Floristic study and assessment of the environmental factors governing the distribution of riparian plants in the Zat sub-Basin: Tensift Watershed, Morocco

Mostakim Lahcen[1.2]*, Fetnassi Nidal[1.2], Ghamizi Mohamed[1.2]
[1] *Research Center of the Museum of Natural History of Marrakech, University Cadi Ayyad, Marrakech, Morocco.*
[2] *Laboratory of water, biodiversity and climate change, Faculty of sciences Semlalia, Cadi Ayyad University, Marrakech, Morocco.*
* ***Corresponding author***: *mostakim.lahcen@gmail.com; Phone: 06 26 41 58 46,* https://orcid.org/0000-0003-3431-5695
Keywords: Environmental parameters, Floristic diversity, Ordination methods, Riparian plants, Zat sub-Basin.

Publication date 31/08/2020, http://m.elewa.org/Journals/about-japs/

ABSTRACT

Measuring the phytodiversity and determining environmental factors affecting the abundance and distribution of riparian plants of Zat sub-basin in Morocco were carried out in this study. A hypothesis was tested whether there is any statistically significant difference in environmental parameters and plants communities among the Zat River and its tributaries. For this purpose, water quality parameters such as temperature, pH, salinity, electrical conductivity, Dissolved Oxygen, nitrate and phosphorus concentration, and riparian plants diversity were estimated at 17 stations along the Zat River and its tributaries during the periods (2018 and 2019). The Canonical Correspondence Analysis (CCA) and Pearson correlation were preformed to assess the relationship between environmental parameters, and the distribution and abundance of riparian plants inventoried. The presence of 113 species was recorded, distributed between 43 families and 97 genera, 9 of which were floating-leaved, 24 submerged, and 80 emergent plants. The rare and threatened species inventoried were represented by 7 taxa, whereas 6 species are reported as endemic. Raunkiaer classification showed a dominance of therophytes (38.39%) over the other groups. According to CCA, the abiotic parameters (DO, elevation, salinity and nitrate concentration) were statistically significant parameters governing the distribution and abundance of the riparian plants inventoried. The results obtained reveal the state of the riparian vegetation in the Zat sub-Basin, therefore we can consider them as a reliable component for the assessment of the ecological status of the aquatic environment.