ABSORPTION SPECTRA OF CHLOROPHYLL A AND B AND FRESH WEIGHT OF LEAVES IN DIFFERENT ECOTYPES OF LALLEMANTIA.SP AS AFFECTED BY DEFICIT IRRIGATION

Saeideh Maleki Farahani,* Mina Abdolahi

Crop Production and Plant Breeding Department, Shahed University, Tehran, Iran
E-mail: maleki@shahed.ac.ir

The amountof chlorophyll inliving plantsisan important factorforphotosynthesis. Depending on the duration and stage of growth, the impacts of drought on chlorophyll levels in plants are different [1].Research aimed to evaluate the phytochemical characteristics andfresh leaves weight changes in the absorption spectra as a function of different irrigation systemsin different ecotypes *Lallemantia.*Experimentwas conducted in the fieldof medicinal plants as split plotdesignwith three replicationsat Shahed University, in spring 2012.Irrigation treatmentsasmain factorsat three levels, 10, 50 and 90%ofsoilwaterdepletion and *Lallemantia* ecotypes as subsidiary factors wereappliedatfour levels 1- *L. iberica* (Urmia), 2- *L. iberica* (Mashhad), 3- *L.royleana* (Isfahan1), 4- *L. royleana* (Isfahan2). Toestimate theconcentration of a and b chlorophyll 645 and 663nm wavelengths were used. The results showed there is significant difference between the different irrigation treatments and ecotypes of *Lallemantia*in terms of concentrations of chlorophyll a and b, and fresh weight of leaves. The highest concentrations of Chlorophyll related to 90% depletion of available water of the soil. Chlorophylla absorption with increasing stress intensity followed an increasing trend. Under moderate level ofdeficit irrigation,*Lallemantia iberica* ecotypes and underhigher level ofdeficit irrigation *Lallemantia royleana* ecotypes showed maximum chlorophyll a absorption. For absorption of (b) chlorophyll in response to different irrigation levels, ecotypes No. 2 and 4 follow an increasing trend but did notfollow any specific trend in the other ecotypes. With the incrementof deficit irrigationintensity, leaffresh weight was reducedin bothecotypes of *L.iberica*but there wasdifferentresponse in the *royleana* ecotypes, so by increasing intensity of deficit irrigation significant there were no changes in ecotype No. 3 but a significant increase was observed in ecotype No 4.

References

[1] Sheteawi, S. A. and. Tawfik, K. M. *Journal of Applied Sciences Research.***2007**, *3*(3): 251-262