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Water quality of the Chelif River in the Mostaganem area (North-West of Algeria)

Batoul Benkaddour
Mostaganem University, Algeria

This study concerned the water quality of Chelif River, located in the north-west of Algeria which is the most important permanent river of the country. These waters are used for irrigation and drinking water supply. Unfortunately, several towns discharged their wastewater directly into the Chelif River without any treatment which presented a risk for environment and human health. The sampling strategy was based on water samples collected along the watercourse in the Mostaganem area close to the river mouth. One sample was collected on upstream of domestic wastewater discharge point, one sample was collected on downstream of the same domestic wastewater discharge point and one sample was collected close to the river mouth. One sample was also collected directly in the domestic wastewater discharge. Sampling was realized seasonally (February, April, August, and December 2015). All samples were stored in the dark at 4°C before analysis. The physicochemical parameters measured were: pH, conductivity, Chemical Oxygen Demand (COD), Biochemical Oxygen Demand (BOD_5), chloride, nitrates, nitrites, and the total suspended matter (TSM). The urban pollution was monitored through the analysis of tryptophan (tracer of the urban wastewater). The trace metals were also analyzed: Pb, Cu, Zn, Cr, Ni, As and Cd. The urban rejection was characterized by higher concentrations in winter with: COD: 744 mg O_2/l, BOD5: 340 mg O_2/l, Cl^-: 575, 1 mg/l, TSM: 390 mg/l, Cr: 120 µg/l, tryptophan: 5 µmol/l. At the same season, we have observed the impact of the wastewater discharge on the watercourse through the increase of 6.5% of parameter concentrations (COD, BOD_5, Cl^-, Cr) between upstream and downstream of the domestic wastewater discharge. On the other hand, the station located close to the river mouth presented higher values in autumn with: COD: 576 mg O_2 /l, BOD_5: 140 mg O_2/l, Zn: 117 µg/l, Ni: 28 µg/l. The present work allowed to evaluate the impact of anthropogenic pollution on the water quality of Chelif River.

Biography

Batoul Benkaddour is a PhD student in her third year. She prepared her thesis title: "Contribution to the contamination of waters and sediment of Chelif river (Algeria)" between the University of Mostaganem in Algeria and the University of Perpignan in France. She carried out this research to evaluate the water quality of the Chelif river, the greatest watercourse in Algeria. The present work is included in the framework of the improvement of the Chelif's water quality, which is used for drinking water supply and irrigation. The obtained results allowed alerting the responsibility to implement water treatment systems before discharging wastewaters in watercourse.

batoul1990@live.fr

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