



**A REVIEW STUDY ON VALUABLE AYURVEDIC PLANT *CUMINUM*
CYMINUM LINN: APIACEAE**

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ABSTRACT

Cuminum cyminum Linn., belonging to the family Apiaceae. It is commonly called as “Jeera” a spice which is very common world wide. It is also used as preservatives in some foods like pickles and chutneys. The whole plant is an important ingredient of a number of Ayurvedic

and Siddha formulations. It have many medicinal properties like antibacterial activity, antioxidant, anti-inflammatory, and antihyperglycemic effects. The present paper deals with detail botanical description, chemical overviews and Pharmacological review studies of this medicinal plant.

KEY WORDS: Antibacterial activity, Anti-inflammatory, Antioxidant, Antihyperglycemic.

INTRODUCTION

Cuminum cyminum Linn., belonging to the family Apiaceae. Cumin plant is among the oldest crops in south Mediterranean Sea, parts of Africa and the Middle East. This plant is compatible with various environmental conditions. Some other specifications such as planting and harvesting dates, low water and fertilizer consumption, lack of compatibility with other crops planting and harvesting time, high economic value and high investment in this crop indicates the importance of planting this plant in crop rotation (Hematikakhaki and Senoi Mohases, 2001). India is one of the major producer and consumer of cumin in the world. Almost 80% of the crop cultivated is consumed in India itself. Major producing areas are in Rajasthan and Gujarat (Patel., et al, 2014).

Cuminum cyminum L., (Cumin) commonly called as “Jeera” a spice which is very common world wide for use in food preparation and culinary purposes. It is also used as preservatives in some foods like pickles and chutneys, etc. It also possesses medicinal properties and have a profound effect on human health, since it affect many functional processes. [Ansari, 1998] The active principles in the cumin may increase the motility of the gastro-intestinal tract as well as increase the digestion power by increasing gastro-intestinal enzyme secretions.

This spice is an excellent source of minerals like iron, copper, calcium, potassium, manganese, selenium, zinc and magnesium. It also contains very good amounts of B-complex vitamins such as thiamin, vitamin B-6, niacin, riboflavin, and other vital anti-oxidant vitamins like vitamin E, vitamin A and vitamin C. The seeds are also rich source of many flavonoid phenolic anti-oxidants such as carotenes, zeaxanthin, and lutein (Parasar et al., 2014). It is valued for aroma and its medicinal and therapeutic properties like anti-inflammatory, antibacterial activity, antioxidant and antihyperglycemic effects (Bakhru et al., 2001; Agnihotri et al., 1996; Dhandapani et al., 2002; Roman-Romas et al., 1995; Satyanarayan et al., 2004).

BOTANICAL DESCRIPTION

C. cyminum is an annual herbaceous plant which grows up to 15-50 cm height somewhat angular and tends to droop under its own weight. It has a long, white root. The leaves are 5-10 cm long, pinnate or bi pinnate, with thread-like leaflets and blue green in color and are finely divided, generally turned back at the ends. The leaves are highly dissected. Whitish-red flowers are on a compound umbel (arrangement of flowers looks like an umbrella). The fruit is an elongated, oval shaped schizocarp (an aggregate fruiting body which doesn't break open naturally and has two single seeded units called mericarps). The fruits are similar to fennel seeds, when chewed has bitter and pungent taste. The fruit are thicker in the middle, compressed laterally about 5 inch long, containing a single seed. [Ghahreman, 1994; Anonyous, 1985]

CLASSIFICATION

Kingdom : Plantae

Division : Magnoliophyta

Class : Magnoliopsida

Order : Apials

Family : Apiaceae

Genus : Cuminum

Species : *Cuminum cyminum*



Fig 1: Seed of *Cuminum cyminum*

CHEMICAL CONSTITTUTES

The leaves contains Flavonoids (carotenes, zeaxanthin, and lutein) [Sharma, 2012] glycosides (containing quercetin, kaempferol), P-coumaric, rosmarinic, trans-2-dihydrocinnamic acids and resorcinol. [Tabbasum, 2012] The roots contains Quercetin, stem contains P-coumaric, rosmarinic, trans-2-dihydrocinnamic acids and resorcinol and flowers contains vanillic acid. [Battaieb, 2010] The fruit pericarp contains high amount of tannins which change color in presence of Iron contained compounds. The seeds must contain at least 7% of oil, 13 & resin and 2.5-4% essential oil. The maximum total crude ashes are 9.5% and the maximum acid insoluble ashes are 2% with no more than 9% humidity. [Kafi, 2002]

PHARMACOLOGICAL POTENTIAL

Anti microbial activity: Limonene, eugenol, α - and β -pinenes and some other minor constituents have been found in cumin oil and suggested as the active antimicrobial agents (Johri,2011 and Dorman and Deans, 2000). Cumin seed oil and alcoholic extract inhibited the growth of *Klebsiella pneumonia* and its clinical isolates by improvement of cell morphology,capsule expression and decreasing urease activity.Cuminaldehyde is the main active compound of Cumin for this property (Derakhshan et al. 2008 and Derakhshan et al., 2010).

Antiepileptic activity: The essential oil of Cumin shows the activity against epilepsy induced by pentylenetetrazole. [Sharma, 2012]

Hypolipidemic activity

The methanolic extract and aqueous extract of *Cuminum cyminum* shown significant reduction in lipid profiles at different doses. The activity of the drug may be due to the presence of phytoconstituents as terpenoidal glycosides and phenolic compounds confirmed by qualitative analysis and found literature of the plant drug [Shrivastava et al., 2013].

Alzheimer activity

Memory enhancing activity of cumin was study by the conditioned avoidance response using cooks pole climbing apparatus in normal and scopolamine induced amnestic rats. [Kopulla, 2011]

Dietary fiber activity

The cumin does not have any commercial value has been evaluated as a new source of dietary fiber for its quality, physicochemical characteristics, and application potential.^[17]

Ophthalmic activity

Cumin may delay the development of cataracts as demonstrated in diabetic rats. An aqueous extract of cumin delayed progression and maturation of streptozotocin-induced cataracts in rats by preventing glycation of total soluble protein and alpha-crystallinin the lenses. [Sharma, 2012]

Anti-osteoporotic activity: The presence of phytoestrogens in Cumin has been reported which related to its anti-osteoporotic effects. Methanol extract of Cumin showed a significant reduction in urinary calcium excretion and augmentation of calcium content and mechanical strength of bones in animals. [Shrike, 2008]

Antioxidant activity: The antioxidant activity of aqueous extract of cumin seed indicate that less amount of cumin was needed for scavenging the superoxide radicals. Inhibition of lipid peroxide and hydroxyl as compared to ascorbic acid. [Saini, 2014] The Cumin oil also has high antioxidant activity mainly due to the presence of monoterpene alcohol. [Gohari, 2014]

CONCLUSION

Numerous phytochemical and pharmacological studies have been conducted on seeds of *Cuminum cyminum*. The present study supports the potential of *C. cyminum* as a medicinal seeds. *C. cyminum* is a good source for useful drugs and it is suggested that further work is require for the activity of these plants.

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