

An Ayurvedic approach in the Management of Darunak (Dandruff) – A Review

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Abstract -

Dandruff – referred to as *Darunak* in Ayurvedic literature – is a common scalp affliction that affects about 50 percent of the adult human population across the globe. Though non-inflammatory, the affliction can lead to aesthetic problems like itching, visible flakes and hair fall leading to hair thinning- leading to loss of self-esteem and sociability. Several causal agents have been associated with the occurrence of Dandruff. Most significant among them are the dermal activity of *Malassezia sp.* – a combination of fungi and yeast that lead to flaking of the scalp skin. It is significant, however, to note that lifestyle issues like sleep deprivation and stress are found to be associated with the occurrence of Seborrheic dermatitis and Dandruff. Modern science suggests several methods to remedy this affliction. The solutions are chemical based and readily available in market. In the recent times, tea-tree oil based treatments are also recommended for management of Dandruff. However, the analysis of existing studies reveals that chemical-based solutions tend to trigger side effects like inflammation and increased itching. From the literatures like Ayurvedic texts, the occurrence of Dandruff can be traced back to ancient times. Referred to *Darunak* in *Kshudrarogadhikar*, the word refers to Dandruff. *Darunak* is predominantly ascribed as *Vatakaphaj*- and is a disease/disorder of the scalp that leads to more hair-related issues like scalp itching, loss of lustre, weakening of roots and hair fall. According to the sufferer's nature, several herbal options are suggested by *Ayurveda Acharyas* to remedy this affliction.

Keywords: *Darunak*, Dandruff, *Kshudrarogadhikar*

Introduction -

Dandruff (also known as Pityriasis simplex) is a common affliction that affects about 50 percent of adults across the globe; coming from diverse geographical, societal, and ethnic backgrounds⁽¹⁾. Post pubertal population (aged 18 to 60) is the most vulnerable age group to this issue. It has been noted that all population across the globe eventually develops Dandruff at least once in their lifetime. Those afflicted with it are prone to itching of the scalp and even further hair problems, including loss of lustre, weakening, and even hair loss. It has been observed that those suffering from Dandruff prone to losing hair twice as those who do not have it. Concerning seasonal effect, winters and dry climatic conditions have been noted to accentuate the affliction³.

The scientific community is yet to reach a consensus about the causative agents of Dandruff. However, scientific literature indicates links the sensitivity of sebum rich human scalp to androgen³. Furthermore, sebum production coinciding with the onset of puberty, explains the age factor associated with the occurrence of Dandruff³.

Occurrence of Dandruff is also attributing to the dermal activity of the yeast *Pityrosporum ovale* and several *Malassezia spp.*¹ which feeds on the dermal lipids and proteins to facilitate lipase activity leading to release of pro inflammatory free fatty acids causing dermal inflammation and tissue damage. The yeast also releases toxins that promote fungal growth causing further inflammation. Literature also points to the usage of antifungal preparations in the treatment of Dandruff; to reduce the *Malassezia* population^{2, 3}. However, the recurrence of the condition following the withdrawal of therapy proves that the bacterial population remains unaffected¹. Further, seven identified species linked with *Malassezia* related dandruff formation has not been validated till date.

While conventional science still debates whether Dandruff is a disease or a disorder, the physiological indication established contextually is that in subjects with Dandruff, the scaling released is 800,000 per square cm against about 487,000 per square cm for those treated with detergent treatment. Furthermore, it has been found that detergent treatment has had a temporary effect, with a high chance that the subject may develop the affliction again—the reason being unawareness of the exact cause of this affliction. Thus, the treatment is merely symptomatic, thereby temporary and simply relieving the scalp's itching and dryness. Thus, the conventional treatment is cosmetic.

As *Darunak* or dandruff is an ancient affliction, several tropical mixtures have been known to be used as a remedy of Dandruff. Among them the treatment using Tea tree oil or *Maleleuca alternifolia* extract has emerged as an effective remedy for inflammatory and fungal disorders related to the skin. Its anti-inflammatory properties have made it popular as an ingredient for first aid of dermal wounds. A 5% concentration of Tea tree oil has also shown significant results in controlling and eradication of *Malessezzia sp.* Associated with the occurrence of dandruff.

