



Review Article

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A SYNOPTIC REVIEW ON PRIYALADI LEPA: AN AYURVEDIC TOPICAL FORMULATION FOR THE MANAGEMENT OF DARUNAKA (DANDRUFF)

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ABSTRACT

Pityriasis capitis commonly known as Dandruff is a common skin disorder that mainly affects the scalp. It is one of the most common cosmetic problems. It is more likely a social stigma and affects the aesthetic value of a person. In Ayurveda, Acharya Sushruta mentions Darunaka (dandruff) under Kshudra kushta roga (minor skin ailment) and some other authors mention it as Shirah-Kapalagata roga (head and skull diseases). Symptoms of Darunaka are kandu (itching), Keshachyuti (hair fall), Twaksphutana (scaling) and rukshata (dryness). Darunaka can be closely co-related to Pityriasis capitis. Though not being a life-threatening disease, it is affecting almost half of the population from pre-pubertal age to old age of any gender with recurrence and frequent relapses. Ayurveda classics majorly emphasize the bahya lepa upachar (external paste application) as a line of treatment in Darunaka. Priyaladi lepa is one such formulation recommended in Sharangadhara Samhitha for Darunaka chikitsa, but not often applied in routine Ayurvedic practice. So, this study aims to appraise the pharmacological activity of the formulation Priyaladi lepa regarding its anti-dandruff efficacy. Rasapanchaka and Dosha karma (Ayurvedic Pharmacological attributes) of ingredients were compiled from Bhavaprakasha Nighantu and other Ayurvedic literature. Pharmacological actions were compiled from original research articles from Google Scholar, Research Gate and PubMed etc. research databases. A study on each ingredient of Priyaladi lepa collectively demonstrated anti-inflammatory, anti-fungal, anti-microbial, anti-pruritic, antioxidant and exfoliation effects. These pharmacological activities encourage further research and henceforth to utilize the same for the effective management of Darunaka (Dandruff).

Keywords: Ayurveda, Priyaladi lepa, Darunaka, Dandruff, Topical

INTRODUCTION

Ayurveda is a science of life, and it includes comprehensive information on diverse modalities of treatments to eradicate or prevent diseases. One such category of treatment modes explained in Ayurveda is bahir-parimarjana (external therapies), antah-parimarjana (internal administration of medicines) and shastra-pranidhana (surgical interventions). Bahir-parimarjana chikitsa means to clean or purify or heal from outside. In bahir parimarjana chikitsa the drugs/medicines are applied outside the body, especially at the site of pathology. By local application, medicines produce healing action on the affected area.

Vagbhata explained 19 diseases under the heading of shiroroga (head-related); among which 9 are shirokapala roga (head and scalp disorders) and darunaka is one among them¹. Sushruta included darunaka under kshudraroga's². The adhisthana (site) of this disease is Keshabhumi (scalp). It is caused due to the vitiation of Vata and Kapha doshas. Symptoms of the disease Darunaka, as explained in Ayurvedic literature are kandu (itching), keshachyuti (hair fall), twak sphutana (scaling) and rukshata (dryness)³.

Darunaka can be closely co-related to Pityriasis simplex capitis (Dandruff); one of the most common dermatological diseases affecting almost half of the population from pre-pubertal age to old age of any gender. It is moreover super flaking, as it leads to significant structural changes in stratum corneum and inflammatory biomarkers. It has been well established that keratinocytes play a key role in the expression and generation of

immunological reactions during dandruff formation. Various intrinsic and extrinsic factors, such as Malassezia yeast, host epidermal conditions, sebaceous secretion, and abnormal immune responses, are found to contribute to the pathogenesis⁴. A study even illustrates oxidative stress as an etiological element relevant to the dandruff condition⁵. It is a matter of concern due to its recurring nature.

Ayurveda elaborately conceptualizes lepa (anointment) as one of the main modalities of treatment in the management of skin disorders. A fine paste of drugs applied to the skin is called "Lepa". They may be prepared with fresh wet drugs or powdered dry drugs mixed with some liquid media. These lepas have the property of snehana (oleation), shodhana (cleansing), ropana (healing), lekhana (scraping) and varnya (beautifying) depending on the drugs used in the preparation. Priyaladi lepa is one such topical formulation described in Sharangadhara Samhitha for the management of Darunaka⁶. This review intends to signify and promote a better topical treatment protocol by analyzing the mode of action of Priyaladi lepa in Darunaka; henceforth contributing to a reduction in cosmetic concern.

