Ammi visnaga Fruit

Proposed For Development Version 0.1

Ammi visnaga Fruit

**DEFINITION**
The article consists of the dried ripe fruits of *Ammi visnaga* (L.) Lam. (Family Apiaceae). It meets the **Acceptance criteria** under the Assay.

**SYNONYMS**
*Ammi daucoides* Gaertn.
*Ammi dilatatum* St.-Lag.
*Ammi visnaga* var. *longibracteatum* Zohary
*Apium visnaga* (L.) Crantz
*Carum visnaga* (L.) Koso-Pol.
*Daucus gingidium* L. ex DC.
*Daucus visnaga* L.
*Daucus laevis* Salisb.
*Selinum visnaga* Krause

**POTENTIAL CONFOUNDING MATERIALS**
*Ammi majus* L.

**SELECTED COMMON NAMES**
**Arabic:** ﺧﻠﺔ (Khilla), ﺑﺬر ﺧﻠﺔ (bithr khilla), ﺳﻮاك اﻟﻨﺒﻲ (sewak en-nabi)
**Berber:** Tabellaout
**English:** Pick-tooth, tooth pick, toothpick ammi, toompick ammi, toothpickplant, bishop’s weed, lesser bishop’s-weed, bisnaga, khella
**French:** Herbe aux cure-dents, fruit de Khella
**German:** Zahnstocherkraut, zahnstocherkraut, Zahnstocherammeifruchte, zahnstocher-ammei, bischofskraut, bischofskrautfriichte, visnagafriichte,
**Italian:** Visnaga commune
**Portuguese:** Bisnagueira, visnagueira (Brazil)
**Spanish:** Fruto de visnaga, visanga, escuradentis
**Swedish:** Tandpetarsilja

**CONSTITUENTS OF INTEREST**

**Furanochromones:** Khellin, visnagin, khellol and its glucoside, khellenin, khellinol, ammiol and its glucoside, visammiol, khellinone, and visnaginone

**Pyranocoumarins:** Visnagan, visnadin, samidin, and dihydrosamidin

**Furanocoumarins:** Xanthotoxin and ammidin

**IDENTIFICATION**

- **A. Botanical Characteristics**
  - **Macroscopic:** Fruit ovoid or oblong ovoid, glabrous externally, marked with five distinct, pale brownish broad primary ridges and four inconspicuous dark secondary ridges. The fruit cremocarp (achenes) is rarely entire, usually separated into its two mericarps, with a part of the pedicel attached; entire cremocarps are those of young fruits; mericarps are small, plano-convex, ovoid lanceolate, up to 1-2 mm long, 0.5-1 mm wide, and about as thick as they are broad. The bifid stylopod on top of the fruit is brownish to greenish-brown with a violet tinge (distinction from *Ammi majus*), curving along the dorsal sides reaching down to the middle of the cremocarp in young fruit, and is smaller for older fruits.

  - **Transverse cut:** Mericarp cross section is almost pentagonal in outline. There are five vascular bundles, one below each primary ridge; and six vittae, four in the dorsal side, below each secondary ridge, and two in the ventral side; a large oily orthospermous
endosperm and a small apical embryo. The carpophore is single, not split, and passes at the apex into the raphe of each mericarp.

Transverse section: The epicarp consists of a single layer of polygonal cells, tangentially elongated, covered with a thin striated cuticle, with occasional crystals of calcium oxalate, a few stomata, and no hairs. The mesocarp is a wide zone consisting of parenchymatous cells; vascular bundles appear below each primary ridge, consisting of mainly tracheids and vessels; each vascular bundle forms a crescent around a comparatively large lacuna on the outer side (distinction from Ammi majus Fruit). Schizogenous vittae are present under secondary ridges, with a group of slightly radiating cells appearing toward the outer side of each vitta. The innermost layer of the mesocarp consists of large, polygonal, brown-walled cells, with thick porous inner walls. The endocarp is composed of narrow tangentially elongated cells with some showing parquet arrangement, and adheres to the brown testa which is formed of similar but wider and somewhat shorter cells. The endosperm consists of polygonal, thick-walled, cellulosic parenchyma cells, containing fixed oil and numerous small oval aleurone grains, each enclosing a minute rounded globoid and a micro-rosette crystal of calcium oxalate with a dark center. The carpophore is traversed by a vascular strand of fibers and spiral vessels.

• B. Thin-Layer Chromatography

CALL FOR SUBMISSION OF VALIDATED INFORMATION

Additional information including validation data will be required to complete the development of the Identification. For requirements, please see under "Identification" and related sections of the guidelines document "Monographs in the Herbal Medicines Compendium" at http://hmc.usp.org/about/general-noticesresources [1]

Interested parties are encouraged to submit their proposals to complete the monograph.

ASSAY

• CONTENT OF CONSTITUENTS OF INTEREST

CALL FOR SUBMISSION OF VALIDATED INFORMATION

Additional information including validation data will be required to complete the development of the Assay. For requirements, please see under "Composition" and related sections of the guidelines document "Monographs in the Herbal Medicines Compendium" at http://hmc.usp.org/about/general-noticesresources [1]

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CONTAMINANTS

• ARTICLES OF BOTANICAL ORIGIN, General Method for Pesticide Residues Analysis <561>: Meets the requirements

• MICROBIAL ENUMERATION TESTS <61>: The total aerobic bacterial count does not exceed 10^5 cfu/g, the total combined molds and yeasts count does not exceed 10^3 cfu/g, and the bile-tolerant Gram-negative bacteria does not exceed 10^3 cfu/g.

• ABSENCE OF SPECIFIED MICROORGANISMS <62>: Meets the requirements of the tests for the absence of Salmonella species and Escherichia coli

SPECIFIC TESTS

• DIFFERENTIATING AMMI VISNAGA FRUIT FROM AMMI MAJUS FRUIT
  Analysis: Boil about 50 mg of Ammi visnaga Fruit, finely powdered, with 5 mL of water for 1 min and filter. Add 1 or 2 drops of this decoction to 1 mL of sodium hydroxide solution (1 N in water).
  Acceptance criteria: Rose-red color is obtained within 2 min (distinction from Ammi majus Fruit, no rose-red color is formed).

• ABSENCE OF STARCH: Examine powdered Ammi visnaga Fruit under a microscope using water as a mounting medium. Add a few drops of iodine and potassium iodide TS1.
  Acceptance criteria: No blue color is observed.

• ARTICLES OF BOTANICAL ORIGIN, Foreign Organic Matter <561>: NMT 5%

• LOSS ON DRYING <731>
  Analysis: Dry 1.0 g of Ammi visnaga Fruit, finely powdered, at 105° for 2 h.
  Acceptance criteria: NMT 10%

• ARTICLES OF BOTANICAL ORIGIN, Total Ash <561>
  Analysis: 2.0 g of Ammi visnaga Fruit, finely powdered
  Acceptance criteria: NMT 7%

• ARTICLES OF BOTANICAL ORIGIN, Acid-Insoluble Ash <561>
  Analysis: 4.0 g of Ammi visnaga Fruit, finely powdered
Acceptance criteria: NMT 4%

ADDITIONAL REQUIREMENTS

• Packaging and Storage: Preserve in well-closed containers, protected from light and moisture, and store at room temperature.

• Labeling: The label states the Latin binomial and the part of the plant contained in the article.

• USP Reference Standards <11>
  USP Ammi visnaga Fruit Powder RS [to come]
  USP Khellin RS [to come]

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