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IMPORTANCE OF SESAME OIL IN HERBAL OIL FORMULATION: A REVIEW ARTICLE

Dr. Gupta Twinkle[1] and Dr. Sharma Kanav*[2]

[1]Associate Prof. PG Deptt. of Kayachikitsa Jiar, Jammu, India.
[2]PG Scholar. PG Deptt. of Kayachikitsa Jiar, Jammu, India.

***Corresponding Author: Dr. Sharma Kanav**
PG Scholar. PG Deptt. of Kayachikitsa Jiar, Jammu, India.

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ABSTRACT

Sesame plant holds its importance from the ancient culture. Sesamum indicum commonly called as sesame, Family: Pedaliaceae mainly cultivated for its seeds. Sesamum indicum Linn. (Pedaliaceae) is an annualshrub with white bell-shaped flowers with a hint of blue, red or yellow with branches or without branches. It is grown for the production of seedsl which is rich in oil content. Sesame (Sesamum indicum) is a flowering plant that is grown throughout the world and cultivated for its edible seeds. Sesame oil, a source of vitamin E, is derived from sesame seeds. Sesame seeds are one of the first crops proceed for oil as well as one of the earliest condiments. The Sanskrit word Taila which means it has been obtained from Tila. Prior to 600 BC the Assyrians used sesame oil as food, medication also Hindus used it in volatile lamps.

KEYWORDS: Sesame, Ethno-botany, Pedaliaceae, Medicines, Oil.

INTRODUCTION

Sesame oil is one of the oldest oil known to man. Thought to have originated in India or Africa. The first written record of sesame dates back to 3000 BC. According to Assyrians mythology, sesame goes back even further- there is a charming myth about Gods imbibing sesame seed wine the night before they created the earth. References can also be found to 'Babylonians' using sesame oil, Egyptians growing their own sesame to make flour. Of course Persia the birthplace of 1001 Arabian Nights has been savvy to sesame benefits. Ancient Persians relied on it both as a food and for its medicinal qualities.

Further east it was unclear when sesame first found its way to China. Sources said that Chinese were using sesame oil in their lamps as far back as 5000 yrs. ago, while others state sesame seeds to be introduced into China about 2000 yrs. ago. It's probably true that ancients first relied on sesame plant to provide oil and later discovered its value as a food source.

Varieties

There are many variations in colours of sesame oil; cold pressed sesame oil is pale yellow, while Indian Sesame oil is golden. Chinese and Korean sesame oil is commonly dark brown in colour. This dark brown colour and flavour are derived from roasted/roasted sesame seeds.

Cold pressed sesame oil has a different flavour than the roasted oil since it is produced directly from raw rather than toasted seeds. Sesame oil is traded in any of the forms described above; cold pressed sesame oil is available in western health shops. Unroasted oil is commonly used for cooking in Middle East. In East-Asian countries different kinds of hot pressed sesame oils are preferred.

Its density may vary between 0.91 S to 0.920. It solidifies at -5°C and forms a buttery mass.

In India, of total production of sesame, about 75% oil is used for edible purposes as vegetable oil for culinary purposes, 510% goes to the vanaspati industry for vegetable ghee manufacture and 4% for industrial uses as paints, soaps, perfumes, etc. The sesame oil is soluble in Ether, Chloroform, Pet ether and Carbon disulphide solutions. It is partially soluble in alcohol and insoluble in water.

Phytochemical Constituents

Sesame oil is classified as polyunsaturated, semidrying oil; it contains about 80% unsaturated fatty acids, Oleic acid and lenoleic are the major fatty acids. In experimental studies, it has been observed that sesame oil is the most stable vegetable oil against oxidation.

The stability of sesame oil against oxidation is due to the lignans such as sesamol, sesaminol, phynoresinol and sesamolinol. 7-tochopherol is another antioxidant, providing better results in the injuries; the pleasant aroma and taste principles contains C5-C9 straight chain aldehydes and acetylpyrazine.

Sesame seeds contain two unique substances, Sesamin and Sesamolin whence during refinement the two phenolic antioxidants, sesamol and sesaminol, are formed. Both of these substances belong to a group of special beneficial fibers called Iignans, and have been shown to possess cholesterol-lowering effect in humans, and to prevent high blood pressure and increase vitamin E supplies in animals. Sesame seeds are a very good source of copper, and calcium. Just a quarter cup of sesame seeds supplies 74.0% of the daily value for copper, 31.6% of the magnesium, and 35.1 % of the daily value for calcium. It is also high in protein, phosphorus, iron and magnesium. Copper is known for reducing pain and swelling of rheumatoid arthritis. Magnesium supports Vascular and Respiratory health. Calcium helps to prevent Colon Cancer and Osteoporosis. The seeds also have a good amount of manganese, iron, phosphorus, zinc, vitamin B1, tryptophan and dietary fibres.

