Anthraquinones and purpurin. (18)

**Action and uses** (40-43)

- **Stem**: bitter, acrid, astringent, thermogenic in nature and cooling potency. The dried stem is used in blood, skin and urogenital disorder, dysentery, piles, ulcers, inflammation, erysipelas, skin disease and rheumatism.

**Pharmacological property**: Blood purifier, Anti-oxidant, wound –healing, immunomodulator, Analgesic, Diuretic, Gastroprotective, Hepatoprotective and Nephroprotective.

Various researches as evidence

**Anti- acne property** (44-45)

Anthraquinone rich fraction of *Rubia cordifolia* in a gel formulation against Propionibacterium acne, staphylococcus epidermidis when compared with clindamycin gel.

**Wound healing activity** (46)

Root extract of *Rubia cordifolia* was reported as an effective wound healing principle in experimental models as wound healer. Ethanolic extract and the hydrogel formulation of roots were found to be effective the functional recovery and healing of wound and histopathological alterations.

**Anti-inflammatory activity** (47-48)

Aqueous extract in rats with carrageenan paw edema in a dose dependent manner which is comparable to that of phenylbutazone. It also inhibit the lipoxygenase enzyme pathway which catalyses the production of various inflammatory mediators such as leukotrienes that are involved in asthma, arthritis and other inflammatory disorders and the production of cumene hydroperoxides. A formulation of Manjisthin and purpurin from cell culture manifested to have and antiproliferative action during rapid development of a model oedema.

**Anti-microbial activity** (49)

According to Basu et al. the aqueous extract is active against *Bacillus subtilis* and *Staphylococcus aureus* compared with streptomycin and penicillin G. The ethanolic whole plant extract also showed same result.

Rubiacordone A reported to have considerable antimicrobial activity against Gram +ve bacteria like *Bacillus subtilis, streptococcus faecalis* and *Bacillus cereus*.

**Neuroprotection** (50)

It has been reported to contain a wide variety of antioxidants and exhibited strong free radical scavenging properties against reactive oxygen and nitrogen species.
The alcoholic extract administration reduced the β-amyloid induced cognitive and memory dysfunction in rats. The extract decreases the neuro-degeneration and helps in memory retention.

**Antioxidant Property**

The study of in vivo antioxidant activity and its influence on ethanol-induced immune-suppression showed that the concurrent daily administration prevent the decrease of humoral and cell mediated immune response, phagocytosis index, leukocyte count, etc. which were comparable with that of combination of vitamin E and C.

**Discussion**

**Relief of symptoms in Kikkisa**

On basis of Rasa Panchak, Medicinal properties and pharmacological action relief the symptoms of Kikkisa like

**Vidah:** Vidah is primary complain of patient due to tearing of fibres and vitiation of Pitta dosha mainly occur during second trimester of pregnancy. Pittashamak property of Manjistha along with Tikta and Kashaya Rasa and Madhur veepak causes Daha Shaman.

**Kandu:** Kandu is the symptom of Kaph mainly but in Kikkisa it is due to dryness of skin and Vata dosha is the main reason behind it. Tearing of fibres also alleviates Vata dosha. Madhur rasa of Manjistha pacifies the Vata dosha relieving Kandu. Kandughana action is performed by Tikta rasa. Mildly elevated SGOT, SGPT and Alkaline phosphates is also another reason behind itching during pregnancy.

**Vairupya:** Vairupya is included under Varnya Dashemani. Ushna veerya accelerate the action of Bhrajak Pitta (Agni), which is responsible for skin colour and luster. Due to Tikta Rasa and Kata Vipaka have Kushthaghna property and Kashaya Rasa has Vairupya action.

**Vairupya:** Rakta prasadan by Tikta rasa of Manjistha along with other factors contributes to nature the skin and maintain its proper lustre and texture and prevent the Vairupya caused due to tearing of skin.

**Mode of Absorption:** Cutaneous Biotransformation for Local action on skin.

Agni situated in skin in the form of Bhrajak pitta facilitates Pachana of active principles of drug for absorption (catabolic degradation by enzymes) and pacify the provoked Doshas and relieves local symptom like Vidah, Kandu and Vairupya by breaking pathogenesis. We look the etiopathogenesis of Kikkisa, Pitta is mainly vitiated Doshas along with Vata and Kaph and Bhrajak pitta works on skin and responsible for complexion and color of skin. Properties of Manjistha described in literature indicates that it can be used in Pittaj vyadhNi specially skin related disease. The properties like Vishagna, Varnaya, Ropana, Sandhaniya, Twachya and Pittashamak action promotes the pigmentation of skin and facilitate the skin tonic action.

Manjistha is able to bind with Amavisha (free radicals) and Garavisha (xenobiotics) toxins which cause inflammation, skin disease, ulcers, and other problems. A balanced combination of soma (cooling) and Agni (heat) found in Manjistha facilitates the herb to penetrate into the cellular level of tissues with help of Agni and Soma helps to soak up the toxins and neutralize them. It is drug with multiple activities helps in prevention of itching, burning and scar formation and acts as coloring agent for depigmentation of skin.

So it can be evolved as a drug which will be effective in reducing all types of striae marks (linea alba - linea nigra) and healing and maintaining the pigmentation level. So preventing the scar formation and can be used as cosmeceutical product in combination with other drugs.

**CONCLUSION**

Manjistha is a drug used since ancient time as a colouring agent and promotes pigmentation of skin. It acts as a skin protective and healing herb by virtue of wound healing, antimicrobial, antifungal and antibacterial properties which is revealed by my researches. Codified and uncodified therapeutic use of Manjistha for skin ailments can be proved on the basis of available references for Varnya, Vishaghana, Krimighana and Kushthaghana action from various literature. Kikkisa or Striae gravidarum is burning problem in 90% pregnant women in modern era and vitiated Pitta dosha along with physiological changes in skin due to overstretching of skin is responsible mainly. Women are more conscious towards their appearance leading more consumption of Cosmeceutical products in day to day life. Manjistha promotes skin pigmentation in striae (linea alba), prevents itching and other skin infection and promotes healing process of skin. So it can be raised as important ingredient in development of herbal cosmeceutical product for prevention of Kikkisa (Striae gravidarum).

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Available online at: http://ijapr.in


Cite this article as:

Source of support: Nil, Conflict of interest: None Declared

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