

# Environmental Quality of Oued Taza, Morocco: A Multivariate Approach Using Physicochemical Parameters, Indicator Bacteria and Taxonomic Diversity of Populations

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## Abstract

The present work is the result of a study carried out over the period March 2023-April 2024, the aim of which was to determine the environmental quality of Oued Taza using a multivariate approach based on physicochemical parameters, indicator bacteria and taxonomic diversity of populations. To do this, we delimited the study area to 7 stations and carried out spatio-temporal monitoring of benthic macroinvertebrates, bacteriological and physicochemical parameters. Based on the Standardized Global Biotic Index. For each station, we analyzed the aquatic populations and established a biotypology test, bearing in mind that the determination of the macro-invertebrate groups studied requires the collaboration and confirmation of several systematists. Some animals are only known at genus or family level. With the exception of Diptera and Ephemeroptera, macroinvertebrates in the Oued watershed are much less diverse, and their presence depends on the diversity of ecological conditions at each station. The more heterogeneous the biotope, the higher the numbers. The results also enabled us to highlight various types of contamination, mainly expressed by two types of pollution: significant microbial pollution in 100% of the waters, originating from percolating runoff and domestic and industrial wastewater, and low to significant chemical pollution in all the waters studied. The results obtained show that the various parameters: dissolved oxygen, nitrate and nitrite concentrations are too high in relation to national standards in several of the samples analyzed. These results will enrich the database on water quality in the basin, and help decision-makers to make better decisions on water resource management with a view to improving the region's sustainable development.

## Keywords

Environmental Quality, Macro-invertebrates IBGN, Diptera, Ephemeroptera