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"SHATAPUSHPA (ANETHUM SOWA LINN.): A MULTIFACETED MEDICINAL HERB OF AYUVEDA"

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Abstract:

Shatapushpa (*Anethum sowa Linn.*), commonly known as Indian dill, is a well-known medicinal plant in Ayurveda, widely used for its carminative, digestive, and lactogenic properties. It belongs to the family Apiaceae and is primarily known for its seeds and essential oil, which contain bioactive constituents such as carvone, limonene, and flavonoids. In Ayurvedic classical texts, Shatapushpa is described as possessing madhura and tikta rasa, laghu and snigdha guna, ushna veerya, and madhura vipaka, with special efficacy as a Stanyajanana dravya (galactagogue). Pharmacologically, it exhibits antispasmodic, antimicrobial, antioxidant, and estrogenic activities. It is especially recommended for conditions like dyspepsia, flatulence, amenorrhea, and to promote lactation in postpartum women.

Key Words- Shatapushpa, *Anethum Sowa*, Indian dill, Therapeutic use, Pharmacological action.

INTRODUCTION

Etymologically the name "Shatapushpa" implies "a plant bearing hundred of fine flowers." highlighting it's delicate umbels. The plant is mentioned Charak Samhita,Sushruta ,Asthang Hridaya,Kasyapa Samhita,Nighantus under various contexts especially for it's Stanyavardhaka(galactogogue) and Deepan(digestive stimulant) properties.

It is used as a carminative,digestive,lactogenic and antispasmodic agent. The seeds of Shatapushpa are rich in essential oils containing active constituents like carvone,limonene and dillapiol which are responsible for it's therapeutic effects.Due to it's long history of traditional use and emerging scientific interest. Shatapushpa serves as an important plant for integrative healthcare.1

Toxonomical/Scientific Classification:[2]

Kingdom: Plantae

Subkingdom: Tracheobionta -Vascular plants

Division: Magnoliophyta -Angiosperms

Class: Magnoliopsida -Dicotyledons

Order: Apiales

Family: Apiaceae -Umbelliferae

Genus: Anethum

Species: *Anethum sowa Linn. ex Flem.*

Vernacular names:[3]

Table 1

Sanskrit	Satapuspa
Hindi	Sowa
English	Indian Dill, East Indian Dill
Marathi	Shepu
Gujarati	Savaa
Bengali	Sua
Tamil	Sathakuppai
Telugu	Sadakuppa
Malayalam	Sathakuppa
Kannada	Sadukuppa
Punjabi	Sowa
Urdu	Sowa

Synonyms[4]

Table 2

Shatapushpa	One with a hundred flowers
Madhura	Due to its mildly sweet taste
Mishi	Sometimes shared with fennel/dill
Sugandha	Fragrant herb
Suva	Sometimes used for Anethum species
Shataphala	hundred fruits

Rashpanchak[4]

Rasa- Madhura ,Tikta

Guna- Laghu, Snigdha

Veerya-Ushna

Vipaka- Madhura

Dosakarma – Vatahara,Kaphahara

Dosage – Churna 1-3gm[1]

Oil – As per requirement.

Kalpa – Shatapushpa Churna[1], Shatapushpa Taila[4], Shatapushpa Siddha Ksheera[6], Shatapushpa Ghrita[7], Shatapushpa Yoga[7].

Vedic Kala

Direct identification of Shatapushpa in Veda is limited,but inference-based references exists.

Atharva Veda- Contains references to herbs under poetic names for fertility and women's health, where Shatapushpa is cited as a herb used to support female reproductive health and enhance lactation.[5]

Classical categories

- Charak Samhita -Asthapanopaga Mahakashaya[8], Anuvasanopag mahakashaya[9], Upnaha Sweda[10], Prajata Stree Paricharya[11].
- Bhavprakash Nighantu- Haritakiadi Varga[12]
- Kaidev Nighantu -Aushadhi Varga[13]
- Madanpal Nighantu -Sundyadi Varga[14]
- Dhanvantari Nighantu - Shatapushpadi Varga[15]
- Raj Nighantu -Shatavhadi Varga[16]
- Kasyapa Samhita - Satpushpa Satavari Adhyaya[17]
- **Distribution**

Shatapushpa is widely distributed throughout India, especially in northern plains, sub-Himalayan regions, and central India, where it is cultivated and found in the wild. In Ayurveda, it is described as a cultivated herb used for culinary and medicinal purposes, particularly the seeds (beeja) and sometimes the whole plant (panchanga).