Recent literature points out that many naturopathic agents, independently and combined, help in antidandruff activity. Thus, the recognition of herbal formulations results indicates the validity of the *Ayurvedic* methodology and approach to dandruff treatment. Further, the literature also validates the finding that naturopathic medicine is scientifically validated *in-vitro* and *in-vivo* research studies.

It is interesting, however, to note that, stress and sleep deprivation are associated with increased sebum secretion in the scalp. This causes the *Malesezzia sp.* to proliferate and thereby cause dandruff and other hair problems. Concentration of Tea tree oil has also shown significant results in controlling and eradication of *Malessezzia sp.* Associated with the occurrence of dandruff.

Thereby, to deter the recurrence of dandruff, the need of the time is to adopt a holistic approach that includes lifestyle changes, preventive as well as curative methods.

As a life science, *Ayurveda* looks at all ailments as a result of metabolism, physiology, nutrition intake as well as overall attitudinal aspects of individuals³. The aim is to not only cure the subject of the ailment, but also to establish the causal relation between the causative factors and the outcomes thereof. *Ayurveda* is therefore, a holistic science that advices on maintaining overall health and building natural immunity to avoid recurrent conditions. As has been already stated, *Ayurveda* aims

at overall balance of health through topical and ingested medicinal formulation. *Ayurvedic* formulations are devised on the premise that health and beauty are mutually dependent. In current times, lifestyle changes affect the health adversely. Some of the characteristic features of contemporary lifestyle are sedentary living, erratic schedules, exposure to ambient pollutants and ingestion of harmful chemicals in food and medicines. The lifestyle effects are seen in varied forms, most easily and widely observed in issues such as dandruff. Dandruff leads to loss of lustre and health of the hair, which in extreme cases may also lead to loss of hair.

In *Ayurveda*, dandruff correlates with *Darunak*, as mentioned in *Kshudrarogadhikaar*. *Darunak* is predominantly ascribed as *Vatakaphaj* and is a disease/disorder of the scalp. The symptomatic indications in *Darunak* (as in dandruff) are *Kandu* (Itching), *Rukshata* (Dryness), *Keshbhumi Kathinya* (Changed normal structure of scalp) and *Twaksphutan* (Scaling)^{2,4,8,10}. Broadly, *Ayurveda* aims to treat dandruff by restoring the balance in the body by building the immunity through ingested medicinal formulations. However, *Ayurveda* also suggests topical application of *lepa*, *dhupan*, *varti*, *kaval*, *gandusha* and *shirobasti*^{8, 10}.

BhaishajyaKalpana is one of the facets in *Ayurveda* that lays down the guiding principles of dosage preparation based on availability, acceptability (subject-specific) and nature of ailment/complaint⁹. The principle aim is to make use of natural abundance, adequate potency, ease of application, and cost effectiveness in the preparation of the medicines for all age groups⁴.

Material and methods -

For the purpose of this study, classical *Ayurvedic* text(s) and related scriptures have been referred to deduce the efficacy of the ingredients used in the classical products. Under *kshudrarogadhikaar chikitsa* treatment for *darunak* is mentioned as in the form of *snehan* (oleation), hot *swedan* (fomentation), *nasya* (nasal drop instillation), *shromal prakshalan* (hair washing properly) *shirobasti* (oil pooling)⁷, *lepa* (paste application).

Various references are found in *Ayurvedic* texts about hair problems wherein ingredients are made in paste form and applied on hair to overcome *darunak*, reversal of hair graying, promote hair growth and stoppage of hair fall⁴. Oils mentioned in the treatment of dandruff are *triphaladya taila*, *chitrakadya taila*, *gunja taila*, *swalpa bhringraj taila*, *bhringraj taila*, *malatyadi taila* and *prapaundrikadya taila* in *bhaishajyaratnavali*⁷.

