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# Sesame Oil

**iodine number**[| Home](#) | [| Pharmacognosy](#) |Chapter: **Pharmacognosy and Phytochemistry : Drugs Containing Lipids**Sesame oil is obtained by refining the expressed or extracted oil from the seeds of cultivated varieties of *Sesamum indicum* Linn., belonging to family Pedaliaceae.

## SESAME OIL

### Synonyms

Benne oil; teel oil; gingelli oil; sesamum seed oil.

### Biological Source

Sesame oil is obtained by refining the expressed or extracted oil from the seeds of cultivated varieties of *Sesamum indicum* Linn., belonging to family Pedaliaceae.

### Geographical Source

The plant is widely cultivated in India, China, Japan, East Indies, West Indies, and in the southern United States.

### Cultivation

The plant is an annual herb, 1 m in height. Sesamum is cultivated in the plains and on elevations up to 1,200 m at temperature of 21°C and above. It requires a warm climate and cannot withstand frost, continued heavy rain or pro-longed drought. It grows on a light well-drained soil which is capable of retaining adequate moisture. It thrives best on typical sandy loams. The seeds are sown broadcast. In northern India, the crop is sown in June–July and harvested in October–November. The crop is not generally manured.

### Characteristics

The seeds are small, flat, oval, smooth, and shiny, whitish, yellow or reddish brown; sweet and oily taste; odour is slight. They are pointed at one end where hilum is located, raphe runs as a line from hilum, along the centre of one flat face to the broader end. The endosperm is present as a thin layer around the embryo. The seeds contain fixed oil (45–55%); proteins (aleurone, 22%); and mucilage (4%).

### Preparation

The oil is expressed by hydraulic or low and medium-powered screw presses. A good yield of the oil is obtained by three successive expression. Prior to processing in the screw press, the seed is subjected to a cooking process. If live steam is used for cooking, the cuticles separate partly from the kernels and the mixture of kernels, cuticles, and seed slips in the cage and lumpy material is obtained instead of a firm cake. If the seed is heated in cooker without the addition of steam or water, and water is added at the point of entry of dried seed into the screw press cage, the efficiency of oil extraction is greatly enhanced. Alkali refining, bleaching, hydrogenation, and decolourization of sesame oil can be affected with very little loss.

The sesame oil (40–50%) is pale yellow liquid, almost odourless, bland taste, saponification number 188–193, iodine number 103–122, soluble in chloroform, solvent, and petroleum ethers, carbon disulphide; slightly soluble in alcohol and insoluble in water.

**iodine number 103-122 means  
how many grams of I<sub>2</sub> can be  
absorbed by 100 gm oil**



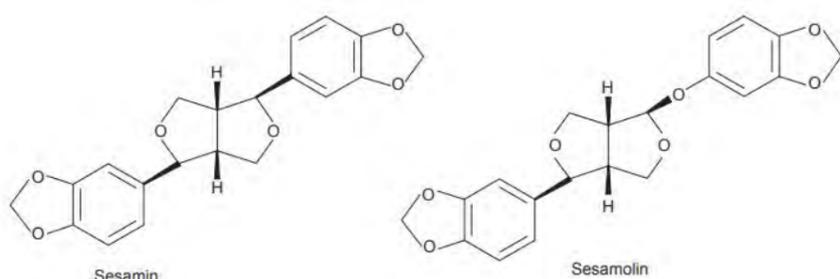
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### Chemical Constituents

Sesame oil consists of a mixture of glycerides of oleic (43%), linoleic (43%), palmitic (9%), stearic (4%), arachidic, hexadecenoic, lignoceric, and myristic acids. It also contains the lignan sesamin (1%), the related sesamol and vitamins A and E. During industrial refining, sesamol is readily converted into antioxidant phenols sesamol and sesamolinol.

The seeds also contain a lignan sesamolinol,  $\gamma$ -tocopherol, sesaminol, pinoresmol, its glycosides, sesaminol glucosides VI, VII, and VIII, triglucoside KP3, carbohydrates (20%), proteins (20–25%), sterols (campesterol, stigmasterol,  $\beta$ -sitosterol, and  $\Delta^5$ -avenasterol),  $\gamma$ - and  $\delta$ -tocopherols.



### Chemical Tests

- 1) **Bandouin's test:** Sesamol forms pink colour when the oil (2 ml) is shaken with concentrated hydrochloric acid (1 ml) containing 1% sucrose.
- 2) **Villavecchia test:** Furfural may be used in place of sucrose and this modified test is widely used to detect Sesame oil in other oils and fats. The presence of sesamol or free sesamol is responsible for this colour which is not found in other vegetable oils.

