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Water Melon Seed Oil: A Review

[1]Amrita Gayen, [2]Priti Nayek,[*3]Nabaniata Ghosh and [4]Shreyasi Das

[1, 2]M.Sc. Student, Swami Vivekananda University, Barrackpore, W.B., India.
[3]Assistant Professor, Department of Food & Nutrition, Swami Vivekananda University, Bararckpore, W.B., India.
[4]Assistant Professor, Department of Food & Nutrition, Swami Vivekananda University, Bararckpore, W.B., India.
[*]Corresponding e-mail: nabanitag@svu.ac.in

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Abstract

Throughout the world, Water Melon (Citrullus lanatus Lin) is consumed for desserts, fruit salads, and garnishing beverages. Several therapeutic effects have been reported by the fruit's major bioactive component, Lycopene, including anti-cancer, anti-inflammatory, and anti-microbial activities. As a good source of citrulline, which is used for arginine production, watermelon is also a good source of vitamin C.Seeds from watermelon are one of the most underexplored and underutilized sources of oil that are rich in essential fatty acids, vitamin-E, minerals, and have an anti-oxidant effect. It is estimated that the seeds contain 35 - 40% oil, with 78-86% unsaturated fatty acids predominantly linoleic acid (45-73%). Watermelon Seed oil is capable of scavenging low-density lipoproteins (LDLs) as well as high-density lipoproteins (HDLs) in a cell membrane because of its chemical components. In addition to its nutritional properties, it has a rich phytochemical profile and is claimed to have health and medicinal benefits. Carotenoids found in watermelon include lycopene, β-carotene, phytofluene, phytoene, lutein, and neurosporene. Aiming to educate people about the potential benefits of watermelon seed oil, this study aims to reveal the properties of watermelon seed oil.

1. Introduction:

Watermelon is botanically known as *Citrullus lanatus*, a fruit that grows in tropical regions. There are two types of water melon: monoecious and dioecious. It ripens in August, and it is a warm season crop (it cannot withstand the freezing temperatures). The seeds that are discarded contains high amount of oil. There are many nutritional values of the water melon seed that can be compared favorably with soybeans, sunflowers, and groundnuts(Alison Cox 2008)

Watermelon seeds contain a wide range of nutrients. In addition to being rich in proteins and vitamin B, they also provide dietary fiber.A variety of minerals are also found, including magnesium, potassium, and phosphorus Iron, zinc, manganese, copper, sodium, and lipids. It contains saponins, and other phytochemicals like alkaloids, phenols, tannins and flavonoids are also present (Braide, 2012). In addition to their bioactive properties, these compounds contribute to anti nflammatory, anticancer, antibacterial activity (Adesanya et al., 2011).

There are several underutilized products, one of which is watermelon seed oil, which has a high antioxidant content, contains 64.5% linoleic acid and used in some African and Middle Eastern

American cuisines for frying and cooking (M Milovanovic 2005). This nutrient is packed with omega-6 fatty acids, particularly linoleic acid, that make up 40% of the crude oil in watermelon seeds (Chaudhari, 2022). Seed oil contains significant amounts of unsaturated fatty acids, mainly linoleic acid, which decreases cholesterol levels and blood pressure. There are a high number of triglycerides (TG), saturated fatty acids (SFAs), and polyunsaturated fatty acids (PUFAs) in the oil that satisfy the requirements of cooking, cosmetics, and therapeutics. There are a number of medicinal and clinical benefits associated with watermelon seed oil, including treating coronary heart disease (CHD) by acting at the epithelial and membrane levels. Comparatively to other genera of the Cucurbitaceae, watermelon seeds or nuts have a very low level of antinutritional and toxic factors (Khalid Waseen, 2021) .

2. Nutrition parameters:

In melon seeds (Citrullus lanatus), there are a high amount of minerals (millions of milligrams per 100g, zinc and magnesium in melon seeds are 21.05 mg/100g and 20.46 mg/100g, respectively [6]. It is calcium that has the lowest concentration of all the minerals, with 10mg/100g. The sodium to potassium ratio is 0.043, and the calcium to phosphorus ratio is 0.002 (AG Jacob 2015).

Table 1: Nutritional composition of melon seed.

Parameters	**Unit (%)**
Ash	2.12 (KJ Umar 2013)
crude fiber	23.3 (NAM Yanty 2008)
Total phenolic contents	12.456 mg/100 g (J Santos 2014)
antioxidants	34.71mg/g (PM Rolim 2018)
Protein	35 (Z Petkova 2015)
carbohydrates	18.69 (KJ Umar 2013)

3. Biological activities

As described previously, foresight melon seed oil contains fatty acids, vitamin E, phenolic compounds, and phytosterols. The following subsection examines how these compounds protect against disease and promote good health.

4. Antioxidant activity

Melon seed oil is known for its antioxidant power due to the presence of phytosterols, vitamin E, phenolic compounds, and fatty acids, among others. As a result, some chronic diseases, such as cardiovascular disease and cancer, can be prevented by these compounds, which protect the biological system from reactive oxygen species (MA Silva, 2022).

5. Anti-inflammatory activity

Water melon seed oil has many compounds linked with antiinflammatory properties. However, research concerning the study of melon seed oil on antiinflammatory activity is lacking (Azab, 2016).

6. Anti-hypercholesterolemic activity

As a major health concern throughout the world, hypercholesterolemia has been linked to a variety of cardiovascular diseases, atherosclerosis, and strokes (Silva, 2022). In addition to reducing total

cholesterol and low-density lipoprotein cholesterol, melon seed oil also contains polyunsaturated fatty acids, which have been shown to be beneficial.

7. Conclusion

From this study we came to know about the beneficial effect of watermelon seed oil. According to reports Calcium, Magnesium, and Phosphorus are abundant in them. In addition to being rich in bioactive compounds, seed oil are also rich in vitamins and minerals. There are opportunities for the oil to be used in pharmaceuticals, cosmetics, and value-added products. In addition to being rich in various nutrients, watermelon seed oil have potential health benefits of unsaturated fatty acids.

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