

ABSTRACT

STUDY OF ION ADSORPTION ISOTHERM of Ni (II) AND Zn (II) ON BIOMASS *Porphyridium* sp. MODIFIED WITH SILICA – MAGNET

By

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It had been conducted a research about the adsorption of metal ions Ni(II) and Zn(II) of the algae biomass *Porphyridium* sp. modified by a silica matrix (PS) via sol gel process, then it was continued by magnetite coat (PSM). Material characterization of the synthesis result that was done with IR spectrophotometer to identify functional groups was successfully done by looking at the wave numbers $3000 - 2900 \text{ cm}^{-1}$ that indicated the occurrence of algae biomass immobilization *Porphyridium* sp. to silica within PS and PSM. Magnetite coating was done by looking the peak on X-ray diffractogram diffraction (XRD), it had been discovered that the peak on PSM had the same peak with magnetite. It indicated that PSM was crystalline whereas PS was amorphous. Both of the adsorption of metal ions Ni (II) and Zn (II) that had been done by PS and PSM were optimal at pH 5 and 6 on 300 ppm concentration in a 60 minutes. The capacity of ion adsorption of Ni (II) and Zn (II) that had been done by PS were respectively 33,00 and 62,43 mg g^{-1} whereas in PSM, the results were respectively 35,00 dan 46,00 mg g^{-1} . This indicates that, *Porphyridium* sp. which modified by silica and coated by magnetite can be use as adsorbent.

Keywords: *Porphyridium* sp. - Silica (PS), *Porphyridium* sp. - silica - magnetite (PSM), Adsorption, Heavy metals.