PRIYALADI LEPA

In lepa adhyaya of Sharangadhara Samhitha, several lepa formulations are explained for different diseases with due importance to skin disorders and cosmetic issues. Lepa is a form of bahir-parimarjana chikitsa indicated to get an equilibrium between sthanika dosha (localized dosha) and dhatu samyata (tissue maintenance). It is absorbed through the surface of the

body which promotes optimum delivery and action. In lepa adhyaya of Sharangadhara Samhita, Priyaladi lepa is recommended as a part of sthanika chikitsa in Darunaka. Formulation composition includes four herbal ingredients with Saindhava Lavana and Madhu (Table 1). The therapeutic attributes of these ingredients as elaborated in different Ayurvedic texts (Table 2) is also supportive to understand its efficacy in Darunaka.

SCIENTIFIC RESEARCH ON PHARMACOLOGY OF THE INGREDIENTS OF PRIYALADI LEPA

Priyala (*Buchanania latifolia* Roxb)

Gas chromatography-mass spectrometry analysis of seed extract has shown an abundance of fatty acids, polyphenols, phytosterols, sitosterol and stigmasterol¹⁷. These phytosterols are of much importance because of their clinical and nutritional significances as it helps in nourishing the roots of hair follicles. The rich minerals and vitamins contained in *Buchanania latifolia* seeds are also very beneficial for the health of the skin. *Buchanania latifolia* seeds are also useful when used as scalp scrubs as they remove and exfoliate dirt and dead cells thereby cleansing the skin. The presence of saponins provides cleansing property; the presence of polyphenols and flavonoids are responsible for a wide range of actions like anti-fungal, antimicrobial, anti-inflammatory and antioxidant activity¹⁸.

Yastimadhu (*Glycyrrhiza glabra* L)

Glycyrrhizin and glabridin present in *Glycyrrhiza glabra* is proven for their anti-inflammatory action and flavonoids are proven as potent antioxidant¹⁹. Glycyrrhetic acid has effects on skin conditions such as erythema, oedema and itching²⁰. Petroleum ether present in Liquorice is a cause for hair growth initiation²¹. Most importantly the anti-inflammatory activity and anti-pruritic action of *Glycyrrhiza glabra* are clinically significant for the management of dandruff.

Kushta (*Saussurea lappa* C.B.CL.)

Saussurea lappa possesses various terpenes and costunolide proven to show anti-fungal and anti-inflammatory actions²². The ethanolic extract of *Saussurea lappa* has potent anti-inflammatory action²³.

Masha (*Phaseolus mungo*)

Methanolic extract of *Phaseolus mungo* has shown anti-inflammatory and antioxidant actions. The aqueous extract of *Phaseolus mungo* has exhibited anti-fungal effect²⁴.

Saindhava Lavana (Himalayan Rock Salt)

Himalayan Rock Salt is well known for its exfoliating action in dead skins and protects the natural layer of skin²⁵. Through exfoliation, salt can improve blood circulation, efficiently transporting oxygen and nutrients to the scalp to stimulate hair growth and regulate sebum and hair cell production. The cleansing property of it is proven to clear the pores in skin and scalp without removing the natural healthy oil²⁶. Himalayan pink salt has anti-inflammatory properties that heal and soothe skin by calming irritations and breakouts. It also helps to retain moisture in the deeper layers of the skin. The presence of sodium chloride inhibits the growth of most Gram (+) and Gram (-) bacteria²⁷.

Madhu (Honey)

Honey is a proven antioxidant in the control of oxidative stress. The enzymatic glucose oxidation reaction is the main factor in an exhibition of anti-microbial activity. Honey is even proven for its anti-inflammatory activity promoting cell repair and healing²⁸. Pinocembrin and lysozyme present in honey are proven to provide anti-fungal action on skin²⁹. Importantly, studies have also shown that honey from a variety of sources can modulate immunological parameters related to the skin immune system.

