**Recovery of waste bananas for use in the removal of zinc from wastewater**

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**Abstract**

The zinc (II) is a trace element relatively non-toxic. However, it can be toxic if its concentration in aqueous solution exceeds allowable amounts. It is found in natural waters (groundwater and surface) and in industrial water at high concentrations which requires its elimination.

The objective of this study is to show that it is possible, by applying a suitable electric potential, varying in situ the adsorption capacity of the zinc on the peels of previously dried bananas, which crushed and treated with sulfuric acid then mixed with the poly-aniline to improve electrical conduction. The voltammogrammes obtained in this study show that the reduction of zinc by this artificial electrode is possible at a potential of -1.1 V/SCE. Furthermore, a positive potential decreases the adsorption capacity. At the end, the working electrode has been characterized by electrochemical impedance spectroscopy and by chronoampérométie. Thus, the pores of powder having suffered the passage of zinc cation which were characterized by SEM and XRD.

Keywords: Zinc, banana peels, electrosorption, cyclic voltampérométie.