Abstract

Introduction: *Thymus vulgaris* has significant anti-cough and expectorant effects. Using thyme tea is the easiest way to profit from the plant's healing effects. Herbal products, if properly be quality controlled standardized, can exhibit more elevated medicinal impacts and efficacy. In this thesis, by examining and measuring the factors involved in plant quality control, a standard and high quality product of thyme is presented in the form of herbal tea.

Methods: First, to standardize the product, fresh plant was dried by four different methods and essential oil was extracted using a Clevenger machine. Different compounds in plant essential oil were identified and quantified by GC-MS instrument. Then the phenolic and flavonoid content of the brewed plant was determined by ELISA reader and the amount of heavy metals and ash of the plant was also analyzed and calculated.

Results: According to the obtained results in this study, the highest volume of essential oil and the percentage of thymol and carvacrol compounds were obtained from the drying method with oven at 40°C for 24 hours. The total phenol content of the extract was calculated as 55.4 ± 6.53 mg based on gallic acid per gram of dried extract and the total flavonoid content of the extract was calculated as 2.97 ± 0.51 mg based on quercetin per gram of dried extract. The amount of ash insoluble in acid was 1.3401% and total ash was 11.53%. The amount of lead was 9.4117, mercury 0.00989 and arsenic 0.0104 µg/kg that all of them were within the standard range.

Conclusion: In this study, considering the volume of extracted essential oil and the total percentage of thymol and carvacrol, drying the plant at 40 ° C for 24 hours was selected as the optimal method for drying and used for drying and preparing herbal tea. Finally, the product was presented in the form of thyme sachets and tea bags packed. Also, product standardization details in the form of a brochure was presented.

Key words: Herbal tea, Thymol, Standardization, Essential oil