Table 1: Formulation composition of formulation Priyaladi lepa

Ingredient	English name	Botanical name	Family name	Ratio
Priyala beej	Chironji seeds/Amondette seeds	<i>Buchanania latifolia</i> Roxb	Anacardiaceae	1 part
Yastimadhu	Liquorice/ Sweetwood	<i>Glycyrrhiza glabra</i> L	Papilionaceae	1 part
Kushta	Costus/ Kut root	<i>Saussurea lappa</i> C.B.CL.	Asteraceae	1 part
Masha	Blackgram	<i>Phaseolus mungo</i>	Papilionaceae	1 part
Saindhava Lavana	Himalayan Rock Salt/Himalayan Pink Salt	-	-	1 part
Madhu	Honey	-	-	1 part

Table 2: Rasapanchaka and Dosha Karma of ingredients of Priyaladilepa

Ingredient	Rasa	Guna	Virya	Vipaka	Karma
Priyalabeeja	Madhura	Snigdha, Guru, Sara ⁷	Sheeta	Madhura	Vata-pitta shamaka, Udarda prasamana ⁸ , Balya ⁹ , Keshya
Yastimadhu	Madhura	Guru, Snigdha	Sheeta	Madhura	Vata-Pitta shamaka, Balya, Keshya, Vranahara ¹⁰ , Khalitya-Palitanashaka, Dahahara
Kushta	Tikta, Katu, Madhura	Laghu, Rooksha, Teekshana ¹¹	Ushna	Katu	Kapha-Vata Shamaka, Kushtaghna, Kandughna, Dadrugghna ¹²
Masha	Madhura	Guru, Snigdha	Ushna	Madhura	Vata- Kapha Shamaka, Balya, Tarpana ¹³ , Shiroroga nashaka ¹⁴
Saindhava Lavana	Lavana, Ishat Madhura	Laghu, Snigdha	Sheeta	Madhura	Tridosha Shamaka Vran ashodhaka and Ropaka ¹⁵
Madhu	Madhura, Kashaya anurasa	Laghu, Vishada, Rooksha	Ushna	Madhura	Kapha- Pitta Shamaka, Sukumara, Lekhana, Vrana shodhana, Vrana ropana, Twak prasadanam, Krimihara, Kushtahara ¹⁶

DISCUSSION

Darunaka is one among the Kshudra Kushta roga and a challenging condition for treatment due to cosmetic concerns and even sometimes treatment provided is not satisfactory for patients. But in the ancient Ayurvedic classics, the cause, symptoms, and their specific treatment had been described elaborately. Darunaka is a condition in which the scalp becomes hard, itchy, dry, and fissured due to aggravation of kapha and vata. For this Acharyas have recommended many bahir-parimarjana chikitsa and Priyaladi lepa is one among them. Ayurveda therapy suggests that lepa i.e., the topical formulations should be gently rubbed in an upward or reverse direction of the hairs. Due to this, the drug enters the pores at the root of the hair through which the drug gets absorbed in the capillary network to minor veins and then further into systemic blood circulation. This method of rubbing increases the skin temperature, which might be contributing to the rapid pilosebaceous uptake and skin permeation of the drug as heat causes dilation of the capillary end. As per the Ayurvedic perspective the mode of action anticipated here involves Kushtahara (alleviation of skin ailments), Kandughna (antipruritic), Lekhana (scraping or exfoliating action), Sthanika bala vardhana (localized strengthening) i.e., hair follicle strengthening), Keshya (hair growth and nourishment promotion) and Twak prasadana (nourishment of skin). It is observed that the above specific actions are demonstrated by the ingredients of Priyaladi lepa. Kushtahara is karma attributed to both Kushta and Madhu. Kushta and Yasthimadhu have kandughna (anti-pruritic) action by which soothes the scalp and provides time to heal. Saindhava and Priyala are known for cleansing action; in combination with Madhu exhibit exfoliating effect. The anti-fungal action is a major need fulfilled by Kushta, Masha and Madhu. All the ingredients used in this lepa have anti-inflammatory action which is necessary to combat inflammatory immune reactions occurring in dandruff. As oxidative stress is also illustrated as an etiological element in the causation of dandruff, to overcome the component of oxidative stress Priyala, Yasthimadhu, Masha and Madhu provide antioxidant activity. The snigdghata (demulcent) required for vranaropana is provided by Priyala beeja and Yashtimadhu. Saindhava lavana and Priyala beeja with Madhu prevents further damage of hair follicles and improves cell repair, healing and nourishing the hair follicles and scalp. It is also observed that these ingredients are generally used in routine skin and hair care. Honey is well known for its emollient and humectant properties establishing it as a great hair and scalp moisturizer and being used in various proprietary medicines and cosmetic products. In general, cosmetic practices, Priyala beeja and its extracted oil are commonly used as natural hair dye, hair straightener, moisturizer, conditioner, and detangler. Yasthimadhu is again a well-spoken drug in hair care. Oil extracted out of it is known to enhance scalp and hair health. Overall cumulative pharmacological activities of all the ingredients such as kushtahara, kandughna, antifungal, antimicrobial, anti-inflammatory, antioxidant activity, emollient and exfoliating actions contribute to the broad anti-dandruff action of the formulation Priyaladi lepa.

