

## Extraction and Characterization of Oil from Sesame seed

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### Abstract

*The extraction and characterization of sesame oil was carried out by solvent extraction using n-hexane as the solvent. Output yield evaluated as a function of temperature, contact time and different particle sizes gave an average of 44.80 % oil yield. The extracted oil had a pH value of 4.33 and refractive index of 1.472. The oil has a boiling point of 227°C and specific gravity of 0.920. Peroxide value which is an indication of the ability of oil to get rancid was 2.0. Iodine value was 113; acid value was 5.64%, while the free fatty acid value was 2.82%. Saponification and unsaponifiable values obtained were 190.74 and 1.5% respectively. The analysis shows that sesame oil is an important additive in soap making since its properties lies within the standard values of other oils used for that purposes, e.g. lemon grass oil, and alovera.*

**Keywords:** *Composite panel, tensile strength, modulus of rigidity, silane*

### 1.0 Introduction

Sesame (*Sesamum indicum* L.) is one of the most important oilseed crops worldwide, and has been cultivated since ancient times for use as a traditional health food (Nzikou et al., 2010). Sesame (*Sesamum indicum*) is a flowering plant in the genus *Sesamum*. Numerous wild species of sesame were found in Africa, it is generally believed that sesame originated in Africa and a smaller number in India (Nayar and Mehra, 1970; Nayar, 1976). It is widely naturalized in tropical regions around the world and it is cultivated for its edible seeds, which grow in pods. The small sesame seed is used wholly in cooking because of its rich nutty flavour and oil (Abou-Gharbia et al., 2000). Sesame is grown primarily for its oil rich seed, which come in a variety of colours from cream-white to charcoal black. In general, the paler varieties of sesame seem to be more valued in the West and Middle East, while the black varieties are highly prized in the East. Sesame oil has a mild odour and a pleasant taste and, as such, is a natural salad oil. It is used as a cooking oil, in shortening and margarine, as a soap fat, in pharmaceuticals and as a synergist for insecticides. Sesame oil is very popular as cooking oil in many countries, and more expensive than other vegetable oils (Hai and Wang, 2006; Budowsk and Markely, 1951; Doker et al., 2010).

Extraction process can either be liquid-liquid or solid-liquid extraction. But for the purpose of this investigation, the solid-liquid extraction-leaching is employed. Oils extracted from whole seeds were more stable than those extracted from dehulled seeds (Coulson and Richardson, 1991). The versatility of the oil produced by sesame seeds has allowed its usability in so many areas. Despite sesame oil's high proportion (41%) of polyunsaturated (omega-6) fatty acids, it is least prone, among cooking oils with high smoke points. Light sesame oil has a high smoke point, and is suitable for deep frying while heavy (dark) sesame oil (from roasted sesame seeds) has a slightly lower smoke point and unsuitable for deep-frying, instead it can be used for stir-frying of meats and vegetables, and in making of omelette. Applying sesame oil to the hair is said to result in darker hair. It may be used for hair and scalp massage. It is believed to reduce the heat of the body and thus helps in preventing hair loss (El Tinay et al., 1989). Refined sesame oil is used in making margarine in Western countries as well as in making Ayurvedic drugs. Sesame oil is a source of vitamin E which is an anti-oxidant. The uses of sesame and olive oils as natural antioxidants have been reported (Fazel et al., 2008; Koprivnjak et al., 2008; Nissiotis and Tasioula-Margari, 2002; Rajaei et al., 2008; Sahari et al., 2004; Borchani et al.,