

Application of Screen Printed Carbon Paste Electrode for Monitoring of Adsorption of Erythromycin on Inactivated Clay

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Abstract

The pollution of surface waters with antibiotics nowadays is a common occurrence. Antibiotics are introduced in the environment through municipality water discharges, pharmaceutical industries, health care institutions, and veterinary activities. Therefore, there are already many polluted water treatment methods, intended to remove pollutants - such as antibiotics - in order to prevent pollutants to reach natural waters. In this regard, the treatment methods are very important as well as the analytical methods applied to measure the concentration of the pollutant [1]. In this work, natural clay was used to remove Erythromycin (ERT) from water, and the efficiency of the removal was monitored by cyclic voltammetry, performed on screen printed carbon working electrode (SPCE) [2]. Six mass values were applied to ERT adsorption process. ERT solution was left in contact for a predetermined time and clay mass. Afterwards the suspension was centrifuged and the solution was put in an electrochemical cell equipped with SPCE and a platinum contra electrode as well as the Ag/AgCl reference electrode. In Fig. 1. Is shown how 0.5 g of clay decreased the concentration of ERT substantially. Almost complete ERT removal was achieved for 3.5 and 5 g of clay at 1h of contact time.

References

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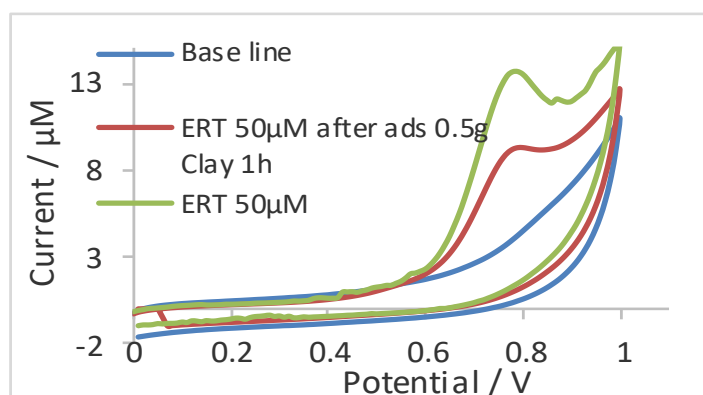


Figure 1: Cyclic voltammetry of ERT before and after the adsorption process on inactivated clay.