

## IMOBILISASI ASAM ASKORBAT PADA Ni-Zn LHS HASIL SINTESIS DENGAN METODE *GRINDING* DAN PEMANFAATANNYA UNTUK ADSORPSI REDUKTIF Ag<sup>+</sup>

Endah Rahayu Pratiwi  
16/398556/PA/17517

### INTISARI

Sintesis Ni-Zn *Layered Hydroxide Salts* (Ni-Zn LHS) terimobilisasi asam askorbat (Ni-Zn LHS AA) dan pemanfaatannya untuk adsorpsi reduktif Ag<sup>+</sup> telah dilakukan. Penelitian ini bertujuan untuk mengadsorpsi reduktif Ag<sup>+</sup> menggunakan Ni-Zn LHS AA dan mempelajari model kinetika serta isoterm adsorpsi dari asam askorbat pada Ni-Zn LHS. Kinetika dan isoterm adsorpsi Ag<sup>+</sup> pada Ni-Zn LHS AA juga dipelajari dalam penelitian ini.

Pada penelitian ini Ni-Zn LHS disintesis menggunakan metode *grinding* dengan variasi rasio mol OH : total mol Ni-Zn. Asam askorbat selanjutnya diimobilisasikan pada Ni-Zn LHS optimum. Kinetika adsorpsi dari asam askorbat dan Ag<sup>+</sup> diketahui menggunakan model kinetika adsorpsi Lagergren dan Ho. Isoterm adsorpsi dari keduanya diketahui dengan menggunakan isoterm adsorpsi Freundlich dan Langmuir.

Hasil penelitian menunjukkan variasi mol OH : total mol Ni-Zn optimum pada rasio 0,6. Proses adsorpsi asam askorbat pada Ni-Zn LHS dan adsorpsi Ag<sup>+</sup> pada Ni-Zn LHS AA, mengikuti model kinetika adsorpsi Ho. Untuk isoterm adsorpsi, keduanya mengikuti isoterm adsorpsi Langmuir dengan nilai kapasitas adsorpsi maksimum (q<sub>max</sub>) asam askorbat sebesar 335,14 mg/g dan untuk Ag<sup>+</sup> sebesar 294,12 mg/g.

Kata kunci: asam askorbat, *grinding*, ion Ag<sup>+</sup>, Ni-Zn LHS

## **IMMOBILIZATION OF ASCORBIC ACID ON MECHANOCHEMICALLY SYNTHESIZED Ni-Zn LHS AND ITS APPLICATION FOR THE REDUCTIVE ADSORPTION OF Ag<sup>+</sup>**

Endah Rahayu Pratiwi  
16/398556/PA/17517

### **ABSTRACT**

Synthesis of Ni-Zn layered double hydroxide salts (Ni-Zn LHS) and ascorbic acid immobilized Ni-Zn LHS (Ni-Zn LHS AA) as well as its application for reductive adsorption of Ag<sup>+</sup> have been carried out. The purpose of this research was to reductive adsorption of Ag<sup>+</sup> using Ni-Zn LHS AA and to determine the kinetics and isotherm adsorption model of ascorbic acid on Ni-Zn LHS. This research also studies the kinetics and isotherm adsorption of Ag<sup>+</sup> ions.

In this research, Ni-Zn LHS was synthesized by grinding method with variations in the mole ratio of OH and total Ni-Zn. Ascorbic acid was then immobilized on Ni-Zn LHS synthesized in the optimum mole ratio. The adsorption kinetics of ascorbic acid and Ag<sup>+</sup> were studied by using the Lagergren and Ho adsorption kinetics models, while for the adsorption isotherm was examined using the Freundlich and Langmuir adsorption isotherm.

The results showed that the optimum mole ratio of OH : total Ni-Zn was 0.6. The adsorption of ascorbic acid on Ni-Zn LHS and that of Ag<sup>+</sup> on Ni-Zn LHS AA followed the Ho adsorption kinetics model. For adsorption isotherm model, both ascorbic acid and Ag<sup>+</sup> followed the Langmuir adsorption isotherm model, with the maximum adsorption capacity ( $q_{\max}$ ) of ascorbic acid and Ag<sup>+</sup> ion was 335.14 and 294.12 mg/g, respectively.

**Keywords:** ascorbic acid, grinding, Ag<sup>+</sup> ion, Ni-Zn LHS