

Competitive metal sorption and desorption onto *Kappaphycus Alvarezii*, seaweed waste biomass

ABSTRACT

Competitive metal sorption and desorption onto *Kappaphycus alvarezii* waste biomass were investigated. Metal sorption capacities were 0.82 mg Cr(III)/g, 0.73 mg Ni(II)/g, 0.67 mg Cd(II)/g, 0.65 mg Cu(II)/g and 0.64 mg Zn(II)/g in multi metal system. Whereas, desorption efficiencies were 66.08%, 71.50% and 80.44% using 0.1M HNO₃, 0.1M HCl and 0.1M H₂SO₄, respectively. The metal sorption sequence were Cr(III) > Ni(II) > Cd(II) > Cu(II) > Zn(II), while metal desorption sequence were Cd(II) > Zn(II) > Cu(II) > Ni(II) > Cr(III). Fourier transformed infrared spectroscopy (FTIR) technique was used to characterize the seaweed waste biomass. FTIR analysis shown that carbonyl (–C–O) and nitrile (–C≡N) groups interact with the metal ions. The experiments result revealed that *Kappaphycus alvarezii* waste biomass represent an attractive candidate to remove multi metal ions.

Keyword: Sorption; Desorption; *Kappaphycus alvarezii*