STUDY OF NICKEL(II) ION ADSORPTION IN SOLUTION USING POWDERED KUPANG SHELL-CROSSLINKED CHITOSAN COMPOSITE

Abstract
The composite pellet of powdered kupang shell-crosslinked chitosan is prepared from the mixture of powdered kupang shell and 1% chitosan solution in 2% acetic acid solution crosslinked with 0.2% glutaraldehyde solution. The adsorption process of Ni(II) ion in solution is done by batch system. This research is done in various pH condition and time to determine the maximum adsorption capacity. Based on the analysis result it is shown that pH 4.0 and 90 minutes time are the optimum conditions. The suitable isotherm for the composite adsorption capacity of powdered kupang shell-crosslinked chitosan is Langmuir isotherm. The adsorbent composition influences the maximum adsorption capacity ($q_{\text{max}}$) and adsorption rate ($K_L$). The higher powdered kupang shell content in the composite can decrease the adsorption capacity but increase the adsorption rate.

Key word : Adsorption, biosorbent, Ni(II) ion, kupang shell, Langmuir isotherm.