

Compositional characteristics of the essential oil of *Myrtus communis* grown in the central part of Saudi Arabia

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The essential oil obtained from aerial parts of *Myrtus communis* grown in the central part of Saudi Arabia was analyzed by gas chromatography-based techniques (GC–FID, GC–MS, Co–GC, LRI determination, database, and literature search) using polar as well as non-polar columns, which resulted in the identification of a total of sixty-five components accounting for 98.2% of the total oil composition. The oil composition was found to be dominated by monoterpene components accounting for 89.3% of oil composition. Sesquiterpenes (4.8%) and their oxygenated derivatives (3.5%) were present in lesser amounts. The major compounds of the oil were 1,8-cineole (26.5%), linalool (18.0%), α -pinene (11.6%), α -terpineol (8.9%), and limonene (4.0%). Other constituents which were present in appreciable amounts in this oil are *trans*-geraniol (3.9%), *trans*-geranyl acetate (3.9%), α -terpenyl acetate (3.3%), linalyl acetate (2.9%), and δ -cadinene (2.7%).

Keywords: *Myrtus communis*; Myrtaceae; essential oil; 1,8-cineole; α -pinene; α -terpineol; linalool

Introduction

Myrtus communis L. (Arabic name: Aas or Hadas) is an important evergreen leafy perennial aromatic shrub or small tree belonging to the Myrtaceae family. It grows spontaneously up to 2–3 m in height in the Mediterranean region along with other countries including the Middle East countries such as Iraq, Jordan, and Saudi Arabia. Leaves are opposite or whorled, up to c. 40 × 20 mm, elliptic to ovate-lanceolate, coriaceous, acute or acuminate. Flowers are white, c. 2 cm across, fragrant. Berry blackish-blue, crowded with the persistent calyx (1). *M. communis* has been widely used in traditional medicines, foods, spices, perfumery, cosmetic, and pharmaceutical industries (2, 3). In folk medicines, different parts of this plant are used for the treatment of several diseases. For example, fruits of the plant are used in the treatment of reddened skin of newborns, the preparation of liquors with digestive properties, and infectious diseases, including diarrhea and dysentery, whereas the leaves are used as antiseptic and anti-inflammatory agents, as a mouthwash, and for the treatment of candidiasis and vaginal lavage as well as in the therapy of urinary and respiratory diseases (4, 5). The leaves and fruits of *M. communis* have also been used as antiseptic, disinfectant, and hypoglycemic agents in traditional medicines (6). In Saudi Arabia, *M. communis* is famous with the local name ‘Musk Al-Medina’ and is widely used in perfumery industries and in Saudi Arabian traditional medicine for the

treatment of liver disorders, lack of appetite, jaundice, nausea, and other stomach derangements (7, 8).

It has been recorded that different parts of the plant are rich sources of various bioactive principles (9–15). Various myrtle extracts, fractions, and phytoconstituents have been reported to possess potent biological activities including anticancer (16), antibacterial (17, 18), antioxidants (19, 20), and analgetic (21). Another interesting property of this plant is the pleasant smell of the essential oils obtained from different parts of the plant, particularly from the leaves. Essential oils of *M. communis* grown in different parts of the world have been investigated earlier (22–32) and it has been reported that the chemical composition of *M. communis* essential oil varies significantly from one region to another (22, 30, 33). Nevertheless, a careful and thorough literature survey has disclosed that an essential oil composition of *M. communis* grown in agro-climatic condition of Saudi Arabia has not been studied yet. This prompted us to carry out detail GC–FID and GC–MS analysis of the essential oil of *M. communis* grown in Saudi Arabia.

Experimental

Plant material

The aerial part of *M. communis* was collected from Riyadh, central part of Saudi Arabia at flowering stage in the month of April 2010. Identification of the plant

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