CONCLUSION

Under the broad spectrum heading of lepa kalpana, Sharangadhara Samhita has prescribed local paste applications for a common condition like Darunaka. This review represents the significance of bahir-parimarjana chikitsa in the form of sthanika lepa kalpana like Priyaladi lepa in management of Darunaka. However pharmaceutico-analytical standardization, in vivo and in vitro studies are essential to establish the clinical effectiveness of all lepa formulations. The literature research done here has scientifically validated the probable mode of action

of each ingredient and the overall anti-dandruff efficacy of Priyaladi lepa. Thus, this paper has established the potential role of Priyaladi lepa in the management of Darunaka.

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REFERENCES

1. Bhishagacharya Harisastri Paradakara Vaidya, editor. Ashtanga Hridaya of Vagbhata, Uttara sthana. Reprint 10th Edition, Ch-23., Ver.23.Varanasi: Chaukhamba Orientalia; 2017. p. 859
2. Acharya JT, editor. Sushruta Samhita of Sushruta, Nidana sthana. Reprint Edition, Ch- 13., Ver.3. Varanasi: Chaukhamba Orientalia; 2019. p.318
3. Bhishagachaya Harisastri Paradakara Vaidya, editor. Ashtanga Hridaya of Vagbhata, Uttara sthana. Reprint 10th Edition, Ch-23., Ver.23.Varanasi: Chaukhamba Orientalia; 2017. p. 859
4. Sheth U, Dande P. Pityriasis capitis: Causes, pathophysiology, current modalities, and future approach. J CosmetDermatol. 2021 Jan; 20(1):35-47.
5. Schwartz JR, Henry JP, Kerr KM, Mizoguchi H, Li L. The role of oxidative damage in poor scalp health: ramifications to causality and associated hair growth. Int J Cosmet Sci. 2015 Dec; 37Suppl 2:9-15.
6. Pandit Parasurama Sastri, Vidyasagar, editor. Sharangadhara Samhita by Sharangadhara. Uttara khanda, Reprint Edition, Ch-11. Ver.18, Varanasi: Chaukhamba Orientalia; 2018. p357
7. Pandey GS, editor. Bhavaprakasha Nighantu of Bhavamisra. Amradiphala varga. Reprint Edition Ver. 84, Varanasi: Chaukhamba Bharati Academy;2018. p.563
8. Acharya JT, editor. Charaka Samhita of Agnivesha, Sutra sthana. Reprint Edition, Ch-4., Ver. 9(43). Varanasi: Chaukhamba Orientalia; 2015. p. 34
9. Sharma PV and Dr. Sharma Guru Prasada, editor. Kaiyadeva Nighantu. Aushadi varga. Reprint Edition, Ver. 395-396. Varanasi: Chaukhamba Orientalia; 2017. p. 73
10. Pandey GS, editor. Bhavaprakasha Nighantu of Bhavamisra. Haritakyadi varga. Reprint Edition Ver. 146, Varanasi: Chaukhamba Bharati Academy; 2018. p. 62
11. Pandey GS, editor. Bhavaprakasha Nighantu of Bhavamisra. Haritakyadi varga. Reprint Edition Ver. 173, Varanasi: Chaukhamba Bharati Academy; 2018. p. 87
12. Tripathi Indradeva, editor. Raja Nighantu of Pandit Narahari. Chandanadi varga. Reprint Edition Ver. 116. Varanasi: Chaukhambha Krishna das Academy;2016, p. 419
13. Pandey GS, editor. Bhavaprakasha Nighantu of Bhavamisra. Dhanya varga. Reprint Edition Ver. 41-43, Varanasi: Chaukhamba Bharati Academy; 2018. p. 631
14. Bhishagachaya Harisastri Paradakara Vaidya, editor. Ashtanga Hridaya of Vagbhata, Uttara sthana. Reprint 10th Edition, Ch-24., Ver.2.Varanasi: Chaukhamba Orientalia; 2017. p. 860
15. Acharya Tripathy P. Hariharaprasad, editor. Dhanwantari Nighantu. Shatapushpadi varga. Reprint Edition Ver. 26, Varanasi: Chaukhamba orientalia; 2007. p. 76
16. Pandey GS, editor. Bhavaprakasha Nighantu of Bhavamisra. Madhu varga. Reprint Edition Ver. 1-5, Varanasi: Chaukhamba Bharati Academy; 2018. p. 772
17. Bothara Sunil B, Singh S. Fatty Acid Profile of Buchanania lanzan Spreng Seed Oil by Gas Chromatography-mass