According to Dravyaguna texts and the Ayurvedic Pharmacopoeia of India, it grows well in temperate to warm climates and is cultivated as a seasonal herb in Punjab, Uttar Pradesh, West Bengal, Maharashtra, and Karnataka.[3]

Morphology

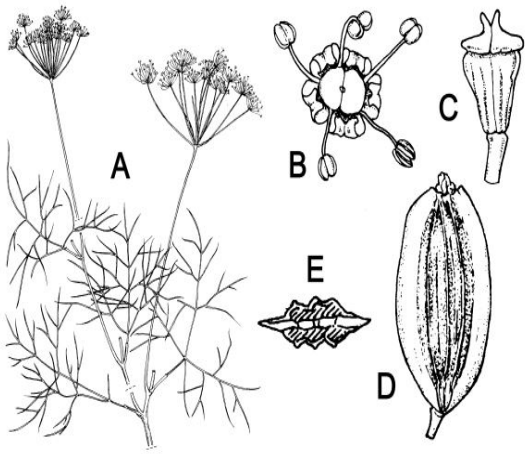

Figure : 1 – Shatapushpa (*Anethum sowa Roxb.)*[4]

A. Macroscopic

General Description[3]

- **Plant Type:** Annual herb, aromatic.
- **Height:** 2–3 feet tall.
- **Stem:** Slender, erect, hollow, branched.
- **Leaves:** Finely divided, feathery (multi-pinnate), soft, bluish-green in color.
- **Inflorescence:** Compound umbel (giving the name "Shatapushpa" – hundred flowers).
- **Flowers:** Small, yellow, actinomorphic, bisexual.
- **Fruit (Beeja):** Flattened, oval, light brown schizocarp, aromatic.
- **Root:** Taproot, white, thin and branched.
- **Odor:** Strong, aromatic fragrance due to essential oils.

Part Used in Ayurveda[1]**:**

- **Beeja (Fruits/Seeds):** Used in most Ayurvedic formulations.
- **Panchanga (Whole plant):** Sometimes used for fresh extract or decoction.

Seed[4]**:-**

1. Shape and Size

Shape: Small, flat, oval (elliptical-oblong)

Size: Approximately 3–5 mm long, 1 mm wide

Surface: Slightly curved with five prominent ridges on the dorsal side (commonly seen in Apiaceae family fruits)

2. Color

Pale brown to dark brown.Some seeds may appear slightly yellowish due to oil content

3. Odor

Aromatic and distinctive,Pleasant, warm, and similar to caraway or anise due to essential oils (mainly carvone)

4. Taste

Slightly bitter, pungent, and aromatic.

5. Texture

Dry and hard when raw.Becomes slightly oily when crushed due to volatile oil content

B. Microscopic

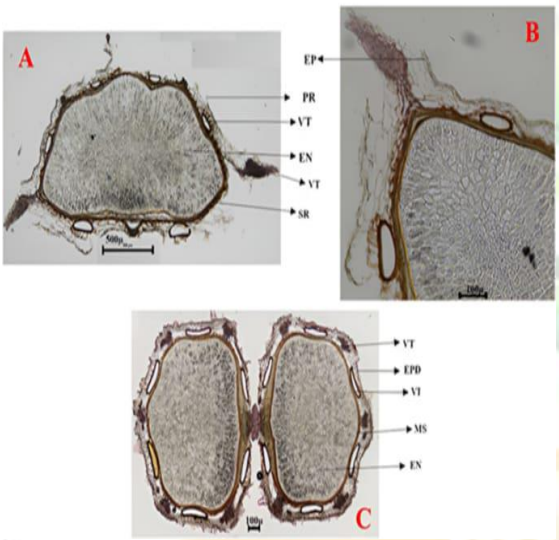

Figure 2 - Transverse Section of Shatapushpa *(Anethum Sowa Roxb.)* Fruit.[18]

Microscopic Characters of Shatapushpa (*Anethum sowa*) – As per API

The microscopic examination of the dried fruit (Beeja) of Anethum sowa shows the following features:

Transverse Section of Fruit:[19][20]

1. Pericarp (Fruit Wall)

Epicarp: Outermost layer, consists of a single layer of rectangular epidermal cells with a thin cuticle.

