The Essential Oil of *Elettaria cardamomum* Maton

Ebru Kuyumcu, F. Zehra Küçükbay

İnönü Üniversitesi Eczacılık Fakültesi Analitik Kimya Ana Bilim Dalı, Malatya, 44280, Türkiye
kuyumcu.ebru@gmail.com

Cardamom (*Elettaria cardamomum* Maton) is one of the most commonly used spices and is known as “the queen of spices” [1]. Cardamom of the Zingiberaceae family, is one of the world’s very ancient and expensive spices [2]. The plant is valued for its dried fruits [3]. The genus *Elettaria* is one of the few compact and small natural groups, whose origin is evergreen rainforests of South India and Sri Lanka from where it spread to other tropical countries [4]. This leafy perennial herb is originated from India and Sri Lanka and is commonly cultivated in southern India [5].

It is a herbaceous non-perishable perennial crop whose valuable parts, the seeds are useful as powder or whole pulses in spice mixtures like curries, beverages such as tea and coffee, baked foods and confectionaries, meat products, as flavours in biscuits, custards, wines and liqueurs [2]. In the Middle-East, cardamom along with coffee is traditionally used in making of a beverage *Gahwa* [6].

Its aphrodisiac properties make it useful in medicines that fight stress, obesity loss of appetite. It is also used as a perfume [2]. It is an essential ingredient of digestive stimulants and especially functions as warming stimulant to digestion. It is used to remove fats and as a cure for urinary and skin complaints in Indian Ayurvedic System of medicine [6]. The aromatic seeds are used as carminative, stomachic, desiccant, resolvent, digestive and anti-emetic in treatment of gastrointestinal disorders [7]. Its medicinal properties have been described against cardiac disorders, renal and vascular calculi, dyspepsia, debility, anorexia, asthma, bronchitis, halitosis besides gastrointestinal disorders [8].

Its essential oil has been analysed by many researcher and the major compounds found are 1,8-cineole (28.4 %) and α-terpinyl acetate (21.3 %) by Menon [1]. In the study of Gopalakrishnan et al., its seeds were extracted with supercritical carbon dioxide at different conditions of pressure, temperature, contact time, and moisture content to estimate the yield and compositional variations. The proportion of minor and major components (1,8-cineole, terpinyl acetate) also showed variations under different conditions of extraction [9]. According to Verma, cardamom effectively reduces blood pressure, enhances fibrinolysis and improves antioxidant status [12], and the study of Khalaf reveals that cardamom has antioxidant activity [10]. According as Kaushik, cardamom seems to have significant antibacterial activity and to be very useful in the discovery of novel antibiotic [5].

The objective of this study was to determine the essential oil composition of *Elettaria cardamomum* Maton. Cardamom was purchased from the local market in Mersin. The dried fruits of the plant were hydrodistilled for 3 h using a Clevenger-type apparatus. The plant was immersed in water and heated to boiling, after which the essential oil was evaporated together with water vapor and finally collected in condenser. The distillate was isolated and dried over anhydrous sodium sulphate. The oil was analyzed by GC and GC-MS. The percentage yield (%) of the oil calculated on a moisture-free basis was 0.99 % for *Elettaria cardamomum* (w/w). Sixty nine compounds were identified, representing 97.46 % of the oil. The major components were found to be 1,8-cineole (25.64 %), linalool (6.36 %), α-terpinyl acetate (40.74 %).

REFERENCES