

Quality Assessment of the Essential Oil from *Eucalyptus globulus* Labill of Blida (Algeria) Origin

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Abstract : Eucalyptus essential oil is extracted from *Eucalyptus globulus* of the Myrtaceae family and is also known as Tasmanian blue gum or blue gum. Despite the reputation earned by aromatic and medicinal plants of Algeria. The objectives of this study were: (i) the extraction of the essential oil from the leaves of *Eucalyptus globulus* Labill., Myrtaceae grown in Algeria, and the quantification of the yield thereof, (ii) the identification and quantification of the compounds in the essential oil obtained, and (iii) the determination of physical and chemical properties of EGEO. The chemical constituents of *Eucalyptus globulus* essential oil (EGEO) of Blida origin has not previously been investigated. Thus, the present study has been conducted for the determination of chemical constituents and different physico-chemical properties of the EGEO. Chemical composition of the EGEO, grown in Algeria, was analysed by Gas Chromatography-Mass Spectrometry. The chemical components were identified on the basis of Retention Time and comparing with mass spectral database of standard compounds. Relative amounts of detected compounds were calculated on the basis of GC peak areas. Fresh leaves of *E. globulus* on steam distillation yielded 0.96% (v/w) of essential oil whereas the analysis resulted in the identification of a total of 11 constituents, 1.8 cineole (85.8%), α -pinene (7.2%), and β -myrcene (1.5%) being the main components. Other notable compounds identified in the oil were β -pinene, limonene, α -phellandrene, γ -terpinene, linalool, pinocarveol, terpinen-4-ol, and α -terpineol. The physical properties such as specific gravity, refractive index and optical rotation and the chemical properties such as saponification value, acid number and iodine number of the EGEO were examined. The oil extracted has been analyzed to have 1.4602-1.4623 refractive index value, 0.918-0.919 specific gravity (sp.gr.), +9 - +10 optical rotation that satisfy the standards stipulated by European Pharmacopeia. All the physical and chemical parameters were in the range indicated by the ISO standards. Our findings will help to access the quality of the *Eucalyptus* oil which is important in the production of high value essential oils that will help to improve the economic condition of the community as well as the nation.

Keywords : chemical composition, essential oil, eucalyptol, gas chromatography

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