### Uses

Sesame oil is used as demulcent, in dysentery and urinary complaints, as a solvent for injection of steroids, antibiotics, and hormones, as mild laxative, nutritive, emollient, in manufacture of oleomargarine, cosmetics, iodized oil, antacids, and ointment. It is injectable as a vehicle for fat soluble substances. The oil is also used in insecticidal sprays. Sesamol, present in the unsaponifiable fraction of the oil, is an effective synergist for pyrethrum insecticides. An extract enriched in lignans as an antioxidant and radical scavenger is used in cosmetic industry.

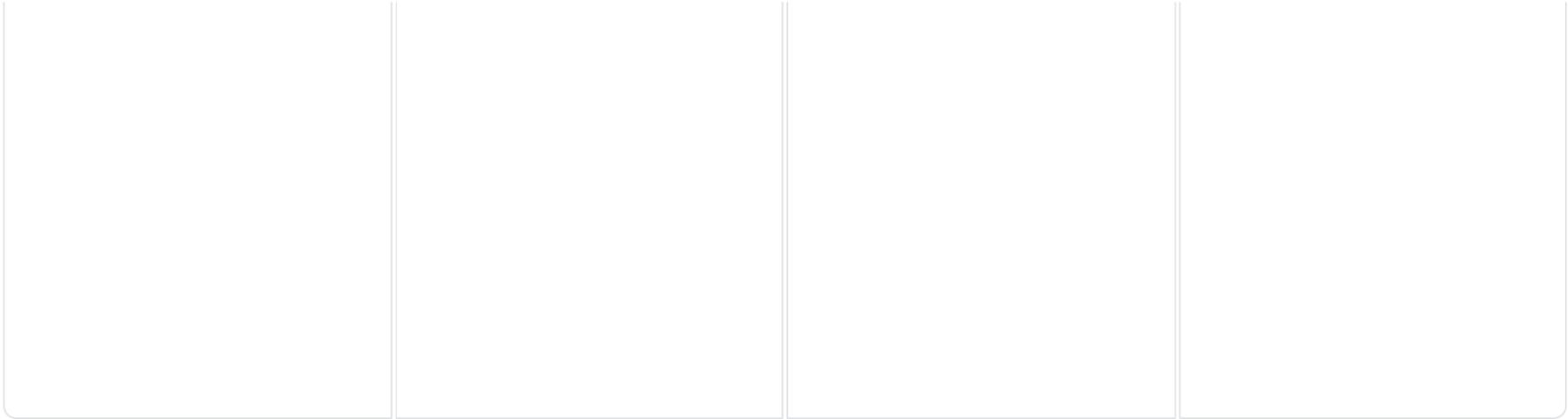
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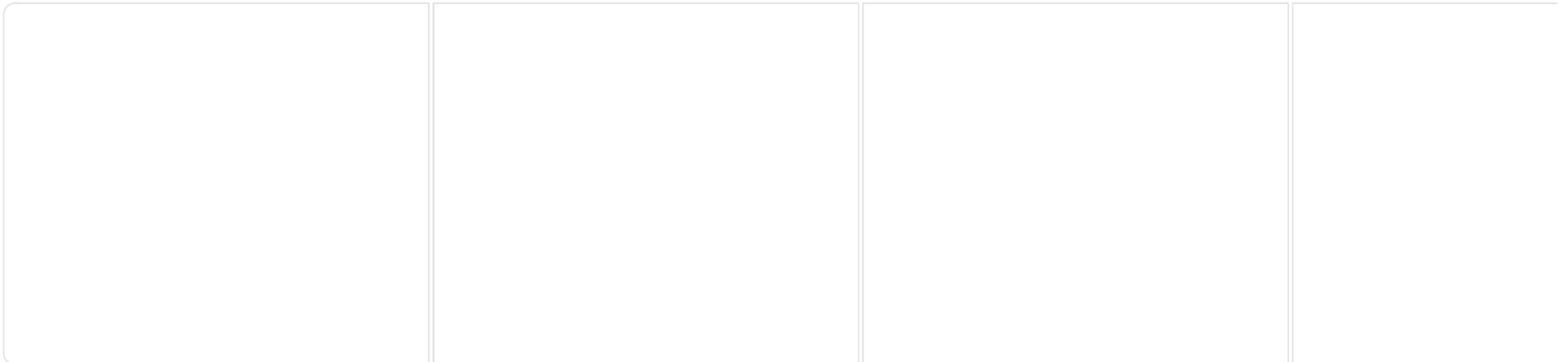
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