

INTRODUCTION

Introduction

Nigella sativa, L. belongs to the plant family Ranunculaceae. It is an annual herbaceous erect, branched plant and widely distributed in countries bordering of the Mediterranean Sea middle Europe and western Asia. It is cultivated in different districts of Egypt for purpose of its seeds. The plant attains about 40-60 cm in height the seeds vary, from 2.5–3.5 mm in length and from 1.5-2.0 mm in width. The weight of 100 seeds varies from 0.26-0.33 g. The seeds are used as carminative and are added as flavoring agent to bread, while their expressed oil is used in asthma respiratory depression and cough, as well as in folk medicine.

Soliman (1978) reported that, Syrians used the seeds for improving cheese flavor, while the Americans use them for both flavoring cheese and bakery products. Recently especially after the appearance of some strange diseases and the discovery of some disadvantages for the artificial drugs, man has looked back to the folk medicine, which depends on utilization of plants.

Subsequently, most of the world scientists try to replace the synthetic drugs with the natural plant products. Moreover, the medical plants are spread all over the world as food preservatives hence either natural or chemical preservatives can induce the same effect, but the natural preservatives are recommended, because they have no hazardous effect.

El-Sayed et al, (1994) reported that, the treatment of processed cheese spread with sodium bisulphite or *Nigella sativa*

oil at different concentration led to reduce the microbial groups. Moreover, it was indicated that, seeds contained essential oil (0.4-0.45%), fixed oil (>30%), protein (>20%) and saponin (3-4%). Pharmacological investigation revealed the ability of the volatile oil of *Nigella sativa* to exert antibacterial and antifungal properties. Anthelmintic activity against tapeworms, chorotic effects in dogs. Antihypertensive and respiratory stimulant in rats. Also, it was found that, when these seeds were used orally at a dosage of one gram twice a day, an enhancing effect on immune function was reported.

In Arabian folk medicine, the whole seeds alone or in combination with honey or garlic are prescribed for the treatment of hypertension. Nowadays, many reports and articles have been introduced indicating the significant role of *Nigella sativa* seeds oil in increasing immunity and maintaining good health. **Ibrahim (1999)**, and added that, the Arabian authors, **Ibn El-Bitar, Ibn Sin and Dawood El-Antak**, have described in brief of the morphology of the plant *Nigella sativa* and its seeds. They mentioned that, these seeds are useful mainly in headache, respiratory depression, asthma, calculus of bladder and kidney, as emmenagogue and diuretic.

Mahfouz and El Dakhkhny (1960) found that, volatile oil has protective action acquired by guinea pigs against histamine induced bronchospasm after intramuscular injection of the oil due to this compound (Nigellone). **Aqel (1992)** found that, the volatile oil of *Nigella sativa* seeds possesses a direct vascular smooth muscle relaxant effect, possibly by interfering

with the influx of extra-cellular Ca^{+2} . **The same author (1993)** found that, the spasmolytic effects of an ethanol extract and the volatile oil of *Nigella sativa* seeds were tested in vitro using isolated segments of rabbit jejunum. The ethanol extract and volatile oil inhibited spontaneous movements of the rabbit jejunum. Also, the volatile oil inhibited contractions of the rabbit jejunum, which were induced by high potassium (K^{+}) solution or acetylcholine. This inhibition was dose dependent, reversible and not affected by addition of calcium to organ bath. These data suggest that the plant seed has an antispasmodic effect, possibly due to a calcium antagonistic activity.

Finally the Quran and the authentic tradition of Prophet Muhammad contains numerous instructions related to health, one of these is a prophetic saying “in the black seed there is healing for every illness except death”. **Agarwal et al, (1990)** found that, ethanolic extract inhibited the fertility of the male. The antifertility effect is probably due to its inherent estrogenic nature as evidenced by reduced weight of the reproductive organs, inhibition of spermatogenesis, Atrophy of the accessory reproductive structures and statistically significant reduction in the sialic acid content of the testis, epidymis seminal vesicle and the prostate. **Viban and Panwar (1987)** found that, weight powdered seeds of *Nigella sativa L.* at a level 100 mg/kg body weight given daily cause significant increase in goat’s milk yield. **El-Tahir et al, (1993a)**, the effect of the volatile oil of black seeds “*Nigella sativa*” on the respiratory system of the urethane anaesthetized guinea pig was investigated and

compared with those of its constituent thymoquinone. Intravenous administration of volatile oil in the dose range of 4-32 $\mu\text{L Kg}^{-1}$ induced dose dependent increase in the respiratory rate and intratracheal pressure. The effects of volatile oil were significantly antagonized by treatment of the animals with mepyramine, atropine and reserpine. They were not antagonized by domethocin, diethyl carbomazine or hydrocortisone. Intravenous administration of thymoquinone in the dose range of 1.6-6.4 mg/kg^{-1} induced significant increases in the intratracheal pressure without an effect on the respiratory rate. Such result showed that, volatile oil induced respiratory effects, were mediated via release of histamine with direct involvement of histaminergic mechanisms and indirect activation of muscarinic cholinergic mechanisms. Removal of thymoquinone from volatile oil may provide a potential centrally acting respiratory stimulant. **El-Tahir et al, (1993b)** found that, volatile oil of *Nigella sativa* seeds induced cardiovascular depressant effects were mediated mainly centrally via indirect and direct mechanisms that involved both 5 hydroxy tryptaminergic and muscarinic mechanisms. The direct mechanisms maybe due to the presence of thymoquinone in the volatile oil. The volatile oil seemed to possess the potential of being a potent centrally acting antihypertensive agent. **Al-Hader et al, (1993)** found that, volatile oil of *Nigella sativa* seed has no hypoglycemic activity. **Agarwal et al, (1979)** found that, the essential oil of *Nigella sativa* seed was found to have fairly good activity against

earthworms and tapeworms was somewhat comparable with that of hexylresocinol.

Regarding cumin "*Cuminum cyminum*" Umbellifera **Guenther (1961)** reported that, It is a slender, rather pretty annual growing to a height of 1 ft. or less and bearing very finely divided leaves, the aromatic, dried ripe fruits (seeds) are of elongated, oval shape, about 5 to 6 mm long and light brown in color. Their odor is peculiar, strong and heavy, the flavor warms, slightly bitter and somewhat disagreeable.

The dried fruit is widely used as a condiment it forms one of the most important flavoring constituents in East Indian curries. It is also employed in native dishes of central and South America, and for the flavoring of certain types of sausage and cheese.

Cumin, probably a native of Turkestan or Upper Egypt, has been grown in the Mediterranean countries for so long that its origin is difficult to trace. The seed was known in biblical times. It is mentioned in the Ebers papyrus (1550 BC).

Today cumin is cultivated in East India, in Southern Russia (Ukraine), and along the Southern and Eastern shores of the Mediterranean (in Morocco, Algeria, Syria and the islands of Malta and Cyprus). It is not raised commercially in the United States, but hundreds of tons of the dried seed are imported annually. The native of central America (e.g. Mexico and Guatemala) grow it on a small scale.

Cuminum cyminum is one of the native plants of Egypt, the seeds are used in folk medicine, aromatic, digestive, carminative and added as a flavouring agent to bread.

Afifi et al, (1994) reported that, *cuminum cyminum* is popularly used as spice and condiment. They are also recommended as flavor in food and used as aromatic, stimulant, antispasmodic, sedative, galactagogue, calmative and digestive drugs (**Chopra et al, 1956 and Boulos 1983**). Cumin is prescribed for treatment of dyspepsia, diarrhea and in snake bites (**Boulos 1983**).