

## I- Introduction

The medical and aromatic plants became one of the most important subjects in Egypt, So the area cultivated with medical and aromatic plants is larger than area on the past, but it has been given more areas besides raising the yield of those crops.

Basil is one of the most important aromatic crops. The plant belongs to the family, lamiaceae (labiatae) and carries the Latin name *ocimum*. (Bailey, 1961)

The local varieties of basil plants in Egypt carrying the botanical name *ocimum basilicum*, L., and two varieties of *ocimum canum*, *ocimum sins*. These local varieties carry the names “white basil”, “red basil” and “camphor basil”. (Eid, 1964)

These names “white, red and compher basil” refer to the color of flower of the plant white, the camphor basil plants are characterized by the camphor odor of the crushed leaves and flowers. (Awaad, 1987)

The white basil is cultivated in a largest area and export to abroad as oil, while the red basil is exported as leaves and camphor basil is cultivated in few feddans. (El-Zahwy, 1978)

Generally, the basil plants have an economic value among plants producing essential oils. (Guenther, 1961a)

The essential oil of basil is found in leaves and flower but only traces in stems. (Eid, 1964)

The oil is employed quite extensively in many kinds of flavors, including confectionery, backed foods and condemnatory. It is also used in beverages, tastes in certain

dental, in oral products as toothpaste and disagreeable odors.  
(Guenther, 1961)

The extraction liquid of *ocimum basilicum* L, forms an excellent cure for ring worms and scorpion stings, while basil flowers possess stimulant, diuretic and expectorant properties. The oil is used also in remedy against the heart diseases and in manufacture of soaps, perfume and in many pharmaceuticals. The infusion of the fresh herb is used as carminative.

(El-Zahwey, 1978)

Nowadays, Basil is little used in herbal medicine but it remains a popular seasoning herb. The flowering stems are the medicinal parts. An infusion is sometimes used for chronic gastritis, stomach pains, flatulence, constipation and respiratory disorders such as cough and whooping cough and for urinary infections. It is an excellent preventive for travel sickness externally basil can be used for invigorating both, in compresses for slow healing wounds and in gargles. (Sarah Bunney, 1992)

*Ocimum basilicum* is an aromatic herb used in traditional medicine and its essential oil is used in industry and perfumery.  
(Khatri, et al, 1995)

Another important plant is cardamom, which is written about it by:

Purseglove et al (1981) reported that, cardamom is a tall herbaceous perennial with branched subterranean rhizomes, belonging to zingiberaceae family. *Cardamom* occurs wild in the evergreen monsoon forests of the Western Ghats in southern India and Sri Lanka.

**Govindarajon, et al** (1982) found that, *Elettoria cardamomum*, Maton (zingiberaceae family) is major spice in world trade. The spice is cultivated in number of countries such as India, Tanzania and Guatemala. The two main cultivares of cardamom are the ealabor and mysore. The latter is predominantly cultivation in Sri Lanka.

**Farrella** (1990) showed that, Cardamom (*Elettaria cardamomum*) is a bushy perennial shrub of the ginger family, which bears fruits in pods. Each fruits about the size of a cranberry, straw colored, oval to oblong in shape, and three sided and varying in lengths from 7 to 15 mm. Each fruit holds 15 to 20 reddish, brown, three sided seed, somewhat angular 3 mm long by 2 mm wide. Cardamom is in digenous to China, Sumatra, India and Sri Lanka. It is cultivated in Costa Rica, El Salvador, Guatemala, Mangalore, Mysore and the malabar regions of India. The world's total crop is approximately 300 metriclons.

**Ryden et al** (1990) reported that, Cardamom (*elettaria cardamomum*) family zingeberaceae is the most ancient spices in the world, and one of the most highly valued. Cardamom grows wild in the rain forests of southern India and Sri Lanka, it is now cultivated quite widely in Guatemala, Tanzania and Vietnam. It is a large perennial bush of the ginger family that grows to 2-5 m (6-15 ft) high.

**Samarawira** (1972) found that, Cardamom fruits are used for different purposes in different countries. In the Middle Eastern countries cardamom is largely used for flavoring of coffee. In south East Asia in domestic cooking. In Sweden is for backing. In Europe is for flavoring foods like cooks.

confectionery, ginger bread, sausages and pickles and found the oil is used in perfumery for flavoring liqueurs and litter preparation of tinctures and as a stimulant.

**Pruthi** (1980) pointed to that, the antioxidant properties of cardamom oil result from the combination of several primary and synergistic antioxidants and prooxidants.

**Purseglove et al** (1981) reported that, Cardamom is an expensive spice the price being only exceeded among spices by saffron and vanilla. The seeds have a pleasant aroma and a characteristic warm, slightly pungent taste. It is used for flavoring curries, cakes, and bread and for other culinary purposes. In India cardamom is used as amosticatory. It is thought to have aphrodisiac properties and he added that. The cardamom is official in the British and uspharma copoeias and is used as an aromatic stimulant, a carminative and a flavoring agent while the essential oil is used for flavoring processed foods in perfumery and for flavoring liqueurs and other beverages.

**Sirnink and Garisek** (1983) reported that, one of the most effective antibacterial spice studies was cardamom culinary.

**Adel, et al** (1990) found that, Cardamom is used mostly by the people who grow it as is also the case with many other herbs and spices. It is used by the Arabs to flavor so-called Bedouin coffee, which in Saudi Arabia is a symbol of hospital. It is also popular, however, in Scandinavia where it is used to flavor sausages, salamis and meat dishes. In addition to that it maybe used in picking vegetable and marinating fish, as well as in pantries and liqueurs.

**Badei** (1992) reported that, the inhibitory effect of cardamom (*elettaria cardamomum*) essential oil and its major chem components (1.8 cineol,  $\alpha$  terpinyl acetate, DL Limonene and linalool) on the growth of 7 toxigenic mold strains (*Aspergillus flavus*, *A. parasiticus*, *A. niger*) and aflatoxins produced by *A. parasiticus* (aflatoxins B<sub>1</sub>, B<sub>2</sub>, G<sub>1</sub> and G<sub>2</sub>) was assessed. Twenty-five compounds were separated from the essential oil,  $\alpha$  terpinyl acetate had the strongest antifungal effect.

**Borget** (1993) reported that, Cardamom could enhance both sweet and savory tastes. The pods themselves are inedible. All the flavor is held in the small, but very hard seed. In India cardamom is one of the main components of garam masala and curry powders. It is also used in sweets, meats, pastries, puddings and ice cream. The Arabs put a few pods in the spouts of their coffee pots to give the drink a distinctive taste. In Europe, the Scandinavians are the biggest importers of cardamom for flavoring their spiced cakes, pastries and breads. Medicinal tincture of cardamom is considered a useful medicine for flatulence and stomach disorders. Chewing a few seeds cleans the breath, particularly of excessive garlic. Together with betel quid that Indians like to chew as a mouth freshener and digestive aid.

**Barakat** (1999) studied that, the chemical constituents of cardamom volatile oil were fractionated and identified by using gas liquid chromatography mass spectrometry technique. In order to define the identity and its importance as antioxidant and antimicrobial agent.

## AIM OF INVESTIGATION

The aim of this investigation is to study effect of time of cutting on the physical and chemical properties and composition of basil oil and to study the effect of the different parts used for producing the cardamom oil on the physico-chemical properties and chemical composition of the cardamom oil.