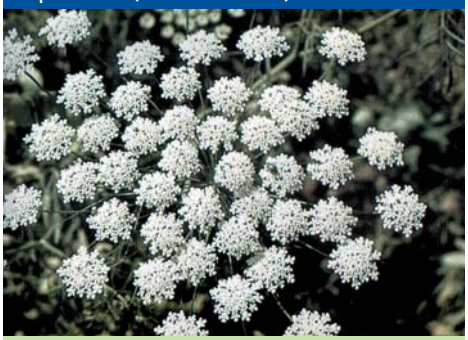
Ammi majus L.
Apiaceae (Umbelliferae)



Compiled by: Prof. F. M. Hammouda, Prof. S. I. Ismail, Dr. N. S. Abdel-Azim and Dr. K. A. Shams
Edited by: Prof. K. H. Batanouny

Ammi majus L.

Ammi majus L. Sp. Pl. ed. 1,246 (1753).
Apium ammi Crantz, Strip. Austr 3: 109 (1767).

Names
Arabic: Khillah خلة.
Killah shaytani خلة شيطانى
Berber: Athrilal, Thalilen, Lattilel, Akhella
English: Bishop's weed
French: Ammi commun

Morphological Description

Glabrous annual plant with much branched stem, erect, ridged, 30-100 cm in height. Leaves are greenish-glaucous, triangular ovate or ovate-oblong with long petioles, basal leaves grow in rosette, umbels 8-50 rays with small white flowers with indented petals, involucre with numerous pinnatified bracts very elongated towards the tip. Fruit is 105 mm, small, oblong, prominently ribbed, ovoid achenes of 1.5-2 mm, laterally compressed, forming 2 small sized mericarps surrounded by a disk shaped stylopod and 2 divergent curved styles, persisting carpophore on inflorescence after fruit fall.

Geographical Distribution

Local: Fields of winter crops in the Nile Delta and Valley, also in the Oases and the Mediterranean region.
Regional: North Africa; all over the countries of the region.
Global: Middle East, Europe and North Africa.

Ecology

The plant grows as a weed in the fields of winter crop cereals like wheat and barley. It is considered a bad weed in these fields and affects the crop's yield.

Status

The plant is fairly common in the Delta Valley fields. The plant is an annual winter weed growing mainly in wheat and barley fields. It is considered a menace to cultivated fields due to its invasive action. However, due to its importance in the pharmaceutical industry, it has been cultivated. The companies using the drug import Ammi fruits from Morocco.

Part(s) Used

The small ovoid fruit and leaves.

Collection

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

Preparations

Infusion, decoction and powder

Use:

Oral, external and creams.

Constituents

Coumarins and coumarin glycosides. The fruit yields not less than 0.5% of ammoidin (xanthotoxin), 0.3% ammidin (imperatorin), and 0.01% of majudin (bergapten). Furanocumarins have also been produced by cell suspension cultures of *Ammi majus.*

Pharmacological Action and Toxicity

The drug should be used cautiously, since phototoxic dermatitis (cellular damage) following its use for vitiligo has been reported.

Pharmacopoeia

Egyptian Pharmacopeia 1984.
British Pharmacopeias 1968, 1973.

Phytopharmaceutical Products

Meladinine (Memphis)
Neo-Meladinine (Memphis)

Traditional Medicine and Indigenous Knowledge

History: As early as 2000 B.C. in Egypt, the juice of *Ammi majus*, which grows throughout the Nile River valley as a weed, is reported to have been rubbed on patches of vitiligo and patients encouraged to lie in the sun afterwards. Even today, Egyptian herbalists sell a yellowish brown powder made from *Ammi majus* seeds for the treatment of leukoderma. In 1946, a technician from a medicinal research laboratory developed a kidney problem and treated himself with a Middle Eastern herbal remedy, Khella. The technician also had angina, which improved dramatically while he was taking the herb.
It was an Egyptian, Professor Abdel Monem El Mofty, of the Cairo University Medical School Department of Dermatology, who studied Egyptian folk medicine plants and began the development of modern photochemotherapy (PUVA) for vitiligo and psoriasis. In the 1940s, he used crystalline methoxsalen (8-MoP, xanthotoxin) followed by sunlight exposure to treat vitiligo.

Traditional Medicinal Uses

- Anti asthmatic.
- Anti-hypoglycemic
- Antispasmodic
- Carminative
- Digestive problems
- Diuretic
- Skin diseases (vitiligo and psoriasis)

Other uses of the plant: The plant is used as a preservative and against Snakebites.

References

El Gamal, M. H. A.; Shalaby, N.M.M.; Duddeck, H. and Hiegemann, M. (1993). "Coumarins and coumarin glycosides from the fruits of *Ammi majus* L." phytochemistry 34(3): 819-823.

Fahmy, I.R. and Abu-Shady, H., (1947). "Isolation of ammoidin from *Ammi majus*". Quart. J. Pharm. Pharmacol; 20: 281.

Fahmy, I.R. and Abu-Shady, H., (1948). "Isolation and properties of ammoidin, ammidin and majudin". *Ibid*; 21: 499.

Hamerski, D. and Matern, U. (1988). "Elicitor-induced biosynthesis of psoralens in *Ammi majus* L.suspension cultures. Microsomal conversion of dimethylsubersin into (+) Marmesin and psoralens" Eur. J. Biochem., 171(1-2): 369-375.

Schoenberg, M. and Sina, A. (1947). "xanthotoxin from the fruit of *Ammi majus*", Nature, 160: 468.

General References

Batanouny, K. H., (1999). "Wild Medicinal Plants in Egypt". (With contribution of: E. Aboutabl, M. Shabana & F. Soliman). With support of the Swiss Development Co-operation (SDC). Academy of Scientific Research and Technology, Egypt. The World Conservation Union (IUCN), Switzerland. pp. 33-36.

Boulos, L. (2000). "Flora of Egypt", volume two, PP. 168-170, printed by Al Hadara Publishing, Cairo, Egypt.

Dan Kenner, Yves Requena (2001). "Botanical Medicine, A European Professional Perspective" pp.196, Paradigm Publications 44, Linden Street, Brookline, Massachusetts 02445 USA.

Duke, J. (1997): "The Green Pharmacy, The Ultimate Compendium of Natural Remedies from the World's Foremost Authority on Healing and Herbs". Pp. 80-81, 96, 113, 168-169, 180, 232, 350, 492, Rodale Press.