Abstract

Introduction: In aromatic and medicinal plants such as *Thymus kotschyanus* that their ingredients are volatile compounds, drying conditions can have a great impact on the volume of obtained essential oils and the percentage of their compounds such as Thymol and Carvacrol. Therefore, achieving the best method of drying is very important for the quality of essential oils in plants for using in the pharmaceutical and food industries. In this study, the Thyme plant was dried by different methods and under specific conditions. The essential oils of the samples were extracted and the percentage of their compounds were identified and measured by GC-MS.

Methods: Drying the *Thymus kotschyanus* was done using different methods such as putting it in a shade, oven, microwave and freeze dryer. The Clevenger device used to extract the essential oils of the dried samples. Finally, by GC-MS, the compounds in the essential oils were identified.

Results: According to the obtained results of this study, the highest volume of essential oil was obtained in the drying method with oven at a temperature of 50 ° C after 15 hours. Among the main compounds in the essential oils, the highest amount of Thymol was observed in the drying method with microwave with a wavelength of 500 watts and the highest amount of Carvacrol was observed in the drying method with oven at 50 ° C after 15 hours.

Conclusion: The Thymol and Carvacrol as the two main compounds in *Thymus kotschyanus*, had the highest and almost the same amount in the methods of drying with oven at 50 and 70 ° C after 15 hours. On the other hand, the drying method in the oven at 50 ° C after 15 hours had the highest volume of extracted essential oil. Therefore, this method that had the highest amount of Thymol and Carvacrol and the highest volume of essential oil, was considered as the best drying method.

Keywords: *Thymus kotschyanus*, Essential oils, Drying methods