ABSTRACT

ADSORPTION ISOTERMS Ni (II) and Zn (II) ION OF THE MATERIAL ALGAE *Chaetoceros* sp ARE MODIFIED BY COATING SILICA-MAGNETITE

By

Musrifatun

Adsorption process has been carried Ni (II) and Zn (II) ion on the adsorbent silica algae (AS), and algae silica-magnetite (AS-magnetite). Identification the functional groups of the AS, and AS-magnetite performed using an infrared spectrophotometer *(IR).* The addition of a new absorption located at 2924.09 cm^{-1} wavenumber derived from the C-H stretching vibration absorption of the ($-CH_2$) aliphatic, indicate that silica *Chaetoceros* sp algae biomass hibridisation has been successfully conducted in the AS and AS-magnetite. Crystal structure analysis performed using XRD instrumentation. Diffraction peaks stated that the AS is experiencing changes in the structure of non-crystalline form of the base turned into crystals of magnetite have been added to the AS-magnetite. Adsorption analysis kinetics of Ni (II) and Zn (II) in the AS, and AS-magnetite tends to follow pseudo second order kinetics model with the k_2 respectively 0.473 and 0.838 mmol g^{-1} min^{-1} for ions Ni (II) then for ions Zn (II) are 0.166 and 0.545 mmol g^{-1} $min^{-1.}$ Adsorption isotherms of Ni (II) and Zn (II) in the AS and AS-magnetite tend to follow the model isoterm Freundlich K_f value respectively 1.252 and 1, 258 g mol^{-1} for ions Ni (II), and 0.685 and 0.717 mol g^{-1} for Zn (II) ions.

Key word: adsorption, Isoterm, AS, and AS-magnetite