

Pumpkin Seeds Oil Extracted by Supercritical CO₂ Extraction

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In the Republic of Moldova the pumpkin growing has an economic and agronomic importance as the soil and climate conditions are very favorable for this culture.

Considering that the supercritical CO₂ extraction is a new alternative technology which has many advantages in relation to traditional methods of fatty compounds extraction from vegetable raw materials, we studied the CO₂ extraction of *Cucurbita pepo* seeds *Bulgarian* variety.

The low humidity of pumpkin seeds (6.3%) is an advantage in validity terms, and in the feasibility of lipid substances extraction with supercritical carbon dioxide.

The analyzed pumpkin seed had high lipids content - 47.3%, making pumpkin seeds a potential source of vegetable oil.

Pumpkin seed oil, characterized by a delicate taste and aroma, contains a great number of biologically active substances such as: carotenoids, tocopherols, phospholipids, flavonoids, vitamin E, polyunsaturated essential fatty acids.

The results showed that the amount of saturated fatty acids in the CO₂ lipid extract of pumpkin seeds is 18.3%, among which 15.5% is palmitic acid, 2.7% is stearic acid and 0.1% is myristic acid. The sum of unsaturated fatty acids is 81.8% and consists of 40.1% oleic acid, 41.6% linoleic acid, and 0.1% linolenic acid. The linoleic acid is the main fatty acid followed by oleic acid, palmitic and stearic - as major constituents. The beneficial effects of unsaturated fats on blood lipids and the impact of omega-3 polyunsaturated fats are to prevent the cardiovascular deaths, arthritis and asthma. Because pumpkin seeds oil is rich in both oleic and linoleic acids, it can be used as edible oil for cooking and salads or sauces.

CO₂ lipid extract from pumpkin seeds is a good source of vitamin E (37 mg/100g product), which is a lipid soluble antioxidant that fights the harmful effects of free radicals.

Pumpkin seeds serve as a rich source of edible oil that has a wealthy amount of unsaturated fatty acids and vitamin E, which plays an important role in human health, and both bring a lot of benefits.

