
Sandalwood
Seed Oil
A gift from the dream time

- Western Australian Sandalwood (*Santalum spicatum*) is one among the few endemic sandalwood species to Australia.

- To meet the global demand for the scented wood sustainable harvesting and cultivation of trees was initiated by the Forest Products Commission (FPC) of Western Australia, which was joined by farmers, indigenous communities and private organisations.

- The tree bear significant amount of fruit per season, which are drupes with large seed.

- Seeds can provide financial benefits for the growers until the trees are ready for harvesting.

- Chemistry and the pharmacological effect of this oil been studied, among them the most important findings were published by Liu *et al*.

Traditional uses

- The seed has been a part of the traditional diet of the indigenous Australians.

- In traditional indigenous medicine, it has been taken orally as a cure for rheumatoid arthritis, and topically applied (rubbed) for cold and stiffness.

Chemical composition of the seed kernels

- Seed kernels consist ~50% of a drying fixed oil.
- This oil is comprised of several fatty acid esters including oleic, linoloic, α-linoloic, steroic etc.
- An unusual fatty acid xymeninic acid found to be a major component in oil

Xymeninic acid

Fatty acid composition of Sandalwood seed oil

Fatty acid	Notation	Relative percentage (%)
Palmatic acid	16:0	3
Palmitolic acid	16:1 (n-7)	1
Stearic acid	18:0	2
Oleic acid	18:1 (n-9)	52
Linoleic acid	18:2 (n-6)	2
α-Linoleic acid	18:3 (n-3)	3
Stearolic acid	18:1 (9a)	1
Xymenynic acid	18:2 (9a, 11t)	36

Pharmacological findings

Mice dietary experiments conducted by Liu *et al* has revealed the following major findings in comparison to canola oil. Most of the activities are directly link to Xymenynic acid which is unique to sandalwood seeds.

1. 8.5% lesser weight gain
2. Less deposition of fat
3. Alteration of omega 3 fatty acid by a possible stimulation of Δ9-desaturase in liver.

- Wescorp has developed a supercritical carbon dioxide extraction (SCFE) method together with academic and industrial organisations.

- Advantages of using SCFE method

1. Free from contaminants or residues
2. Preserving oil's natural colour and odour
3. Longer self life
4. Minimum environmental and occupational hazards
5. Higher yield

Physical and Chemical Properties

Parameter	Result
Viscosity	71.3 cSt (mm2/S)
Specific Gravity	0.9198
Refractive index (30oC)	1.4740
Saponification Value	197.0
Iodine Value	100.9
Free Fatty Acid (as Oleic acid)	1.59%
Freezing Point	-11oC
Peroxide Value	1 meq/L

Potential Uses

- Published pharmacological studies support a great potential as a nutraceutical. Current studies will reveal more biomedical properties in future.

- Excellent properties as a cosmetic agent
  1. Emollient character
  2. No distinct order
  3. Longer self life
  4. Desirable viscosity

Wescorp sandalwood seed oil in your formulation

- Exceptional oil with commendable qualities for a nutraceutical or a cosmetic
- Better quality oil in its purest form
- Asian markets have a special value for Sandalwood as a “brand name”.
- Supporting a sustainable sandalwood industry

References

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