- Spectrometry. *Inventi Rapid: Pharm Ana &Qual Assur.* 2011 Nov 10-11.
18. Phogat, Neeraj & Bisht, Vinita & Purwar, Shalini. Chironji (Buchananialanzan) Wonder Tree: Nutritional and Therapeutic Values. *International Journal of Current Microbiology and Applied Sciences.* 2020;9:3033-3042.
 19. Pastorino G, Cornara L, Soares S, Rodrigues F, Oliveira MB. Liquorice (*Glycyrrhiza glabra*): A phytochemical and pharmacological review. *Phytotherapy research.* 2018 Dec; 32(12):2323-39.
 20. Pastorino G, Cornara L, Soares S, Rodrigues F, Oliveira MB. Liquorice (*Glycyrrhiza glabra*): A phytochemical and pharmacological review. *Phytotherapy research.* 2018 Dec; 32(12):2323-39.
 21. Upadhyay S, Ghosh AK, Singh V. Hair growth-promoting activity of petroleum ether root extract of *Glycyrrhiza glabra* L (Fabaceae) in female rats. *Tropical Journal of Pharmaceutical Research.* 2012; 11(5):753-8.
 22. Zahara K, Tabassum S, Sabir S, Arshad M, Qureshi R, Amjad MS, Chaudhari SK. A review of the therapeutic potential of *Saussurea lappa*-An endangered plant from Himalaya. *Asian Pacific journal of tropical medicine.* 2014 Sep 1; 7:S60-9.
 23. El-Rahman A, Ghada I, Behairy A, Elseddawy NM, Batiha GE, Hozzein WN, Khodeer DM, M Abd-Elhakim Y. *Saussurea lappa* ethanolic extract attenuates triamcinolone acetonide-induced pulmonary and splenic tissue damage in rats via modulation of oxidative stress, inflammation, and apoptosis. *Antioxidants.* 2020 May; 9(5):396-418.
 24. Zaheer M, Ahmed S, Hassan MM. A review of medicinal uses, phytochemistry and pharmacology of *Vigna mungo* (L.) Hepper. *Journal of Pharmacognosy and Phytochemistry.* 2020; 9(1):1307-9.
 25. Sarker A, Ghosh A, Sarker K, Basu D, Sen DJ. Halite; The rock salt: Enormous health benefits. *World Journal of Pharmaceutical Research.* 2016 Oct 4; 5(12):407-16.
 26. Khandelwal N, Dhundi S, Yadav P, Prajapati PK. Lavana (salt): An Ayurvedic outlook on saindhava (rock salt). *Indian Journal of Ancient Medicine and Yoga.* 2012; 5(2):95-101.
 27. Wijnker JJ, Koop G, Lipman LJ. Antimicrobial properties of salt (NaCl) used for the preservation of natural casings. *Food Microbiol.* 2006 Oct; 23(7):657-62.
 28. Yaghoobi R, Kazerouni A. Evidence for clinical use of honey in wound healing as an anti-bacterial, anti-inflammatory antioxidant and anti-viral agent: A review. *Jundishapur Journal of natural pharmaceutical products.* 2013 Aug; 8(3):100-104.
 29. Burlando B, Cornara L. Honey in dermatology and skin care: A review. *Journal of cosmetic dermatology.* 2013 Dec; 12(4):306-13.

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