

بررسی و مقایسه مورفولوژیکی و فیتوشیمیایی اسانس گیاه دارویی *Echium italicum* L. در رویشگاه‌های مختلف استان کردستان

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تاریخ دریافت: ۹۵/۱۱/۲۱؛ تاریخ پذیرش: ۹۶/۱۲/۷

چکیده

به منظور بررسی مقایسه ای ویژگی‌های مورفولوژیکی و فیتوشیمیایی اسانس گیاه دارویی گل‌گاوزبان ایتالیایی (*Echium italicum* L.) آزمایشی به صورت طرح آشیانه‌ای در سه رویشگاه سنندج، مریوان و دیواندره استان کردستان در سه ارتفاع مختلف از هر رویشگاه در سال ۱۳۹۳ انجام گرفت. برای اندازه‌گیری شاخص‌های مورد نظر سرشاخه‌های گلدار گیاه از رویشگاه‌های طبیعی در اوایل تابستان برداشت شد. متغیرهای مورفولوژیکی شامل: ارتفاع بوته، وزن تر و خشک، طول و عرض برگ‌های ساده و رزت، فاصله میانگره، قطر ساقه، تعداد گل، قطر ساقه، تعداد برگ و تعداد شاخه فرعی و متغیرهای فیزیولوژیک شامل: شاخص کلروفیل، اندازه‌گیری عناصر NPK خاک، گل و برگ، عملکرد اسانس که با استفاده از روش تقطیر با آب طرح کلونجرا استخراج، شناسایی ترکیبات تشکیل‌دهنده اسانس با استفاده از دستگاه کروماتوگرافی گازی (GC/MS) و عملکرد موسیلاژ نیز با روش جداسازی توسط آب مقطر و رسوب‌دهی در اتانول ۹۶ درصد مورد سنجش قرار گرفتند. داده‌ها به وسیله نرم‌افزار آماری SAS و با روش آنالیز LGM مقایسه میانگین‌ها انجام گرفت. نتایج مقایسه میانگین‌ها نشان داد که با افزایش ارتفاع از سطح دریا و به دنبال آن کاهش درجه، ارتفاع بوته، فاصله میانگره، قطر ساقه، تعداد برگ و درصد موسیلاژ و همچنین اسانس گیاه کاهش، در حالی که شاخص کلروفیل افزایش یافته است. ارتفاع از سطح دریا تاثیر معنی‌داری بر عملکرد اسانس دارد و بالاترین میزان اسانس در پایین‌ترین ارتفاع برای هر رویشگاه بدست آمد، همچنین اکوتیپ سنندج در ارتفاع ۱۵۵۷ متری از نظر عملکرد اسانس (۰/۰۹۷ درصد)، از سایر اکوتیپ‌ها برتر بود. از ترکیبات غالب اسانس می‌توان به بورنئول، کامفور، کانوئیک‌متیل‌استرو کاندینون و... اشاره کرد.

واژه‌های کلیدی: ارتفاع، اکوتیپ، اسانس، رویشگاه، کردستان، گل‌گاوزبان ایتالیایی.

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Effects of ecological factors on morphological and phytochemical characteristics of (*Echium italicum* L.) essential oil in Kurdistan natural habitats

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Received Time: 9-2-2017 Accepted Time: 26-2-2018

Abstract

In order to investigate the variation of morphological characteristics and essential oil composition of *Echium italicum* L., this study was carried out in nested plot design at three different heights with three habitats of Sanandaj, Marivan and Divandareh in Kurdistan province. Aerial parts of plant in flowering stage were collected in summer 2013 from different regions. The plant height, fresh and dry weight, simple and rosette leaf length and width, internodes length, stem diameter, number of flower, number of leaves and branches were evaluated as physiological characteristic and chlorophyll content, measuring elements NPK in the soil, leaves and flowers. Essential oil of plant samples were obtained by Distillation with distilled water (clevenger apparatus) and were analyzed by GS/MS, the mucilage content were evaluated with distill water separation method and sedimentation by 96% ethanol. Results were showed that the shoot height, the internode length, stem diameter, leaf number and percentage of mucilage and essential oil decreased with the altitude increases and so decrease of temperature, while chlorophyll content increases. The borneol, comphene and hexadecanoic acid methyl ester have been higher than other essential oil compounds and the highest essential oil yield obtained in Sanandaj ecotype at 1557 meters above sea level.

Keywords: Ecotype, *Echium italicum* L., Habitat, Height, essential oil composition

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