Botanical, Chemical & Therapeutic Profile: Ajwain Seeds

Comprehensive Multi-Angle Visual and Technical Analysis of Carom Seeds

*Fig 1. Four-angle high-resolution presentation of whole dried ajwain (**Trachyspermum ammi**) seeds.*

1. Botanical Overview & Taxonomy

Ajwain (***Trachyspermum ammi***), commonly known as carom seeds, bishop's weed, or ajowan, is an annual herbaceous plant belonging to the family Apiaceae. Despite being frequently referred to as "seeds," the harvested units are technically small, oval-shaped schizocarps featuring distinct striping and a pungent, thyme-like aroma.

The multi-angle visual layout above illustrates the grayish-brown coloration, rough striated surface, and teardrop morphology characteristic of premium grade carom seeds, which contain high concentrations of therapeutic essential oils.

Botanical Specifications

Family: Apiaceae

Genus: *Trachyspermum*

Species: *T. ammi*

Harvest Form: Dried schizocarp

Primary Active Compounds

Thymol: 35% – 60% (Antiseptic, pungent)

Gamma-terpinene: Herbal, citrus undertone

Para-cymene: Woody, aromatic note

2. Nutritional Composition & Phytochemical Profile

Ajwain is prized not just for culinary flavoring, but for its rich bioactive composition, particularly thymol, which gives the spice its potent medicinal properties.

Constituent / Nutrient (per 100g)	Concentration	Biological Activity
Carbohydrates	43.1 g	Macronutrient energy
Dietary Fiber	21.2 g	Digestive motility
Protein	17.1 g	Amino acid source
Calcium (*Ca*)	>1,400 mg	Bone mineralization
Essential Oil Yield	2.0% – 4.5%	Primary thymol delivery

> **Therapeutic Highlight:** Due to its high thymol content, ajwain has long been utilized in traditional Ayurvedic and Unani medicine as a powerful carminative, antispasmodic, and antimicrobial agent for treating digestive discomfort and respiratory congestion.

3. Culinary & Industrial Utilization

In culinary traditions, ajwain is heavily utilized in flatbreads (parathas), savory pastries (such as samosa dough), lentil dishes, and pickle spice mixes. Crushing or roasting the seeds releases their volatile oils instantly, transforming heavy or fatty dishes into easily digestible meals.