Abstract

Thymus thyme is one of the most valuable herbs that you go to mountainous altitudes. Considering the economic importance of *Thymus* vulgaris, it is important to study and compare the efficiency of molecular and morphological markers in differentiation of its species. In this study, 75 specimens of *Thymus* were allocated to five stations (Gulishyr, Delfard, Sarbegan, Sardou and Sky), distribution of thyme habitats in Jiroft's altitudes in three periods, early spring, early summer (flowering time) and late Autumn was collected by plant specimens. The results of analysis of variance for quantitative traits showed that for all traits, the samples showed a significant difference ($P \leq 0.01$). The phytochemical results indicated that the ecological characteristics of the area affect the morphological properties and essential oil content of thyme species. Different populations of *Thymus* vulgaris have a significant difference in the level of essential oil in the level of 1%. So that the most essential oil (%85). It was related to the fourth station (Sardo). In the molecular section, the results showed that the ITS marker was not very suitable for examining intra-species genetic variation, but based on the comparison between the genus and species used in this study as well as other different species of plants The Lamianese family (presented on the NCBI site) revealed that ITS could be an appropriate tool for inter-sexual and sexual evaluation. Using biosystematic and morphological studies that led to the identification of plant species from the keys, So, in the morphological part of this study, by using the identification keys (Flora of Iran), the species and species were well identified and separated. In the molecular part of this research, we also used the ITS marker to confirm the genus and species that were evaluated and identified in the morphological part, so that at the station number one (al-Golishir) and station number two (Delfard) In the morphological part, which was evaluated using the identification keys (Flora of Iran). All were from Zatzria multiflora, which were approved in the molecular (ITS) section of this study. Also in the third station (Sarbegen) and the fourth station (Sardou) and the fifth station (MarxAsman), which were evaluated morphologically, all were *Thymus* species, all of which were also evaluated in the molecular (ITS) section, all of which The sex was *Thymus*.

Keywords: *Thyme*, Ecophysiological, Morphological, Identification keys, ITS, Zataria

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