TEMPERATURE CHANGED ESSENTIAL OIL CONTENT AND COMPOSITION OF WORMWOOD (*ARTEMISIA ABSINTHIUM* L.) MEDICINAL PLANT

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Artemisia absinthium L. is an aromatic plant of the family Asteraceae, subfamily Asteroideae, tribe Anthemideae and is known by the common name wormwood. The essential oil and bitter principles of the plant underlie its medicinal and commercial significance [1]. Drying process for storing of aromatic plants is important in order to maintenance quality, aroma and original taste. With respect to lack of information about temperature effects on essential oil content and composition of wormwood, this research was conducted and performed. Studies were conducted to show the effect of different temperatures in the drying process on the amount and quality of essential oils of wormwood. The wormwood aerial parts were harvested in full blooming time from an area around the Deylaman city (Guilan province) in north of Iran. In order to complete drying, the aerial parts were placed at shade (room temperature) and in ventilated oven at 35, 45, 55 and 65 °C temperatures. The aerial parts essential oil was extracted by hydrodistillation method in a Clevenger apparatus and analyzed by GC-MS. The results showed that increase in drying temperature significantly decreased the essential oil content from 1.25% at room temperature to 1.12% (35 °C), 0.62% (45 °C) to 0.42% (55 °C) and 0.25% (65 °C) (V/W). Forty seven components were determined in wormwood essential oils, which were mostly monoterpenes. The temperatures had also significant effect on the essential oils composition and proportion of the various components. When temperature increased, some components decreased, while others increased or showed no obvious trend. In general by increasing of drying temperature monoterpens in essential oil composition gradually were decreased while sesquiterpenes increased and their proportion was noticeable. The major components of essential oils were β-Pinene and β-Thujone for room condition and 35 °C; 8-Cedren-13-ol, β-Pinene and β-Thujone for 45 °C; β-Thujone, Cubenol and Geranyl isovalerate for 55 °C, and Cubenol and Geranyl isovalerate for 65 °C temperatures.

References

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EFFECT OF VARIOUS TREATMENTS ON SEED GERMINATION AND DORMANCY BREAKING IN *PEROVSKIA ABROTANOIDES*, A MEDICINAL HERB

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Perovski *abrotanoides* is an herb belongs to labiateae family [1] that is used to treat leishmaniasis in Iranian folk-medicine tradition and has a variety of biological activities including effects on cardiac function, antioxidant acitivty and inhibition of aldose reductase. The plant roots are clinically useful for treatment of coronary heart and cerebrovascular disease and viral hepatitis [2]. Main habitats of this species are located within southwestern and central Asia. One of the main problems that prevent sustainable use of medicinal plants is perfect germination of the seeds in the native environment but the same seeds fail to germinate in other locations. Thus increasing percentage of seed germination by laboratory methods can be effective in revival of those plants. The seeds of **P.** *abrotanoides* were collected from Shahrood (Semnan provinence, Iran). Our early experiment showed that germination rate of **P.** *abrotanoides* was low, therefore germination requirements of this plant was investigated in this research. The Seeds were subjected to basal Murashig-Skoog media [1962] supplemented with GA_3 (0-100 mg L^{-1}), Kin (0-10 mg L^{-1}) and BAP (0-10 mg L^{-1}). In the other treatments, the seeds were pretreated by GA_3 (0-2000 mg L^{-1}), freezing (-20 ¸C, 20 days) and chilling (4 ¸C, 20 days) and then they transferred to normal condition (23□2 ¸C). Control treatment was done by soaking method on filter paper with distilled water at temperature of 23□2 ¸C. All treatments were performed at least in five replicates. Statistical analysis of germination data was done with the SPSS version 18 software package after two months. The highest germination percentage (86.66%) was found by 10 mg L^{-1} Kin. Among pretreatment tests, GA_3 at 1000 mg L^{-1} concentration had the lowest germination (22.6%). Chilling (4 ¸C) same to the control was revealed low germination (25.33% compare to 26.66% in control). We can conclude that low temperature and pretreatments had not critical effect on increasing percent germination but hormone treatments were more successful on breaking dormancy in this species. Among these treatments, Kin was the most efficient in promoting germination and thus it is highly recommended for practical purpose.

References

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