Chapter 4
Unveiling the Remarkable Ethnobotanical, Medical Marvels, and Biogenic Alchemy of Carom Seeds

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ABSTRACT

Use of plant is as old as human cultivation. Trachysperum ammi is native to Egypt and cultivated in Mediterranean regions.iTrachysperum ammi acts as good appetizer stomachie and laxative. Medicinal therapeutic and pharmaceutical potentials of carom plant is attributed to its bioavailability and phytochemical composition. Phytochemical studies have revealed the presence of alkaloids, steroids, glycosides, flavonoids, cumene, thymine. Medicinally it posseses pharmacological activities like antifungal, antioxidant, antimicrobial, broncho-dilating action. Its ethnobotanical uses are venomous insect bite, kidney stone, stomach tonic and acidity. Present review summarises phytochemical, ethanobotanical uses and pharmacological importance as well as their role in biogenic synthesis of important chemicals

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INTRODUCTION

Trachyspermum ammi of family Apiaceae is an annual herb and aromatic plant(A. S. Boskabady MH, Alavinezhad, 2014). It isianierrect minuteiy pubescent, branched and annual herb. Plant grows 1-2ft (60-90cm) in height. Inflorescence is compound umbel having 16 umbels each umbel contains upto 16 flowers corolla 5, petals bilobed stamen 5 and ovary inferior. Leaves pinnate. Upper leaves are smaller and shortly petiolate while lower leaves have longer petioles. Fruit is grayish brown Ovoid, consisting of two mericarps with prominent ridges(Parthasarathy et al., 2008). Stem is striate, leaves are distant, and 2-3 innately divided, segments linear. Flowers are white in colour. The seeds are small and yellowish brown in colour (Rohamare et al., 2013).

It is native to Egypt and cultivated in Mediterranean regions and in south-west Asian countries such as Iraq, Iran, Afghanistan and Pakistan. *T.ammi* is an Egyptian aborigine plant (Ahvazi et al., 2012). This plant grows in arid and semi arid fields in different regions of central Europe, Asia, India (most crops are in the states of Rajasthan, Gujarat, and West Bengal), Iran (especially eastern regions of Baluchistan), Iraq, Afghanistan, and Pakistan. The *Trachysperum ammi* seeds are hot, dry and strong in flavor and leave a slightly bitter after taste. The flavor of ajwain resembles to that of thyme due to the presence of similar flavoring compounds mainly thymol. it is used as spice for flavoring food (Jan et al., 2015). *T. ammi* belongs to the Apiaceae plants family and its seeds are used extensively as a food additive in India and mainly therapeutically effective, with hot nature. The seeds of *T. ammi* inherit a great potential to subside the cramping, flatulence, any abdominal discomfort due to the presence of certain bioactive compounds, which exhibit pharmacological or health benefits(Vitali LA & Capellacci L, 2016). The ajwain seeds are constituted of various important chemical constituents namely- carbohydrates (24.6%), proteins (17.1%)of the oil of Iranian and African C. copticum oil are carvacrol, γ- terpinene, and p-cymene while thymol (97.9%) is the main component of south Indian plant oil. It was also reported that thymol (45.9%), γ-terpinene (20.6%), and o-cymene (19%) are the major components of the oil of C. copticum but ethylene methacrylate (6.9%), β-pinene (1.9%), and hexadecane (1.1%) were the other constituents of the plant. Thymol (72.3%), terpinolene (13.12%), and o-cymene (11.97%) were also identified as constituents of C. copticum . Chemical composition of C. copticum in two areas in Iran was assessed and results showed that the plant in Kamfiruz contains γ-terpinene (48.07%), p-cymene (33.73%), and thymol (17.41%) compared to the composition of plant in Eghlid area which included γ-terpinene (50.22%), p-cymene (31.90%), and nerolidol (4.26%) as main components [12]., crude fat (21.1%), crude fiber (%), glycosides, tannins, saponins(K. Zomorodian, 2011).