Santalum album



Kingdom:	Plantae
Clade:	Angiosperms
Order:	Santalales
Family:	Santalaceae
Genus:	Santalum
Species:	S. album

- Common Names: True sandalwood, white sandalwood, Indian sandalwood.
- Scientific Name: Santalum album.
- Origin: Native to Indonesia (Java and Lesser Sunda Islands), the Philippines, and Western Australia.
- Introduction to Other Regions: Brought to East Asia, Mainland Southeast Asia, and South Asia by Austronesian sailors during the ancient spice trade; naturalized in South India by around 1300 BCE.
- Significance: Highly valued for its fragrance and considered sacred in Hinduism.
- Over-exploitation: High demand has led to over-exploitation, making the wild population vulnerable to extinction.
- Current Use: Still commands high prices for its essential oil due to its high alpha santalol content.
- Limitations: Due to a lack of sizable trees, it is no longer widely used for fine woodworking.
- Growth and Harvest: The tree is long-lived, with viable harvest possible only after many years.

Medicinal Properties of Sandalwood (Santalum album)

- Antiseptic: Sandalwood oil has antiseptic properties, making it useful for treating wounds, cuts, and skin infections.
- Anti-inflammatory: The oil is known to reduce inflammation and swelling, which helps in conditions like acne, eczema, and psoriasis.
- Antispasmodic: It can relieve muscle spasms and cramps.
- Astringent: Sandalwood has astringent properties, helping to tighten and soothe the skin, making it useful in skincare and treating acne.
- Calming and Sedative: The fragrance of sandalwood is used in aromatherapy to promote relaxation, reduce anxiety, and improve sleep quality.
- Diuretic: It can increase urination, helping to detoxify the body and reduce fluid retention.
- Expectorant: Sandalwood oil helps in relieving coughs and clearing the respiratory tract.
- Antimicrobial: The oil exhibits antimicrobial properties, aiding in the prevention and treatment of infections.
- Skin Healing: It promotes healing of scars, blemishes, and other skin conditions due to its soothing and regenerative properties.
- Digestive Aid: Traditionally, sandalwood has been used to improve digestion and relieve digestive issues.

- Primary Source: Santalum album is the main source of sandalwood and sandalwood oil.
- Cultural Importance: Holds significant value in societies where it is naturalized.
- Heartwood:
- Characteristics: Yellow-brown, hard, oily texture, durable.
- Uses: Preferred for carving due to its fragrance and durability.
- Sapwood:
- Characteristics: White or yellow, unscented.
- Uses: Utilized for making turnery items.
- Cultivation: High value has spurred attempts at cultivation, expanding the plant's distribution range.
- Historical Use: Valued for its rotproof properties in construction.
- First Oil Extraction: Occurred in Mysore, India, in 1917.
- Perfume Production: Initially extracted in Grasse, France; now controlled by the Indian state.
- Market Demand: Demand exceeds supply.
- Standards: ISO 3518:2002 sets the accepted characteristics for sandalwood essential oil.
- Analysis Methods: HPTLC, GC, and GC-MS methods are used for analyzing the oil's constituents.
- Santalol Content:
- True Sandalwood (Santalum album): About 90% santalol.
- Australian Sandalwood (Santalum spicatum): About 39% santalol.
- Production Decline: India's dominance in sandalwood oil production has declined in the 21st century.
- Alternative Sources: Santalum austrocaledonicum from New Caledonia.
- Perfume Use: Used in the perfume Samsara by Guerlain (1989).
- Maturation and Cultivation Challenges: Long maturation period and cultivation difficulties limit extensive planting.
- Harvesting Process: Involves several curing and processing stages, adding to commercial value.
- High Demand: Both the wood and oil are in high demand and are significant trade items.