

Abstract

Tecomella undulate (Seem. (Roxb.) is one of the most valuable medicinal plants that belonging to the Bignoniaceae family, this plant plays role in industry because of it's characteristics such as having beautiful and attractive flowers, mucilage, vitamins, phenolic compounds and Fatty acids are very important in the pharmaceutical industry. This plant is distributed in most parts of southern Iran due to its special indicators such as wide range adaptation, low demand, resistance to high drought and temperature. Unfortunately, hasn't been taken serious action to identify and modify its ecotypes because of despite long history and wide variation of this plant. In this study, the difference between the demons of *Tecomella undulate* with the use of morphological, physiological and molecular markers (ITS) was evaluated to assess the level and distribution of diversity among seven populations in Kerman (jiroft) province at flowering stage. Analysis of variance was performed to determine the variation and severity of morphological and physiological differences. The results of analysis of variance showed that most morphological and physiological traits were significant in terms of cultivars, which indicates variation in each trait. The trees that collected from Roudfarq and Mijan area had the highest crown height and trunk diameter. With high increasing altitude from the sea level, decreasing trend is obsorved at plant height , leaf length and width, fresh and dry weights, and stem diameter. Also, the results showed that the most activity of antioxidant enzymes was in the leaves of Anberabad and gomrukan areas. Finally, it is possible to use this diversity among the masses collected in the southern regions as a valuable genetic source for corrective work. The sequences were aligned using MegAlign software and the dendrogram of the phylogenetic relationships and the matrix of the differences and the similarities between the sequences were drawn. The results showed a little genetic variation between the ecotypes. According to the results of ITS barcoding in separating the lines and the landraces of Persian clover based on the geographic location and its key attributes, it can be concluded that ITS indicator is suitable for analyzing the intraspecific genetic diversity. The phylogenic analysis of the samples and the samples in the NCBI showed that Iranian samples are closer to each other, which indicates the common origin of these specimens according to their geographical area. Amjaz and Anbarabad had more closely interrelated between all areas.

Key words: *Tecomella undulate*, Antioxidant enzymes, genetic variation, sequencing, ITS.



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