



# TRACHYSPERMUM AMMI: A LITERATURE REVIEW

Dr. Aishwarya Ganesh Joshi<sup>1</sup>, Dr. Anupama S. Patil<sup>2</sup>

<sup>1</sup>P.G. Scholar, Dept.of Dravyagunavigyan, Loknente Rajarambapu Patil Ayurvedic Medical College and Research Centre, Urun, Islampur .

<sup>2</sup>Associate professor, Dept.of Dravyagunavigyan, Loknente Rajarambapu Patil Ayurvedic Medical College and Dravyagunavigyan,

## ABSTRACT :

*Ajwain* (*Trachyspermum ammi* (L.) Sprague ex Turril) is a dried seed and a well-known spice globally. Carom copticum is also the Latin name for this spice. In medieval Persian medical and pharmaceutical manuscripts, it is referred as Zenyan or Nankhah. *Ajwain* is widely recognized in both *Ayurveda* and Unani as a traditional Persian medication for thousands of years. This plant contains a variety of bioactive compounds of pharmacological importance, involving carbohydrates, fat, fiber, volatile oil, glycosides, protein, phenolic compounds, saponins, and mineral content. The *ajwain* extract is known as “*AjmodaArka*” in *Ayurveda*. Ethno pharmacological uses according to Vaidya gurus are coughs, colds, pain, headaches, heartburn, asthma, diarrhoea, painful menstruation, cholera, stomach discomfort, and smooth respiratory and kidney function. It has been used in modern medicine as Bronchodilator, Cardiac Stimulant, Carminative, Digestive Stimulant, Diuretic, Galactagogue, Hypoglycemic, Anti-inflammatory, Antiflatulent, Analgesic, Antimicrobial, Antihypertensive, and Antifilarial. Here, we summarized the phytochemistry along with pharmacognosy. Traditional uses showed significant activities that can be used for therapeutic approaches.

**Keywords:** *Ajwain*, Pharmacognosy, Chemical constitution, traditional uses.

## INTRODUCTION:<sup>1</sup>

*Ajwain* (*Trachyspermum ammi*) is native of Egypt and is cultivated in Iraq, Iran, Afghanistan, Pakistan, and India. In India, it is cultivated in Madhya Pradesh, Uttar Pradesh Gujarat, Rajasthan, Maharashtra, Bihar and West Bengal. *Trachyspermum ammi* L. belonging to family Apiaceae a highly valued medicinally important seed spice. The roots are diuretic in nature and the seeds possess excellent aphrodisiac properties. The seeds contain 2–4.4% brown coloured oil known as *ajwain* oil. The main component of this oil is thymol, which is used as gastrointestinal ailments, lack of appetite and bronchial problems. The oil exhibits fungicidal antimicrobial and anti-aggregatory effects on humans. *Ajwain* is traditional potential herbs, is widely used for curing various diseases in humans and animals. It is an important remedial agent for flatulence, atonic dyspepsia and diarrhoea. The seed of *ajwain* is bitter, pungent and it acts as anthelmintic, carminative, laxative, and stomachic. It also cures abdominal tumors, abdominal pains and piles and bears antiinflammatory and antioxidant activity Seeds contain an essential oil containing about 50% thymol which is a strong germicide, antispasmodic and fungicide. Thymol is also used in toothpaste and perfumery.

**AIMS AND OBJECTIVES:****Aims:**

The presented study was aimed to understand the tachyspermum ammi in the light of dravyagunavigyana.

**Objectives:**

1. to review the literature about the tachyspermum ammi.
2. to review the tachyspermum ammi in the context of dravyaguna vigyana.
3. to understand the morphology and ayurvedic context of tachyspermum ammi.

**MATERIALS AND METHODS:**

Personal recollection from various books, articles, research papers.

**Plant profile:<sup>2</sup>**

- Botanical name- Trachyspermum ammi Sprague Linn.
- Family: Apiaceae/Umbilliferae

**Synonyms:<sup>3</sup>**

\*Sanskrit: *Dipyaka*, *Yavinika*, *Uragandha*

\*Assamese: Jain

\*English: Bishop's weed

\*Hindi: Ajwain, Jevain

\*Bengali: Yamani, Yauvan, Yavan,  
Javan, Yavani, Yoyana

\*Gujrati: Ajma, Ajmo, Yavan, Javain

\*Kannada: Oma, Yom, Omu

\*Malayalam: Oman, Ayanodakan

\*Marathi: Onva

\*Oriya: Juani

\*Tamil: Omam

\*Telugu: Vamu

**Classification<sup>4</sup>:**

Kingdom: Plantae- Plant

Division: Magnoliophyta-Flowering plants

Class: MagnoliopsidaDicotyledons

Order: Apiales

Family: Apiaceae

Genus: Trachyspermum

Species: ammi

### Distribution and Habitat:

*Trachyspermum ammi* is native of Egypt and grows widely around Mediterranean Sea and in Southwest Asia<sup>5</sup> Distributed throughout India and is mostly cultivated in Gujarat and Rajasthan.<sup>6</sup>