Mesocarp: Contains vascular bundles with fibers.

Oil ducts (Vittae): Typically 4-6 large oil duct **(**vittae) between the vascular bundles; a key feature of Apiaceae fruits.One oil canal per vallecula (groove) and additional ones in commissural region.

Endocarp: Inner layer next to seed, often crushed in mature fruit.

2. Vittae (Oil Canals) Large, oval-shaped secretory canals.

Filled with volatile oil (mainly carvone and limonene).Located between the ridges and on the commissural side.

3. Seed

Testa (seed coat): Compressed and fused with pericarp

Endosperm: Contains abundant fixed oil and aleurone grains (protein bodies)

Embryo: Small and located towards one side of the endosperm

Powder Microscopy of seed :[19][20]

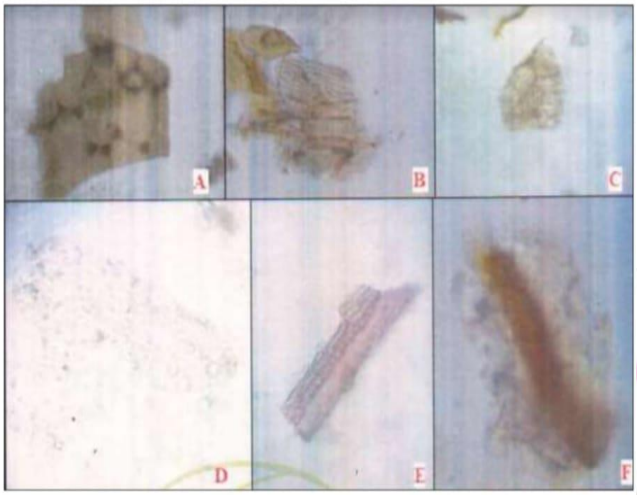

Figure:3 – Powder microscopy of Anethum sowa Roxb. A: Mesocarp cell with thick wall, B:Endocarp cell with surface view, C:Epicarp in surface view, D:Endosperm cells with Oil globules, E:Vascular Element , F:Fragments of vittae in surface view.[21]

When the seed is powdered and viewed under a microscope, you may observe:

Epicarp cells: Rectangular, thin-walled

Fibers: Elongated lignified fibers from vascular bundles

Fragments of vittae: Indicating presence of volatile oil

Aleurone grains: Oval, shiny, sometimes with rosette crystals of calcium oxalate

Oil globules: Shining droplets, especially in cleared mounts

Parenchymatous tissue with calcium oxalate crystals may be observed.

Types of Shatapushpa (Anethum sowa) in Ayurveda[3]

Classical Ayurvedic texts do not mention types of Shatapushpa explicitly, but Nighantus and Dravyaguna texts occasionally describe it in context with similar or related herbs like fennel *(Foeniculum vulgare)*, leading to two interpretations:

Commonly Recognized Types (Contextual):

1. **Desi Shatapushpa**

   Refers to *Anethum sowa Roxb. ex Flem.*

   Grown indigenously in India.

   Stronger aroma and sharper taste.

   Widely used in Ayurveda as Stanyajanana, Deepaniya, Pachaniya.

2. **Vilayati Shatapushpa (**Not classical, but used in practice)

Refers to *Anethum graveolens* (European Dill)

Imported or hybrid varieties used in modern herbal products.

Milder flavor and slightly different oil profile.

In Ayurvedic Nighantus, Shatapushpa is often listed with similar herbs like Mishi (Fennel) and Ajmoda, sometimes leading to confusion in regional usage. However, *Anethum sowa* is the authentic Shatapushpa used in classical Ayurveda.

There are no classical textual divisions of Shatapushpa into multiple types like "varna bheda" (varietal classifications) in texts such as Bhavaprakasha or Dhanvantari Nighantu. The "type" is understood contextually based on cultivation and identification with similar herbs.

