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Volatile oil analysis of white celery fruits as an endemic and rare species of Iran

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Background and Aims: The Apiaceae family is one of the most important families within plant kingdom which is rich in volatile oils and secondary metabolites and has high pharmaceutical and economic value. Haussknechtia elymaitica Boiss. or white celery, an endemic and rare Iranian plant from this family has been chosen in our study. It is the unique species of the genus and a monotypic genus just found in southwestern provinces of Iran. The aim of this study was to determine the volatile oils of the ripened fruits of H. elymaitica from West of Iran for the first time.
Methods: The dried and ripened fruits of the plant were chopped in distilled water and its hydro-distilled fraction was isolated by hydrodistillation for 3 h. Volatile oil sample was homogenized and dried over anhydrous sodium sulfate and stored in a refrigerator. The oil was analyzed by the GC-MS analysis.
Results: The volatile oil was a pale yellow, clear liquid bearing the characteristic pungent and cool aromatic odor of Apiaceae family plants. The major constituents of the oil were beta-bisabolene (51.1%), trans-asarone (25.0%), lavandulyl acetate (10.2%) and alpha-phellandrene (5.1%).
Conclusions: Volatile oil of white celery fruits is a valuable source of beta-bisabolene and trans-asarone. These active natural constituents can be used in pharmaceutical industries. beta-bisabolene demonstrated bactericidal activities and asarone is a potential candidate for managing of cognitive impairment such as Alzheimer's disease.

Keywords: *Haussknechtia elymaitica*; White celery; Volatile oil; GC-MS analysis; Apiaceae; Beta-bisabolene