### RASPANCHAK<sup>7</sup>

*Ras- Katu, Tikta*

*Guna-Laghu, Ruksha, Tikshna*

*Vipak-Katu*

*Veerya- Ushna*

### Pharmacognostic features

#### •Morphological/ Macroscopic features:<sup>8</sup>

It is widely grown in arid and semiarid regions where soils contain high levels of salts. Ajwain is a profusely branched annual herb, 60-90 cm tall. Stem is striated; inflorescence compound umbel with 16 umbellets, each containing up to 16 flowers; flowers actinomorphic, white, male and bisexual; corolla 5, petals bilobed; stamens 5, alternating with the petals; ovary inferior; stigma knob-like; fruit aromatic, ovoid, cordate, cremocarp with a persistent stylopodium; leaves pinnate, with a terminal and 7 pairs of lateral leaflets. Fruit, consists of two mericarps, grayish brown, ovoid, compressed, about 2 mm long and 1.7 mm wide, 5 ridges and 6 vittae in each mericarp, usually separate, 5 primary ridges.

**Microscopic features:**<sup>9</sup> Epicarp is composed of polygonal cells. In the mesocarpic region, reticulate and lignified parenchyma are seen at vascular strands. Endocarp consists of narrow elongated cells having a parquetry arrangement. Tracheids show helical thickening. Polyhedral, thick walled endosperm contains aleurone grains and oil globules. Vittae are also present. Vittae, long, slender composed of thin walled polygonal cells and is lined by an epithelium of small polygonal tubular cells.

#### Chemical constituents:<sup>10</sup>

Ajwainseed contains fiber (11.9%), carbohydrates (38.6%), tannins, glycosides, moisture (8.9%), protein (15.4%), fat (18.1%), saponins, flavone and mineral matter (7.1%) containing calcium, phosphorus, iron and nicotinic acid. Ajwain fruits yield 2% to 4% brownish essential oil, with thymol as the major constituent (35% to 60%). The nonthymol fraction (thymene) contains para-cymene,  $\gamma$ -terpinene,  $\alpha$ - and  $\beta$ -pinenes, dipentene,  $\alpha$ -terpinene, and carvacrol. Minute amounts of camphene, myrcene, and  $\alpha$ -3-carene also have been found in the plant. Alcoholic extracts contain a highly hygroscopic saponin. From the fruits, a yellow, crystalline flavone and a steroid-like substance has been isolated and it also contains 6-O- $\beta$  glucopyranosyloxythymol, glucoside and yields 25% oleoresin containing

12% volatile oil (thymol,  $\gamma$ -terpinene, para-cymene, and  $\alpha$ - and  $\beta$ -pinene).[17] The principal oil constituents of *T. ammi* are carvone (46%), limonene (38%), and dillapiolene (9%).

**Important preparations:**<sup>11</sup> *Ajmodadi churna, Ovadya guggul, Ajamoda arka, Ajamodadi vatak, Hingvahtaka churna.*

#### Disease review:

1) In abdominal pain, bloating Ajwain with *Saindhav, Sauvarchal, Yavkshar, Hing,* and *Amla* each 0.5 gm with honey is beneficial<sup>12</sup>

2) Insect bite: Ajwain leaves are crushed and applied on insect bite wound, it prevents sepsis in wound.<sup>13</sup>

3) *Deepan*-it acts as *deepan* because of its *katurasa* and *ushnavirya*<sup>14</sup>

- 4) *Pachan- Ajmoda* causes *aampachan* due to *katurasa* and helps in digestion<sup>15</sup>
- 5) *Aruchi- Yawani* is *ruchikar*.<sup>16</sup>
- 6) *Adhman* and *shool- yawani* causes *ampachan* , *vatanuloman*, mixture of *yawani* , *saindhav*, *saouvarchal* given for this.<sup>17</sup>
- 9) *Krimi- Yavani* or its *Arka* destroy *anukshakrimis*.<sup>18</sup>
- 10) *Gulmaand Udar- Yawani* with *ghee* helpful in *gulm* and in *Yawani* used with buttermilk in *udar* and *pleehodar*.<sup>19</sup>
- 11) *Shwaskaas- Yawani* used internally and also fore smoke usefull in *jeernkaas* and *shwas*.<sup>20</sup>

## RESULT:

This review concise literary data of *Trachyspermum ammi*.

## CONCLUSION:

Present article reviews taxonomy, pharmacognosy, chemical constituents, and pharmacological effects of *Trachyspermum ammi*. *Ajwain* has multiple effects like Anyihelminthic, nematicidal, digestive stimulant, hypolipidemic action, Antimicrobial, Antioxidant, Antitussive, Anti-inflammatory, Hepatoprotective, gastroprotective, antispasmodic, diuretic.

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