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A Review on Naturopathic Effect of *Elaeocarpus serratus* Leaves Application for Seborrheic Dermatitis

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ABSTRACT

Elaeocarpus serratus is called Ceylon olive/ Veralu in Sri Lanka. It grows in tropical and subtropical regions distributing across South Asia and East Africa. In native naturopathic medicine, Elaeocarpus serratus leaves have been used for several medicinal preparations including skin diseases like seborrheic dermatitis. Native Sri Lankans uses the decoct ion, boiled water or the pastes of these leaves externally over the scalp to reduce the seborrheic dermatitis condition. Seborrheic dermatitis is an inflammatory scalp disease that occurs with the disruption of the skin's microbiota of the scalp. This condition occurs in infants and in adults as two variants. It may appear on scalp, face, chest, and body folds. Primary and secondary data were collected using scientific sources, previously published books, journals, and research articles, authentic Ayurvedic texts and records. Data was analysed revealing the therapeutic effects of Elaeocarpus serratus leaves applications for seborrheic dermatitis. Data revealed that considering the symptoms of the seborrheic dermatitis, it is associated with Vata, Pitta dosa vitiations. The bioactive phytochemicals like flavonoids, fatty acids, myricitrin present in Elaeocarpus serratus contributes the medicinal properties and the pharmacological properties like anti-inflammatory, antifungal and antioxidant activities, reduce the seborrheic dermatitis condition. According to the Ayurveda perspective, Elaeocarpus serratus leaves contain the properties to effectively manage the seborrheic dermatitis. Further clinical investigations and analysis are required to conclude the percentages of efficacy.

Keywords: *Elaeocarpus serratus, seborrheic dermatitis, dosa, anti-inflammatory, phytochemicals*

INTRODUCTION

For hundreds of years *Elaeocarpus serratus* has been used for variety of therapeutic uses by different nations. Fruits, bark, and leaves have been mostly used in the management of arthritis, hypertension, liver diseases, headaches and migraine, mental conditions like stress, anxiety, depression and insomnia, nerve pains, infertility (Prapty Das, 2012) and skin diseases (D.S.Khanna, 1973). [1-4]

The seborrheic dermatitis is a common inflammatory skin disease. It can be caused by Malassezia yeast growth, Higher level of androgen, Certain medication, stress, or neurological conditions like Parkinson's disease. Research have shown that the Malassezia yeast act as a main reason for the seborrheic dermatitis. (Dan Tucker, 2023)

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When the skin's microbiota is disrupted, the immunity of the skin is impaired which leads to the propagation of inflammation. It causes the imbalance of lipid composition of the skin while consuming saturated fatty acids and degrading sebum secreted from sebaceous glands.

This pathological process results in skin flakes, skin cracking, rashes, pruritus, skin patches with yellowish or whitish scales, redness, swelling, greasiness This condition may appear on scalp, chest, face, forehead, creases of nose, eyebrows, under the breast and behind ears.

Among naturopathy, Ayurveda medical system correlates Seborrheic dermatitis and dandruff with *Darunaka*.

Darunaka has been described under *Kshudraroga* by *Acharya Susruta* (Murthy, n.d.), *Acharya Madava* and *Acharya Bhavaprakasha* and as a *Kapalagata roga* (diseases of scalp) by *Acharya Sharangadhara* (L.C.Shastri, n.d.) and *Acharya Vagbata*. In classical texts *Darunaka* is found to be in two varieties: *Vata Pitta* and *Vata Kapha.* According to Ayurveda concepts, aggregation of the *Vata* contributes to dryness, roughness, itching. Aggregation of pitta leads to inflammations, pruritus, rashes, redness, and aggregation of Kapha leads to oiliness, itching and swelling (D.R.K.Sharma, 1972).

In the management of Seborrheic dermatitis Ayurveda uses natural medicines, panchakarma treatments like Shiro *Abyanga, Shirodhara, Shirolepa, Shirovasti, Nasya, Virechana*, diet and lifestyle management. Other naturopathic therapies like yoga, mindfulness practices and acupuncture are also proven to relieve seborrheic dermatitis.

In indigenous naturopathic remedies usage of the boiled water, decoct ion, extracts or paste of Elaeocarpus *serratus* leaves are commonly seen.[5-10]

TAXONOMY OF THE PLANT

Table 1: *Taxonomy of the plant.*

kingdom	Plantae
Sub kingdom	Tracheobionta
Super division	Spermatophyta
Division	Magnoliophyta
Class	Magnoliopsida
Sub class	Dilleniidae
Order	Malvales
Family	Elaeocaroaccae
Genus	*Elaeocarpus* L.
Species	*Elaeocarpus serratus* L.

(Ayurveda, 2003), (Ayurveda, n.d.), (D.K.N.G.Pushpakumara, 2007)

MORPHOLOGICAL PARAMETERS

*Elaeocarpus serratus i*s a small to medium size evergreen tree which grows up to 10-18m. Fruits resembles olives which are in dull green to yellowish colour. They are consumed both in unripen and ripen forms.

Leaves are simple, spiral, alternate. Young leaves are greenish, olive green and yellowish in colour while ripening leaves are brownish yellow, orange or reddish in colour. Leaves are obovate oval acute shape at base and at the apex obtuse rounded shape. Petiole is 1-1.5cm long while the leaves are 4-12 cm long. There are 5-6 lateral veins connecting to middle axil.