Nutritional Quality

1) Sesame oil is practically free of toxic components. The oil contains more unsaturated fatty acids than many other vegetable oil. This renders it as an important source of essential fatty acids in the diet.
2) Linoleic acid is required for all cell membrane structure, cholesterol concentration in blood and prolong blood clotting properties.
3) Sesame oil is rich in vit. E, but is deficient in vit. A.
4) It does not require extensive purification and refining.
5) The lipids of sesame seeds are mostly compressed of neutral triglycerides with small quantities of phosphatide (0.3-0.13% with lecithin:caphalin ratio of 52:46)
6) Among the commonly used vegetable oils, sesame oil is known to be most resistant to oxidative rancidity. It also exhibits noticeably greater resistance to autoxidation than would be expected from its content of Tocopherol (vit. E).
7) This unusual stability to oxidation is often attributed to the presence of a large proportion of unsaponifiable matter in sesame oil in compared with those in other vegetable oils.
8) The superior oxidation stability of sesame oil is due to Sesamol.
9) Sesame oil contains magnesium, copper, calcium, iron, zinc, and vitamin B6. Copper provides relief for rheumatoid arthritis. Magnesium supports vascular and-respiratory health. Calcium helps prevent colon cancer, osteoporosis, migraine, and PMS. Zinc promotes bone health.

Pharmaceutical Uses

- The oil is used as soothing agents or to allay inflammation and pain.
- In modern pharmacy, it is also employed in the preparation of liniments, plasters, ointments, and soaps.
- The conventional medical practitioners use them as demulcent and emollients as protective covering on injured surfaces.
- Its high stability makes it a desirable vehicle for medicines which are administered subcutaneously or intravenously.
- Several medical products employ it as a solvent and vehicle for oestrogenic substances.
- It is also employed in the preparation of liniment, plasters, ointments and soaps.
- It is also used for conditioning the skin.
- Sesame oil has synergistic activity with insecticides such as pyrethrums and rotenone.
- Sesame oil is high in poly-unsaturated and mono-unsaturated fat, which helps to lower cholesterol. Furthermore, sesame oil is also low in saturated fats, which increase the risk of heart diseases.
- The synergistic activity of sesame oil has been attributed to the presence of Sesamol and Sesamolin.

Medicinal Uses

- Sesame Seed Oil has been used as healing oil for thousands' of years.
- As nose drops, sniffed back into the sinuses, sesame seed oil has cured chronic sinusitis.
- Sesame oil is highly nourishing, and excellent for dry scalp treatment. Massaging in the scalp will control dryness and flakiness, thus, helping in hair loss prevention.
- A regular warm oil massage wiil increase penetration, resulting in an enhanced blood circulation in the scalp, promoting hair growth.
- Stress is considered as a major factor that results in hair fall, and sesame oil's cooling properties helps alleviate stress when massaged in scalp and on neck and shoulders.
- Rich sesame oil protects hair from the damaging effects of the sun's UV rays, becoming a natural sunscreen for the hair.
- Not only does it protect hair from sun, but does not allow damaging effects of pollution to stick to hair.
- Sesame (Iii is known for its hair darkening qualities, hence very useful for those who suffer from pre-mature hair graying or who have plenty of gray hair.
- Historically, people have used sesame oil, for a very wide variety of purposes, from massage oil, to mouthwash, to nasal drops, to enema.
- Sesame seed oil absorbs quickly and penetrates through the tissues to the very marrow of the bone. It enters into the blood stream through the capillaries and circulates.
- Sesame seed oil helps joints keep their flexibility. It keeps the skin supple and soft.

- Vit. E present in the Sesame oil is' known to be a good emollient and moisturizer results in healthy, hydrated & nourished ~kin.
- This also may help the active ingredients from the preparation to cross the skin barrier.
- Oil is used in sunscreen lotion as· it blocks the UV rays from the sun, this is important property of sesame oil which may be due to unsaturated fatty acids in the oil.
- Sesame oil. is useful in dry skin cells & rejuvenate the skin.

PHARMACOLOGY AND RESEARCH

1) Sesame is valued for both its anti-inflammatory action and its anticancer action. Sesamin, a chemical isolated from sesame seeds, changes the way white blood cells are drawn to chemoattractants, reducing the production of the cytokfnes involved in infection, inflammation and cancer.
2) Sesamin decreases the damaging effect that oxidized blood lipids have on endothelial function. Thus they may have value in atherosclerosis and cardiovascular disease.
3) In vitro, sesame seed oil has inhibited the growth of malignant melanoma (a skin cancer).
4) Sesamolin from sesame seed inhibits proliferation by inducing apoptosis in human lymphoid leuke, mia Molt 48 cells.
5) Whole sesame seed is as rich a source of mammalian lignan precursors as whole flaxseed.
6) Sesame seed oil shows wound healing activity in rats. Also the analgesic, anti pyretic and anti-inflammatory activity of sesame oil seen in experimental animal models.
7) Sesamin mitigates inflammation and oxidative stress in endothelial cells exposed to oxidized low-density lipoprotein.
8) Free radical scavenging and antiatherogenic activities of Sesamum indicum seed extracts observed in chemical and biological model systems.
9) Neuroprotective effect of defatted sesame seeds extract against in vitro and in vivo ischemic neuronal damage.
10) Sesamin shows Antihypertensive effects in humans.
11) Selective growth inhibition of a human malignant melanoma cell line by sesame oil in vitro have been reported.
12) Sesame oil attenuates Cisplatin-induced hepatic and renal injuries by inhibiting nitric oxide-associated lipid peroxidation in mice.
13) The antioxidant and free radical scavenging activities of sesamol using a nanosecond pulse radiolysis technique have been reported by several scientists.
14) Also in vitro, sesame - seed oil has inhibited replication of human colon cancer cells.

CONCLUSION

From the literature it reveals that sesame oil used from the ancient time carries its importance as base in the herbal oil formulations for various therapeutics uses. As it possesses maximum stability and all the other properties which are required for good base in the oil formulations.

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