

Comparative Study of the Quality of Treated Water and Sludge from Wastewater Treatment Plants in the Peri-Urban Area of Casablanca

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Abstract : In the context of water resources shortage that Morocco is experiencing in recent years, the mobilization of non-conventional resources becomes a necessity. The reuse of treated water and the bioconversion of biological sewage sludge into value-added products is considered an environmentally friendly and economical approach to the management of this significant resource which represent at least 80 % of consumed fresh water. In this work, we compare the quality of treated water and sewage sludge from wastewater treatment plants in the peri-urban Casablanca by analyzing different physicochemical and bacteriological parameters. The choice was made for three wastewater plants installed in different regions and monitored either by LYDEC and Commune of Had Soualem and use different technologies. Recycling of treated water in agriculture and watering of green spaces is dependent on the compliance of the parameters with international standards (WHO, FAO, ...etc.) The preliminary tests of the samples taken during the second half of the year 2021 showed that the advanced technologies put in place at the level of the Mediouna and the airport zone stations (membrane reactor and activated sludge, respectively) give water to the output of the stations more respectful of the standards required in terms of physicochemical parameters (pH, Conductivity, Turbidity, COD, BOD5, TNK, and TPK) and bacteriological (fecal germs, Escherichia Coli, streptococci, Helminthes eggs). The parameters relating to the Had Soualem natural lagoon station are generally at the tolerance's threshold. The results of analyzes relating to the residual sludge collected at the end of the cycle are, on the whole satisfactory despite a fluctuating variability of the bacteriological parameters.

Keywords : urban wastewater treatment plants, purified wastewater, sewage sludge, physicochemical parameters, bacteriological parameters, peri-urban area of casablanca, morocco

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