**Purification of water loaded with heavy metals (chrome) by a fermentation residue (Clitopilus scyphoides) in batch mode**

Samir MOUSSOUS1, Mohamed.Hamdadou2

1 Laboratoire d’électrochimie et de corrosion, BP 17, Bordj El Bahri, Alger 16111, ALGERIE, moussoussamir@yahoo.fr

Batch chromium biosorption by an industrial waste of Clitopilus scyphoides (Pleurotus mutilus) fungal biomass was investigated. The residue contained 13.5% (w/w) mineral matter in which Ca, Si and P elements prevailed. Carboxyl, phosphate and amino groups were the main functional groups present in the biosorbent. In the tested concentration ranges of biosorbent (2 g dm-3) and metal ions (250 mg dm-3), chromium uptake by fungal particles was very fast, equilibrium being reached within 18 min. The biosorption capacity was dependent on initial pH and metal ion concentration of the test solution. It reached a value of 89 mg g-1 at pH 5.5 in the presence of 400 mg dm-3 Cr (III). The intraparticle diffusion model satisfactorily represented the biosorption kinetics over the entire duration of biosorption tests, which shows that biosorption was mainly controlled by diffusion of metal ions through biosorbent particles. Metal biosorption data at equilibrium were well fitted by both the Freundlich isotherm model characterizing a multilayer adsorption process.