

## Species diversity of plant communities associated with Environmental factors in Tiffech Lake, North East of Algeria

Soumia Bouacha<sup>1,2</sup> and Nadhra Boukrouma<sup>2,\*</sup>

<sup>1</sup>Laboratory Sciences et techniques du Vivant, Institute Agro- vétérinaire , Taoura,  
University Mohamed Cherif Messaadia, Souk-Ahras, 41000 Algeria

<sup>2</sup>Department of Biology, Faculty of Sciences and Nature, University Mohamed Cherif Messaadia,  
Souk-Ahras, 41000, Algeria

\*Corresponding Author's E-mail: nboukrouma@yahoo.fr

(Received: November 03, 2020; Revised: November 07, 2020; Accepted: November 24, 2020)

### ABSTRACT

The main objective this study was to investigate the relationship between vegetation and environmental factors (soil and water) in Tiffech Lake, North Est of Algeria. Principal component analysis (PCA) and Ward's cluster analysis were applied to determine the most effective environmental parameters controlling the distribution of vegetation type and finding the logical relationship between each plant species and environmental variables. Our results showed that three groups were distinct: *Ranunculus peltatus* was the indicator species for Group 1 and 2, and *Acorus calamus* was the dominate species of Group 3. Six ecological groups from terrestrial species were specified in the study area. PCA results showed that phosphorus, magnesium, potassium, sodium, nitrogen, organic matter and C/N ration were the major soil factors responsible for variations in the pattern of vegetation in Tiffech lake. The use of natural vegetation as an indicator for site quality provides good results, due to the close relationship it has with abiotic site characteristics. It is concluded that the study area needs some conservation efforts to prevent ongoing stress and degradation.

**Key words:** Relationship, Environmental factors, Ward's cluster analysis, Tiffech Lake, PCA.

