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Essential oil component in leaf and flower of Lemon balm (*Melissa officinalis* L.)

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Background and Aims: In this research, Melissa officinalis L. which is valuable compound plants in Iran was studied for essential oil component and focuses on the analysis of the chemical composition M. officinals leaf and flower essential oil.
Methods: Leaf and flower of Melissa officinalis L. were collected from the botanic garden in the Noshahr province in Iran; These parts of plant were carefully cleaned, air-dried and distilled separately for 4 h with a Clevenger apparatus. Essential Oil samples were over anhydrous sodium sulfate and stored at low temperature before analysis.The chemical components of the leaf and flower oil of M. officinalswere analyzed by GC/MS.
Results: Our results showed that 16 and 24 substances were identified in leaf and flower o fM. officinalis, respectively. The main of M. officinals flower oil contained α-pinene (25.61%), α-bisabolene (13.06%), caryophyllene oxide (10.74%) and Δ-cadinene (7.89%) and flower oil of this plant contained, caryophyllene oxide (24.01%), α-pinene (14.98%), Δ-cadinene (8.64%), γ-muurolene (5%) and germacrene D (4.70%). However, (z)- β – Ocimene, E- β- Ocimene, <α- methyl> Benzene methanol, α – Campholenal, Borneol, Pulegone, Piperitenone, Piperitenone Oxide, Phenol acetate <2, 6-dimethoxy->, 8- Amorphene and β-Eudesmolwere identified in flower oil and were not detected in leaf oil. But, α-Cedrene, α- Bisabolene and Elemol only were identified in leaf oil of M. officinalis.
Conclusions: The citronellal, citronellol, linalool and geranial as major chemical compositions of the essential oil of the lemon balm have been previously reported. However reported the oil from dried plant material exhibited relatively higher concentrations of citronellal and caryophyllene oxide, compared with the oil from fresh herb. In this study, citronellal was 2.20% and 3.23% in leaf and flower oil, respectively.

Keywords: *Melissa officinalis*; Extraction; GC/MS