

Caraway (*Carum carvi*) essential and fixed oils characterization

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Caraway (*Carum carvi* L.) is one of the most appreciate culinary spices. It is not only cultivated for its seed essential oil richness but also for its biologically active compounds. Furthermore, its seeds are source of a fixed oil. The aim of the present work was to ascertain the composition of Tunisian caraway essential oil and seed oil.

For essential oil extraction, *Carum carvi* seeds were *submitted* to hydrodistillation for 3 h using a Clevenger apparatus. The oil was decanted and dried over anhydrous sodium sulphate. Essential oil composition was analyzed by coupled gas chromatography-mass spectrometry (GC-MS). *Carum carvi* seeds were crushed and Soxhlet-extracted with hexane. Oil was vacuum concentrated with a rotavapor and the last traces of solvent removed under nitrogen. Before analysis by gas chromatography, fatty acids were transformed into their corresponding methyl esters according to the method described by Cecchi et al. (1985) using sodium methylate. Methyl heptadecanoate was used as an internal standard for quantification purposes. Fatty acid methyl esters composition was done by GC.

The main results showed that the major compounds were carvone and Limonene in *Carum carvi* essential oil. The other compounds were detected as traces. Concerning *Carum carvi* seed oil, we noted the predominance of oleic acid (C18: 1) with an amount of 52.28%. This fatty acid was followed by linoleic acid (C18: 2) which accounted for 30.84%. *Carum carvi* essential oil was characterized by the predominance of oxygenated monoterpenes (79.79%) Furthermore, *Carum carvi* seed oil was characterized by its richness in C18: 1 which is reputed for its nutritional virtues and is involved in protection against cardiovascular diseases. It is also rich in C18: 2 which is an essential fatty acid. So, it could be recommended for human consumption.

Key words: Caraway (*Carum carvi*), seed oil, essential oil, fatty acids, carvone, limonene