Cyminum Cuminum

TAXONOMICAL CLASSIFICATION:[1]

Kingdom: Plantae

Phylum: Spermatophyta

Subphylum: Angiospermae

Class: Dicotyledonae

Order: Apiales

Family: Apiaceae

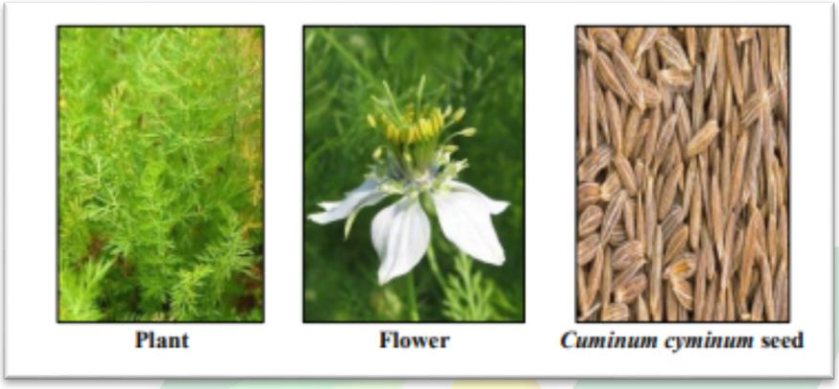
Genus: Cuminum

Species: Cyminum Cuminum

INTRODUCTION:[2]

Cuminum cyminum L., belonging to the family Apaiaceae, is one of the old cultivated medicinal food herbs in Asia, Africa and Europe. This plant is well-known as Cumin and named Zireh-Sabz or Cravieh in Persian language. Its seeds have been commonly used for culinary and flavoring purposes and folklore therapy since antiquity in various countries. There are two species of Cuminum which growing wildly in Iran, C. cyminum L (Zireh-Sabz means green Cumin) and C. setifolium Boisskos. Pol (Zireh-Sefid means white Cumin). Some literature reported that C. setifolium is the sub-species of C. cyminum 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. It contains 2.5 to 4.5% volatile oil, 10% fixed oil and proteins. Volatile oil mainly consists of 30 to 50% cuminaldehyde, small quantities of α-pinene, β-pinene, phellandrene, cuminic alcohol, hydrated cuminaldehyde and hydro cuminine which make it suitable for medicinal purpose.



PROPERTIES AND USES: [3,4]

- Antidiabetic
- Neuroprotective
- Cardioprotective
- Chemopreventive
- Anti Inflammatory
- Antioxidant
- Digestive Stimulant
- Dyspepsia
- Chronic Diarrhea
- Acute Gastritis
- Anti Cancer
- Hypolipidemic And Hypotensive Effects
- Analgesic Activity
- Immunomodulatory Action
- Antimicrobial Activity
- Gastroprotective Effect

- Nephroprotective Effect
- Hepatoprotective Effect
- Pulmonary-Protective Activity
- Anti-Asthmatic Effects
- Antifungal

SIDE EFFECTS OF EXCESS CONSUMPTION:[5]

- Increased risk of bleeding
- Respiratory complications
- Dermatitis

DOSAGE: [6]

- Cumin Churna - ½ to 1 teaspoon twice a day.
- Cumin Oil - 1-2 drops twice a day.

RESEARCH:

1. The aim of this research is to assess the chemical components and antioxidant effects of the seed essence of cumin plant. The seed essence from southwest mountains of Behabad, Yazd was extracted by Clevenger apparatus, then segregation and recognition of components was performed by Gas Chromatography(GC) and Gas Chromatography-Mass Spectrometry(GC-MS) methods. The DPPH test was used for estimating antioxidant effects and Follin-Ciocalteu method was used for estimating the quantity of phenol compounds. This study was an applied research. Components identification revealed that propanal (26.19%), 1-phenyl-1-butanol (16.49%), γ-Terpinene (13.04%) and benzene methanol (25.4%) had the highest percentage in the essence. The antioxidant test showed a high antioxidant effect with IC50 of 1.49 µg/mg and a high phenolic component percentage of about 162.62 mg/g. Hence the result of this research showed a much higher antioxidant activity for native Cuminum Cyminum of Yazd province comparing the previous similar studies about this plant in other areas. [8]

2. The present work was done to study the role of *C. cyminum* supplementation on the plasma and tissue lipids in alloxan diabetic rats. Oral administration of 0.25 g kg−1 body weight of *C. cyminum* for 6 weeks to diabetic rats resulted in significant reduction in blood glucose and an increase in total haemoglobin and glycosylated haemoglobin. It also prevented a decrease in body weight. *C. cyminum* treatment also resulted in a significant reduction in plasma and tissue cholesterol, phospholipids, free fatty acids and triglycerides. Histological observations demonstrated significant fatty changes and inflammatory cell infiltrates in diabetic rat pancreas. But supplementation with *C. cyminum* to diabetic rats significantly reduced the fatty changes and inflammatory cell infiltrates. Moreover, *C. cyminum* supplementation was found to be more effective than glibenclamide in the treatment of diabetes mellitus.[9]

3. The essential oil of fruits of *Cuminum cyminum* L. (Apiaceae), from India, was analyzed by GC and GC-MS, and its antifungal activity was tested on dermatophytes and phytopathogens, fungi, yeasts and some new *Aspergilli*. The most abundant components were cumin aldehyde, pinenes, and *p*-cymene, and a fraction of oxygenate compounds such as alcohol and epoxides. Because of the large amount of the highly volatile components in the cumin extract, we used a modified recent technique to evaluate the antifungal activity only of the volatile parts at doses from 5 to 20 µL of pure essential oil. Antifungal testing showed that *Cuminum cyminum* is active in general on all fungi but in particular on the dermatophytes, where *Trichophyton rubrum* was the most inhibited fungus also at the lowest dose of 5 µL. Less sensitive to treatment were the phytopathogens. [10]