Table 1 Formulations mentioned in texts in treatment of dandruff^{11,12,13,14}

Sr. no.	Formulations and method of preparation	References
1	Kodrava and trunkshar bhasma (ash) mixed in water is used for headwash.	Bhaishajyaratnavali, kshudrarogadhikar
2	Chironji seeds (<i>Buchanania lanzan</i>), Yashtimadhu root (<i>Glycyrrhiza glabra</i>), Kustha stem (<i>Saussurea lappa</i>), Urad seed (<i>Vigna mungo</i>) and Saindhav lavan mixed with honey to make a paste.	Bh. Ra., kshudrarogadhikar Ashtang Hriday (Kshirorog Vigyaniya) Yog R. (Khsudrarog Nidan Chikitsa)

3	Urad soaked in kanji for 3 weeks is made into a paste form	Bh. Ra., kshudrarogadhikar
4	Neelotpal keshar, yashtimadhu, black til and amalki churna are made into a paste form	Bh. Ra., kshudrarogadhikar
5	Amalki churna and mango seed paste	Bh. Ra., kshudrarogadhikar
6	Mango seed paste , Harad and milk paste	Sharangdhar Samhita (Lepa Prakaran) Yoga Ratnakar (Ksudrarog Nidan Chikitsa)
7	Laksha (lac), Aragvadh Patra, Edgaj, Amalaki, Kodrav and Trin kshar ground to make a paste	Ashtang Hriday (Kshirorog Vigyaniya)
8	Khuskhus (poppy seeds) and milk paste	Sharangdhar Samhita (lepa prakaran) Yoga Ratnakar (Khsudrarog Nidan Chikitsa)
9	Japa Siddha Taila (oil)	Yog R. Khsudrarog Nidan Chikitsa,
10	Kantakari Taila (oil)	Yog R. , Khsudrarog Nidan Chikitsa

Discussion -

Formulations mentioned in texts are used in treatment of dandruff as per availability and severity of disease. Some of them involve a tedious method of preparation and application thus making such formulations not so popular to use in daily life. Some formulations have been studied for their efficacy on dandruff. In a comparative clinical trial, it was found that *Amrabeej* and *Haritaki Lepa* is more effective in remedying itching and cracking of skin compared to Ketocozanole Shampoo¹⁰. The use of Ketacozanole shampoo caused inflammation and itching among participants of this trial¹⁰. Use of multi herbal solutions produce cooling effect and anti-inflammatory properties which make it an effective solution for inflammation related to chemical treatments¹

Another clinical trial⁸ found that *Kshiro Abhyangam* with *Narikela* oil is effective in long term management of *Darunak*. This study also found that when applied locally, *Gunjadi Taila* is significantly effective in treatment of Dandruff⁸. However, *Shodhan* and *Abhyantara shaman aushadhi* in addition to the local application of *Gunjadi Taila*, offer better results in immediate treatment of *Darunak*⁸.

In a study, a comparison was mane between *Khukhus Beej Lep* and *Nimba Patra Lep*.⁶ It was found that both *Nimba Patra Lep* and *Khukhus beeja Lep* are effective in management of dandruff and allied symptoms.⁶ However, *Khukhus Beej Lep* showed better results in management of Dandruff ⁶.

The ingredients such as *Amrabeej*, *Haritaki*, *Khukhus beej* are easy to find in India, this makes the treatments accessible.

Conclusion -

Ayurvedic treatments are available in several forms that make customization easy.

The *Ayurvedic* formulations are more effective in dandruff management compared to chemical treatment such as Ketoconazole shampoo treatment.

Regular *Basti* or *Abhyangam* with *Narikela tail* and *Gunjadi tail* is effective in management of Dandruff.

Ayurveda suggests application of several *Lepas* for management of dandruff; all of which are equally effective in the treatment of this affliction.

Khuskhus beej Lepa and *Amrabeej- Haritaki Lepa* are found to be significantly effective in management of *Darunak*.

Limitations -

Ayurvedic texts suggest several remedies for the management of Dandruff. However, not all formulations have been used for clinical trials. This causes a scarcity of available data.

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Conflict of Interest -

The authors state that they have no Conflict of Interest (COI).

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