**Monitoring of multidrug-resistant bacteria in domestic wastewater**

**Habiba Raqraq 1\*, Amina Ressmi 1, Rafik Aniba1, Assmaa Dihmane1, Abouddihaj Barguigua 1, Jihane Fathi 2 and Bahija El goundali3**

1 Laboratory of Biotechnology and Sustainable Development of Natural Resources, Polydisciplinary Faculty, Sultan Moulay Slimane University, Beni mellal, Morocco

2 Responsible for water quality service, Régie autonome de distribution d’eau et d’électricité de la Chaouia (RADEEC), Settat, Morroco.

3Responsible of public health laboratory, the health delegation, Settat. Morocco.

\* Corresponding autor  [: RAQRAQ.HABIBA.fpb21@usms.ac.ma](mailto:author%20:%20RAQRAQ.HABIBA.fpb21@usms.ac.ma)

Wastewater treatment plants (WWTPs) provide optimal conditions for the maintenance and spread of antibiotic resistant bacteria. In this work we describe the occurrence of antibiotic resistant faecal coliforms in the inlet and the outlet of WWTPs in Settat city of Morroco. This lead us to identify the role of WWTPs in the dissemination and the spread of antimicrobial resistant Enterobacteriaceae in the environnement. Raw and treated wastewater received monthly from WWTPs of Settat. For each sample, we evaluated physicochemical parameters namely: T°, pH, Turbidity, TA, TAC, TH, conductivity, chloride, Nitrate, Nitrite, Sulphate, DCO, DBO5, MES. Samples were used also to study indicators of fecal contamination, and the frequency of the resistant fecal coliforms community to aminoglycosides, betalactams, fluoroquinolones, carbapenems, polymixins an penicillins. For each sample, dilluted aliquots of 100 mL were passed through membrane filters of 0.45um pore sizes. The resulting filters were placed into six modified Lactose-TTC-Agar mit Tergitol-7 (LTTC), this agar were supplemend with different concentrations of gentamicin, ciprofloxacine, ceftriaxone, colistin, imipenem and ampicilin. After an overnight incubation at 37°C, Matrix-assisted laser desorption/ionization-time of flight (MALDI) mass spectrometry (MS) MALDI-TOF MS was used to identify resistant isolates, antimicrobial scusebtibility testing were used too. In the community we found an ampicillin-resistance rate of 42.1 % for fecal coliforms. Resistance rates to ciprofloxacin and to colistin were with (15 and 17.2% respectively). However, the resistance rate has significantly increased between seasons to the third generation cephalosporins (3GC). Our results indicate that the microbiological quality of the treated wastewater from WWTPs of Settat is conform to the Moroccan standards recommended for irrigation. However wastewater is routinely contaminated with multidrug-resistant enterbacteria. This is a concern for both public health and animal agriculture.

**Keywords:** WWTP, wastewater, fecal coliforms.