عنوان مقاله:

Comparison of Essential Oils Composition Between in-vitro Plantlets and Greenhouse Plants from Various Populations of Dracocephalum kotschyi Boiss

محل انتشار:

مجله گیاهان دارویی و محصولات فرعی, دوره 11, شماره 2 (سال: 1401)

تعداد صفحات اصل مقاله: 12

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خلاصه مقاله:

Dracocephalum kotschyi Boiss. belongs to the family Lamiaceae, a perennial herbaceous medicinal plant that is native to Iran and is considered an endangered species. In-vitro plantlets (seven populations) were raised in MS medium supplemented with ۰.۱ mg/l BAP and ۰.۰۱ mg/l NAA and the rooted plantlets were acclimatized successfully under greenhouse conditions. In- vivo plants (eight populations) were propagated under greenhouse condition. The essential oils were isolated by hydro distillation and identification of chemical compounds was done by a combination of capillary GC and GC-MS instruments. Twenty-five and forty compounds were identified in the different populations of in-vitro plantlet and in-vivo plant constituting ۸۵.۸%-۹۹.۶۸% and ۸۵.۱%-۹۵.۰۶% of essential oils, respectively. The major components of in-vitro plantlet on different populations were Verbenone (۲.۵%-۸۲.۴۷%), Geranyl acetate (۲۸.۳۵%-۶۲.۰۷%), Methyl geranate (۰.۹۸%-۷۹.۰۶%), Neral (۰.۶۴%-۳.۱۳%), Geranial (۴.۹۳%-۱۴.۳۹%), Limonene (۰.۳۷%-۱۰.۳۶%) and E-Anethole (۷.۶۲%-۲۰.۷۱%). The composition of essential oil from greenhouse plant populations were dominated by Neral (۱۱.۲۴%-۷۴.۸۰%), Limonene (۰.۱۷%-۲۵.۲۶%), Geraniol (۰.۵۴%-۴۰.۸۱%), Geranial (۰.۰۴%-۹.۱۵%), Methyl geranate (۰.۱۶%-۲۸.۴۸%), E-Anethole (۰ %-۰.۱%) and Verbenone (۰.۳۹%-۲۳.۹۶%). The highest values of Neral, Limonene and Geraniol percentage were obtained from greenhouse conditions. In contrast, the maximum values of Verbenone, Geranyl acetate, Methyl geranate, Geranial, and E-Anethole were observed in the essential oils of in-vitro plantlets. This study demonstrated difference of chemical composition between in-vitro plantlets and greenhouse plants of different populations on D. kotschyi species. Also, new chemotypes of D. kotschyi has been introduced for further research.

کلمات کلیدی:

Dracocephalum kotschyi Boiss, Gas chromatography, Tissue culture, Methyl geranate, Neral, Verbenone, geranyl acetate