Chemical Composition [3]

Carvone,Limonene,Flavonoids,Dillapiol,Coumarins,Essential oil.

Essential Oil Content:

Fruit contains 2–4% essential oil

Odor: Strong, aromatic

Primary oil content includes carvone (~30–60%) and limonene (~30–40%)

Medical Uses in Ayurveda

Karma –

Stanyajanana,Deepana,Pachana,Shulaprashamana,Vatanulomana,Krimighna,,Agnivardhaka,Grahi,Srotoshodhakala,Kaphahara. [4]

Rogaghanta -

Stanyakshaya ,Agnimandya ,Udara Shoola,Vata Vikara ,Krimi Roga ,Aruchi,Yoni Vyapad ,Grahani / Atisara ,Jvara,Netra roga,Gulma,Adhmama.[1][7]

Therapeutic uses

- Shatapushpa powder (2–3 g) with lukewarm milk is given once or twice daily to lactating women to enhance breast milk production.[22]
- Shatapushpa seeds (1–2 g) roasted and taken with rock salt before meals improves appetite.[23]
- Shatapushpa seed decoction (10–20 ml) twice daily helps relieve abdominal pain and bloating.[24]
- Powder of Shatapushpa (1–2 g) taken with warm water acts as a Vata-shamaka and relieves gas, pain, and bloating.[25]
- Shatapushpa seed powder with jaggery or warm water is used to expel intestinal worms.[26]
- Suskarsas – Non bleeding pile mass shall be fomented with a warm bolus of Vaca and

Satapushpa alomg with Snigdha dravyas.[1]

- Vatarakta – Oil prepared with the decoction of Satapushpa,Kustha and Madhuka may be useful.[4]
- Shatapushpa Siddha Ksheera or in combination with Ashok bark (50-100ml) fpr Arthavajanana.
- Shatapushpa Swarasa (10-15ml) with Gokshura churna (3gm) for Mutrala.
- Shatapushpa Arka mixed with honey or water 2-5 drop for relieves colic,flatulence in Paedriatric patients.[4]

Pharmacological properties[27][28][29]

1. Antimicrobial Activity

Effective against: E. coli, Staphylococcus aureus, Candida albicans, and other pathogens.

Mechanism: Disrupts microbial cell walls and inhibits microbial growth.Active constituents: Carvone, Limonene, Dillapiole.

2. Antioxidant Activity

Protects cells from oxidative damage caused by free radicals.Enhances the activity of endogenous antioxidant enzymes like superoxide dismutase (SOD) and catalase.Contributes to anti-aging and disease prevention (e.g., cardiovascular diseases, cancer).

3. Antispasmodic Activity

Relieves muscle spasms, especially in the gastrointestinal tract.Traditionally used to treat colic pain and intestinal cramps.Carvone is primarily responsible for smooth muscle relaxation.

4. Anti-inflammatory Activity

Reduces inflammation by inhibiting pro-inflammatory cytokines and enzymes like COX-2.Beneficial in arthritis, gastritis, and other inflammatory disorders.

5. Galactagogue Activity

Promotes milk secretion in lactating mothers.One of its most recognized traditional uses in Ayurveda.Possibly due to the stimulation of prolactin hormone.

6. Carminative & Digestive Stimulant

Enhances appetite, promotes digestion, and reduces flatulence. Helps manage indigestion, bloating, and stomach discomfort.

7. Estrogenic Activity

Mimics estrogen to some extent. Useful in managing menstrual disorders and menopausal symptoms.

Conclusion

Shatapushpa (Anethum sowa) is a time-honored medicinal plant deeply rooted in Ayurvedic tradition and widely recognized in modern herbal medicine. Revered for its deepana (appetizer), pachana (digestive), stanyajanana (galactagogue), and yoniroga hara (gynecological health-promoting) properties, Shatapushpa continues to be a versatile remedy for a range of ailments including digestive disorders, irregularities, and lactation issues.

Classical texts like Charaka Samhita and Bhavaprakasha Nighantu acknowledge its therapeutic importance, especially in Vata-Kapha disorders. Modern pharmacological studies further validate its traditional uses, menstrual highlighting its carminative, antispasmodic, antimicrobial, antioxidant, and estrogenic activities

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