ABSTRACT

THE ADSORPTION of Ni(II), Cu(II), Zn(II), Cd(II), and Pb(II) IONS in AQUEOUS SOLUTION by ALGAE *Chaetoceros* sp with SILICA-MAGNETITE COATING

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In this research it has been conducted synthesis of silica algae hybrid adsorbent (HAS) and HAS-magnetite derived from Chaetoceros sp algae biomass. synthesis results were characterized by infrared (IR) spectrophotometry to identify functional groups and Scanning Electron Microscopy (SEM) to analyze the surface morphology. The Results of the analysis of the adsorbent HAS and HASmagnetite with IR spectrophotometer demonstrated the synthesis was performed successfully marked by the presence of the absorption bands of wavenumbers 2931.80 cm⁻¹ indicating the stretching vibration of C-H from (-CH₂) aliphatic of Chaetoceros sp algae biomass. The adsorption test on adsorbent was carried out using solution of monometal, ion pairs and multimetal. The concentrations of metal ions were analyzed by atomic absorption spectrophotometry (AAS). The data of monometal absorption and multimetal by Chaetoceros sp of algae biomass, HAS, and HAS-magnetite follow these orders: Pb(II)>Cd (II)>Zn(II)>Cu(II)>Ni (II) ion. Desorption of metal ion on *Chaetoceros* sp algae, HAS, HAS-magnetite was done by using water and Na₂EDTA solution produced a number of metal ion desorption following these orders : Zn(II)>Cd(II)> Cu(II)>Ni(II)>Pb(II).

Keywords: adsorption, algae Chaetoceros sp, HAS, and HAS-magnetite