ABSTRACT

A MODIFICATION OF BIOMASS *Nannochloropsis* sp WITH A COATING SILIKA-MAGNETITE AS THE ADSORBENT IONS ZN (II) AND NI (II)

By

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This research has been conducted on the adsorption process of Zn (II) and Ni (II) ion to *Nannochloropsis* sp algae biomass adsorbent, silica algae hybrid (HAS), and HAS-magnetite. Identification of the functional groups of *Nannochloropsis* sp algae biomass, HAS, and HAS-magnetite was performed by using a spectrophotometer of infrared (IR) and it is known from the all adsorbents contained the absorption band in the wavenumber region 3500-3400 cm^{-1} originating from the hydroxyl group (-OH), 3000-2900 cm^{-1} are derived from the uptake of CH stretching vibrations of ($-CH_2$) aliphatic, and 1670-1650 cm^{-1} are carbonyl group. Adsorption kinetics data of Zn (II) and Ni (II) ion in *Nannochloropsis* sp algae biomass, HAS, and HAS-magnetite tend to follow the pseudo second order kinetics with a correlation coefficient (R^2) of 0.956, 0.861, and 0.964, respectively. Adsorption isotherms of Zn (II) and Ni (II) ion on *Nannochloropsis* sp algae biomass and HAS tend to follow the Langmuir isotherm models, while the HAS-magnetite tend to follow the model of Freundlich isotherms.