**Study of the performance of a prototype activated sludge treating secondary processing wastewater**

Ilham Zehouani, Laila Mandi and Naaila Ouazzani

1 Laboratory of water biodiversity and Climate Changes, Cadi Ayyad University, Marrakech, Morocco.

2 National Center for Studies and Research on Water and Energy, Cadi Ayyad University, Marrakech, Morocco

Address of corresponding author: ilham.zehouani@ced.uca.ma

**Abstract:**

The objective of the current study is to evaluate the performance of a prototype activated sludge process treating secondary wastewater and the progression of biomass growth.

The activated sludge pilot utilized in this experiment replicates the fundamental principles of biological treatment through the activated sludge process. Samples were collected daily from the influent, effluent of the reactor. The parameters monitored, following standardized methods, included biomass growth, organic load COD, as well as nutrient levels (nitrogen and phosphorus). The results indicated successful biomass growth, reaching 1.4 g TSS/L and 1gVSS/L. The activated sludge pilot consistently exceeded anticipated performance levels, with average removal efficiencies of 92.11% for Nitrites, 81.66% for Total Nitrogen, 80.10% for Ammonium, 79.6% for Total Phosphorus and 57.3% for COD. Moreover, the final effluent measurements were consistently below or very close to the Moroccan discharge standards. Overall, the outcomes of this experimental study suggest that the prototype activated sludge pilot performed satisfactorily and complied with the Moroccan discharge standards.

Keywords:

Prototype Activated sludge pilot, secondary wastewater, Biomass growth, organic load, Moroccan discharge standards.