

## CLUSTER ANALYSIS OF MORPHOLOGICAL AND PHYTOCHEMICAL TRAITS OF FIFTEEN ECOTYPES OF SPEARMINT (*MENTHA SPICATA* L.)

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### A B S T R A C T :

The experiments to evaluate the phytochemical and morphological diversity in fifteen ecotypes of *Mentha spicata* L. was performed. The aerial parts of (*M. spicata* L.) were collected from fifteen ecotypes from Isfahan, Kohgiluyeh-Boyer-Ahmad, Fars and Khuzestan province. mint clones were evaluated by CRD design with three replications. After selecting the ecotypes, plants were collected in mid-to late spring and summer of 1391, during the vegetative and flowering steps. The aerial parts of plant analyzed and identified by using GC/MS in Islamic Azad University, Khorasgan (Isfahan) branch. In order to handle data classification, cluster analysis was used for morphological and phytochemical characteristics. In the first group, characters were; height, spike length, A chlorophyll, B chlorophyll and total chlorophyll contents. In the second group, characters were; plant height, spike length, spike weight, days to 50% flowering, days to 100 % flowering, duration of flowering, inflorescence length, leaf length, and had the yield of essential oil. The third largest group was included plant height and spike length. Highest plant height, spike length, spike weight, number of flowers per plant, leaf area and carotenoids respectively placed in Fourth group. Largest plant height, spike length, fresh weight, leaf fresh weight per fresh weight of shoot biomass yield, number of branches, number of flowers per plant, leaf width and leaf area, respectively applied in fifth group. In the six group, characters were highest plant height, spike length, fresh weight, leaf fresh weight, leaf width and fresh spike weight. Phytochemical traits in the cluster analysis grouped in 4 chemotypes. In the first group, most of essential oil were;  $\alpha$ -pinnene, DL- limonene and trans caryophyllen. In the second group, most of the ingredients were;  $\alpha$ -pinnene, DL- limonene and 1-8-cineol respectively.  $\alpha$ -pinnene, DL- limonene and carvon had highest percentage in third group. In the last group,  $\alpha$ -pinnene, DL- limonene and trans caryophyllen had maximum content respectively.

**K e y w o r d s :** mint , phytochemical , ecotype and essential oils.



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