RESEARCHING USE OF MICROCAPSULE SYNTHESIS IN REMOVAL OF Cd(II) IONS FROM AQUEOUS SOLUTIONS BY ADSORPTION BY MEANS OF DIFFERENTIAL PULSE POLAROGRAPHY METHOD

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In recent years, the polymeric microcapsules (MCs) have been extensively used for the removal and recovery of heavy metals from the aqueous solutions [1]. The potential advantages of MCs are easy phase separation, large specific interfacial area, minimal use of organic solvent, high selectivity and more stability. Here, we prepared polysulfone microcapsules containing both tributyl phosphate (TBP) as extractant and magnetic nanoparticles (Fe$_3$O$_4$) that help the isolation operation have been prepared to clean waste water containing cadmium(II). Several techniques, including Fourier transform infrared (FTIR) and scanning electron microscope (SEM) have been used to characterize the microcapsules.

Characterized microcapsule was first kept in pure water for 24 hours. Then it was kept in solution media (Cd$^{2+}$ ions) prepared with different concentrations for 24 hours. Microcapsule samples' (obtained from the media) capacities of holding water and solutions containing Cd$^{2+}$ ions were determined by means of differential pulse Polarography. The pH values at which microcapsule’s sensitivity to Cd$^{2+}$ ions is highest were determined by means of polarographic method. The compatibility of experiment results with Langmiur and Freundlich balance equalities was examined [2, 3].

References