ABSTRACT

STUDY ON ADSORPTION OF Cd(II), Cu(II), AND Pb(II) BY *Spirulina* sp BIOMASS IMMOBILIZED ON SILICA MAGNETITE

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In this study, Spirulina sp algae biomass was immbilized on silica, specified as HAS, and silica coated with magnetite (Fe_3O_4) particle, specified as HASM, and subsequently aplied to absorb Cd (II), Cu (II) and Pb (II) in solution. The adsorbents were characterized using Fourier transform infrared (*FTIR*) spectroscopy to identify functional group and with X-ray diffraction (*XRD*) to examine the structure. To investigate the adsorption capacity, a series of experiment was carreid out at different pH and metal concentrations, and the residual metals in the water was determined using atomic absorption spectrophotometer (*AAS*). The results obtained demosntrated that the optimum pH for adsorption was 6.0, giving the adsorption capacity of 26.14; 27.63; 56.00 mg/g for Cd (II), Cu (II) and Pb (II) by HAS, and 124.89; 90.79; 90.09 mg/g, respectively, by HASM. These results evidently revealed that HASM exhibited significanly higher capacity than HAS, suggesting very important role of magnetite to enhance the adsoprtion capacity of the biomass investigated.

Key words : Adsorption, biomass, *Spirulina* sp, silica, magnetite.