Re-discovering Sandalwood: Beyond Beauty and Fragrance

Indeed, one of the most revered gifts of ancient India to the world has been the Indian sandalwood, also known as Chandana in Sanskrit. Long before its value was recognized by the Chinese and Europeans, sandalwood was an integral part of Indian culture, rituals and mythology. The heartwood is considered sacred and the paste made by grinding the heartwood of the tree is integral to Hindu rituals and ceremonies as well as an innate part of meditation and prayer.

For centuries, Indian sandalwood oil (SWO) has been a popular ingredient in ayurvedic medicine as well as traditional Chinese medicine. The active ingredient of sandalwood album oil, alpha-santalol, has been used as a remedy for a number of ailments including common cold, urinary tract infections, digestive problems among others. Sandalwood paste and oil are presumed coolants, with the wood paste being used as an ointment to dissipate heat as well as act as a beauty enhancer. The scent of the essential oil has also been said to calm the mind and act as a mood enhancer.

The scientific and medicinal benefits of the Indian sandalwood are being rediscovered today in the context of modern medicine. Sandalwood has been found to have a myriad of different pharmacological effects including anti-inflammatory, anti-oxidant, anti-microbial and anti-proliferative properties. Alpha-santalol, the chief constituent of SWO has been discovered to have chemopreventive effects, in addition to possibly being non-toxic against normal cells.[1] The most important mechanisms by which alpha-santalol exerts its cytotoxic effects against cancer cells are through induction of cell-cycle arrest and apoptosis. However, future studies are desired to determine the effects of SWO in general and in particular, alpha-santalol on healthy and neoplastic tissueto substantiate the findings. If further studies indeed confirm the cancer-cell selective role of alpha-santalol, it could serve as a useful anticancer agent in the future against cancers such as oral, breast, prostate and skin cancer.[2] Both SWO and its active component, alpha-santalol, have also been shown to prevent chemical and UV-induced skin carcinogenesis.[2]

In addition, alpha-santalol has also been found to have anti-inflammatory effects by altering the expression of various cytokines and chemokines. Apart from cytokines, both alpha- and beta-santalol have been found to suppress arachidonic acid pathway mediated by lipopolysaccharides, thereby decreasing prostaglandin E2 and thromboxane B2. Its anti-inflammatory properties have awakened interest in the treatment of a number of inflammatory skin disorders like psoriasis and atopic dermatitis, possibly as a result of inhibition of phosphodiesterases.[2,3] The anti-inflammatory characteristics of SWO and alpha-santalol may also enable it to have a place in the use of topical anti-inflammatory products.

Alpha-santalol has been shown to have anti-hyperglycaemic properties, in addition to anti-hyperlipidaemic properties of SWO, a mixture of alpha-santalol and beta-santalol.[2] Its neuroleptic effects have been much studied and attributed to both alpha-santalol and beta-santalol as well. Animal studies have suggested that they increase the levels of the metabolites of amines, homovanillic acid, 3, 4-dihydroxyphenylacetic acid and/or 5-hydroxyindoleacetic acid in the brain conveying a similar activity albeit to a lesser extent as that of being an inhibitor of tyrosinase, a key enzyme in melanin synthesis.[4] Though its antimicrobial effects are yet to be fully elucidated, SWO has been found to have activity against bacteria like *Staphylococcus aureus*, fungal dermatophytes and yeasts as well as viruses like herpes, viral warts, molluscum contagiosum and influenza.[2] In an open label trial of topical SWO in common warts, 10 subjects were asked to apply a drop of SWO onto the wart area twice a day and rub gently after the application with repeat applications every 2 to 3 weeks until 12 weeks. At the end of the study, 8 of 10 (80%) had complete resolution of all treated warts, while remaining 2 had moderate improvement (25% to >90%). None of the subjects complained of skin irritation, erythema, itching, peeling of skin or scarring, pain or discomfort or other adverse events.[5]

Experience over the years has demonstrated the myriad of health benefits of SWO, which we are only delving into today. It has withstood the test of time and has been found to be safe and well-tolerated, barring occasional cases of allergic contact dermatitis. It is one of the many gifts of ancient India to the world of medicine and goes much beyond being a beautifying and fragrance-imparting agent.

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Conflicts of interest

There are no conflicts of interest.

Bhattacharjee Rajsmita, Vinay Keshavamurthy

Department of Dermatology, Venereology and Leprology, Postgraduate Institute of Medical Education and Research, Chandigarh, India

Address for correspondence:
Dr. Vinay Keshavamurthy, Department of Dermatology, Venereology, and Leprology, Postgraduate Institute of Medical Education and Research, Chandigarh, India.
E-mail: vinay.keshavmurthy@gmail.com

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