

***Ammi visnaga* L.**  
Apiaceae (Umbelliferae)



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### ■ Morphological Description

Annual, erect, glabrous herb with branched stem, ovate leaves, basal unipinnatisect, upper ones sessile to subsessile, umbels mainly terminal, rays, dense (ca 80 per umbel), with very numerous long stiff rays and white flowers, the rays spread in flower and become contracted in fruit, bracts of the involucre, long, filiform and tripartite. Fruits are ovoid-oblong brownish with violet tinge, laterally compressed with thick ribs, glabrous.

### ■ Geographical Distribution

**Local:** Growing mainly in the Nile region, rare in the Eastern Mediterranean region.

**Regional:** North Africa

**Global:** North America, Argentina, Chile, Mexico, Europe, Temperate, Southwestern Asia, Atlantic Islands, Ethiopia.

### ■ Ecology

*Ammi visnaga* L. is native to North Africa. It is a member of the mesophytic community of cultivated fields, where the plant grows among the crops on canal banks and in neglected areas close to fields. It grows wild in the Middle East and around the Mediterranean. It grows mainly in the northern part of the Delta with limited cultivation. It is naturalized in Australia and South America. The tiny fruits containing the seeds are picked before they have fully ripened.

### ***Ammi visnaga* (L.)**

Lam. Fl. Fr. 3:462 (1778)

*Daucus visnaga* L. Sp. Pl. ed. 1,243 (1753).

### Names

**Arabic:** Khillah- Khelal خلة- خلال ,

Killah Baladi خلة بلدى ,

Cazar Sheitani جزر شيطاني ,

Kammoun Habashi كمون حبشى

**Berber:** Tabellaout

**English:** Pick-tooth, Tooth pick, Bishop's weed

**French:** Herbe aux cure-dents

### ■ Status

The plant is easily cultivated as a winter crop in Egypt. However, cultivation is necessary to obtain enough yield for the pharmaceutical industry. Numerous studies have been undertaken as regards the effect of manure and fertilizers on the yield of the plant. The plant is safe and is not subject to threatening impacts.

### ■ Part(s) Used

The fruit.

### ■ Toothpicks

At fruiting, the rays become frutescent, curved and are used as toothpicks.

### ■ Collection

The tiny fruits containing the seeds are picked in late summer before they have fully ripened.

### ■ Preparation

Infusion, decoction

### ■ Uses

Oral

### ■ Constituents

Furanochromones (-py-ones): 2-4% comprising khellin (0.3-1.2%), visnagin (0.05-0.3), khellol and its glucoside, khellenin, khellinol, ammiol and its glucoside, visammilol, khellinone, visnaginone.

Pyranocoumarines (visnagens): 0.2-0.5% comprising visnadin, samidin and dihydrosamidin.

Furanocoumarines: traces of xanthotoxin and ammoidin

Flavonoids: 0.02-0.03% comprising quercetin and isorhamnetin and their 3-sulphates as well as kaempferol.

Volatiles: camphor, carvone, (-terpineol, terpinen-4-ol, linalool, cis and trans linalool oxides).

Fixed oil: 12-18%

Protein: 14%.

### ■ Pharmacological Actions and Toxicity

The drug is spasmolytic (smooth muscles), especially on the musculature of the bronchi, gastrointestinal tract, biliary tract, urinogenital system, the coronary vessels (coronary dilator), and also as a diuretic (volumetric and urinary antispasmodic). Khellin, which is now commercially available in tablets and injection, is a potent selective coronary vasodilator and bronchodilator. It is used in the treatment of coronary insufficiency, angina pectoris, bronchial asthma, vitiligo and psoriasis, and for the removal of small bladder and kidney stones.

### ■ Pharmacopoeia

Egyptian Pharmacopoeia (1972).

### ■ Traditional Medicine and Indigenous Knowledge

**History:** The Arabs discovered centuries ago that the small, greyish, egg-shaped, visnaga could ease a multitude of ailments, including the stabbing pain caused by a reduction in the flow of blood to the heart. Khellin, the substance in the fruits that accomplishes this feat, is described by scientists today as a selective coronary vasodilator. However, khellin is not without side effects. Researchers have found that it has a cumulative toxicity. Its active principles build-up in the body when the drug is taken over a period of time, and can cause nausea and vomiting. For this reason, the drug is no longer used in the United States. However, it is still employed by doctors in the regions around the Mediterranean Sea where it is originated and where it grows profusely.

It has been used for the treatment of psoriasis. The ancient Egyptians rubbed red, scaly skin patches,

presumably psoriasis, with the Ammi visnaga plant, and then the patients sat in the sun. Ammi visnaga fruits have long been used in Egypt, as a diuretic for renal colic and ureteric stones, angina pectoris, the coronary vessels, cardiovascular disorders and asthma.

A new therapeutic product has been produced as a result of an Egyptian discovery (Professors of the Pharmaceutical Science Department, National Research Center, Egypt) for the treatment of vitiligo and psoriasis.

### ■ Traditional Medicinal Uses

- Kidney stones
- Asthma
- Bronchitis
- Lithontripic
- Diuretic
- Whooping cough
- Circulatory problems
- Vasodilator

**Other uses of the plant:** The fruiting pedicel is used as a toothpick while the seeds have been used as a tooth cleaner. Also, the row leaves are chewed for their aromatic flavour.

### ■ Pharmaceutical Products in the Markets

Psorivil (Khellin), (Memphis).

Kellagon (Mepaco).

Glucolynamine (Memphis).

Khellalgin (Misr)

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