4. Cuminum cyminum (Apiaceae) a herb collected from the Chirala region, A.P. India. Phytochemical studies of Cuminum cyminum, ethanolic fraction subjected to column chromatography and estimation of total flavanoid content and to evaluate antidepressant activity of methanolic extract of Cuminum cyminum. The plant powder was subjected to continuous hot extraction in Soxhlet Apparatus & extracted successively with methanol as solvent. The extracts prepared were tested for the type of chemical constituents present by known qualitative tests. Total chemical content of methanolic extract of Cuminum cyminum were done. In vivo Antidepressant activity of methanolic extract was evaluated using Tail suspension method(TST), Forced swimming test (FST) methods in physically depressed rats. Statistical analysis was performed by one-way analysis of variance (ANOVA) followed by the Tukey‟s test for multiple comparisons.[11]

5. In the present study, antibacterial effects of *Cuminum cyminum* Linn. essential oil against multidrug resistant (MDR) *Escherichia colistrains* isolated from urinary tract infections were studied, using microdilution method. A total of 12 *E. colistrains* were isolated from urine cultures of hospitalized patients (Zabol, southeastern Iran) suffering from urinary tract infection during 2011-2012. After bacteriological confirmatory tests, minimum inhibitory concentrations (MICs) of the essential oil of *C. cyminum* Linn. were determined using microdilution method. Essential oil of *C. cyminum* Linn. was obtained by hydro-distillation and the MICs were investigated to characterize the oil antimicrobial activities. All of *E. coli* isolates were resistant to four of the antibiotics including ceftazidime (50%), cefixime (41.6%), tetracycline (75%) and erythromycin (58.3%). The highest MIC value (250 ppm) was observed against two antibiotics and the lowest (10 ppm) against one antibiotic. *C. cyminum* Linn essential oil has a potent antimicrobial activity against *E. coli* MDR strains. Our study confirms the use of this essential oil as an antibacterial agent. However, further research will be required before its therapeutic application. [12]

PRECAUTIONS & WARNINGS: [7]

- Pregnancy and breast-feeding: There isn't enough reliable information to know if cumin is safe to use as a medicine when pregnant or breast-feeding. Stay on the safe side and stick to food amounts.
- Bleeding disorders. Cumin might slow blood clotting. In theory, cumin might make bleeding disorders worse.
- Diabetes. Cumin might lower blood sugar levels in some people. Watch for signs of low blood sugar (hypoglycemia) and monitor your blood sugar carefully if you have diabetes and use cumin.
- Surgery: Cumin might lower blood sugar levels. Some experts worry that it might interfere with blood sugar control during and after surgery. Stop using cumin at least 2 weeks before a scheduled surgery.

INTERACTIONS WITH MEDICATIONS: [7]

- Moderate Interaction

  Be cautious with this combination

- Medications for diabetes (Antidiabetes drugs) interacts with CUMIN

  Cumin might decrease blood sugar. Diabetes medications are also used to lower blood sugar. Taking cumin along with diabetes medications might cause your blood sugar to go too low. Monitor your blood sugar closely. The dose of your diabetes medication might need to be changed. Some medications used for diabetes include glimepiride (Amaryl), glyburide (DiaBeta, Glynase PresTab, Micronase), insulin, pioglitazone (Actos), rosiglitazone (Avandia), chlorpropamide (Diabinese), glipizide (Glucotrol), tolbutamide (Orinase), and others.

REFERENCES:

1. https://www.cabi.org/isc/datasheet/17194
2. Gohari, Ahmad & Saeidnia, Soodabeh. (2011). A Review on Phytochemistry of Cuminum cyminum seeds and its Standards from Field to Market. Pharmacognosy Journal. 3. 1-5. 10.5530/pj.2011.25.1.
3. Srinivasan, Krishnapura. (2018). Cumin (Cuminum cyminum) and black cumin (Nigella sativa) seeds: Traditional uses, chemical constituents, and nutraceutical effects. Food Quality and Safety. 2. 10.1093/fqsafe/fyx031.
4. https://academic.oup.com/fqs/article/2/1/1/4823052
5. Hadi A, Mohammadi H, Hadi Z, Roshanravan N, Kafeshani M. Cumin (Cuminum cyminum L.) is a safe approach for management of lipid parameters: A systematic review and meta-analysis of randomized controlled trials. *Phytother Res.* 2018;32(11):2146-2154. doi:10.1002/ptr.6162
6. https://www.1mg.com/ayurveda/cumin-33
7. https://www.webmd.com/vitamins/ai/ingredientmono-635/cumin
8. Haghiroalsadat F, Vahidi A, Sabour M, Azimzadeh M, Kalantar M, Sharafadini M. The Indigenous Cuminum Cyminum L. of Yazd Province: Chemical Assessment and Evaluation of its Antioxidant Effects. JSSU. 2011; 19 (4) :472-481
   URL: http://jssu.ssu.ac.ir/article-1-1634-en.html
9. https://www.sciencedirect.com/science/article/abs/pii/S1043661802001317
10. https://www.tandfonline.com/doi/full/10.3109/13880200903283715
11. https://wjpr.net/download/article/1604122175.pdf
12. Bokaeian M, Shiri Y, Bazi S, Saeidi S, Sahi Z. Antibacterial activities of *Cuminum cyminum* Linn. Essential Oil Against Multi-Drug resistant *Escherichia coli*, Int J Infect. 2014 ; 1(1):e18739. doi: 10.17795/iji-18739.