(a)



(b)



(c)

Fig 1*: Morphology of the Elaeocarpus serratus (a: tree; b: branches, c; leaves)*

STUDY DESIGN

Scientific data were collected using secondary sources such as published books, journals, previous research articles and authentic Ayurveda and native naturopathic medicinal texts Primary data were collected using the records maintained by observing and interviewing the patients with seborrheic dermatitis. All the data were analysed to obtain the conclusion.

AYURVEDA DESCRIPTION

Rasa (Taste)	: *Madhura* (Sweet)
Guna (Qualities)	: *Guru* (Heavy), *Snigdha* (Unctuous)
Virya (Potency)	: *Sheeta* (Cold)
Vipaka (Post digestion effect)	: *Madhura* (Sweet/)
Karma (Pharmacological activity)	: *Vata, Pitta hara* (Reducing *Vata* and *Pitta dosha*)
Prabhava (Therapeutics)	: Supplement, Rejuvenation

(K.R.Kirtikar, 1918) (Ayurveda, n.d.)

PHARMACOLOGICAL ACTIVITIES

According to the latest research, *Elaeocarpus serratus* leaves contains significant amounts of flavonoids, polyphenols, alkenes, fatty acids, fatty acid esters, hydrocarbons, amides, alcohol, carotenoids, carbohydrates, vitamins, and proteins.

The laboratory investigations have proven the antimicrobial activity of the leaves extract, which contribute to the neutralization and destruction of the one of the causative factors (Malazesea yeast) for seborrheic dermatitis. The leaf extract also proven to contain significant, antibacterial activity, antifungal activity.

Other than that, flavanols glycosides, including myricitrin, mearnsitrin 3-*O*-β-D-glucopyranoside, mearnsitrin, and tamarixetin 3-*O*-α-L-rhamnopyranoside are contributing for the antioxidant activity which neutralize the free radical formation and cell deformations at cellular levels. (P.Maheshwari, 2022)

Extracts of the *Elaeocarpus serratus* leaves were proven to contain melanogenesis inhibitors. The phytochemical compounds such as phenolic acid: gallic acid and flavonoids: myricetin and mearnsitrin contribute to the anti-tyrosinase activity. Mearnsitrin was identified to have a significant effect of melanogenesis inhibition. It also has the skin whitening affect. Because of the anti-tyrosinase activity *Elaeocarpus serratus* leaves extract is effective in severe skin diseases. (Chi Ya Huang, 2021)

DISCUSSION

The bioactive phytochemical compounds found in *Elaeocarpus serratus* leaves contribute for the ability of relieving variety of ailments including seborrheic dermatitis. Fatty acids found in leaves act as lubricants reducing the dryness and roughness of the stratum conium. Flavonoids and myricitrin gives a pharmacological effect acting as an antioxidant.

Seborrheic dermatitis is compared with *Darunaka* which has two varieties: aggravated *Vata Kapha* condition and aggravated *Vata Pitta* condition. When analysing all the data, it is found that Seborrheic dermatitis symptoms are related to *Vata Pitta* predominant

condition. *Vata* is formed with *Vayu*(air) and *Akasha*(space) *panchamahabhutha* (basic elements) while *Pitta* is formed of *Agni*(fire) and *Jala*(water) basic elements. When the water element of the *pitta* is higher than fire element it can result in similarity to aggregated *Kapha* (Dr.Y.S.Raghuram, 2016).

Yet as there is inflammation which is caused by *Pitta dosa* and symptoms like oiliness and pruritus, it can be caused by moist inflammation and due to weak immunity allowing infections.

According to naturopathic review of Ayurveda, the property of Madura *rasa* present in *Elaeocarpus serratus reduces the Vata and Pita dosas. Guru (heavy)guna* reduces the *Vata Pitta* while, Snigdha*(unctuous) guna* reduces the *Vata dosa. Sheeta(cold)*potency reduces the *Pitta dosa.*

Table 2: *Basic concept of dosa formation*

Basic elements (*Panchamahabhutha*)		Dosa
Vata (air)	*Akasha* (space)	*Vata*
Agni (fire)	*Jala* (water)	*Pitta*
Prithvi (earth)	*Jala* (water)	*Kapha*

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Table 3: *Connection between basic elements, symptoms and reducing factors.*

Symptoms	Basic elements (Panchamahabhutha)		Reducing factors
Skin cracking, flakes	*Vata*	-	*Madura rasa*, *Guru(heavy)guna, Snigdha(unctuous) guna*
Skin patches with yellowish or whitish scales	*Vata*	*Pitta*	
Redness,	-	*Pitta*	
Swelling	-	*Pitta* (water element high, fire element low)	
Pruritus/ itching	*Vata*	*Pitta* (water element high, fire element low)	
Oiliness	-	*Pitta* (water element high, fire element low)	

CONCLUSION

Throughout the review it is identified that according to naturopathic Ayurveda concepts, Seborrheic dermatitis is a *Vata Pitta* aggravated condition. Analysing the pharmacology and phytochemical characteristics of the *Elaeocarpus serratus* revealed that the bioactive compounds present in the *Elaeocarpus serratus* gives the therapeutic effects to relieve the seborrheic dermatitis. Further clinical examinations are needed to evaluate the percentage of effectiveness of *Elaeocarpus serratus* leaves applications for seborrheic dermatitis types.

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