Oktavia, I.D., 2019, The Effect of Uric Acid, Creatinine, and Urea on Glucose Analysis by Potentiometry using Carbon Paste Electrode Modified Imprinted Zeolite LTA, Thesis under the Guidance of Dr. Miratul Khasanah, M.Si and Dra. Usreg Sri Handajani, M.Si, Department of Chemistry, Faculty of Science and Technology, Airlangga University, Surabaya

ABSTRACT

This research aims to study the effect of uric acid, creatinine, and urea on glucose analysis by potentiometry using carbon paste electrode modified imprinted zeolite. Zeolite used in this research is LTA type that synthesized by mixing Na_2O, Al_2O_3, SiO_2, and H_2O by mole ratio of 4:1:1.8:270. Imprinted zeolite was synthesized from zeolite LTA that had been added by glucose as template with mole ratio of glucose/Si was 0.0306 and the glucose was extracted from zeolite framework. Carbon paste electrode modified imprinted zeolite was fabricated by mass ratio of carbon:paraffin:imprinted zeolite of 5:4:1. The developed electrode showed measurement range of 10^{-5}-10^{-2} M with Nernst factor of 25 mV/decade and the detection limit of 1.2098 x 10^{-5} M. Based on the selectivity coefficient of each matrix, the uric acid, creatinine, and urea did not interfere to potentiometric glucose analysis using carbon paste electrode modified imprinted zeolite. Applying the developed electrode on three serum samples showed the accuracy of (82,55±1,05)% and the the recovery of (85,88±3,06)%, so the developed electrode can be used as an alternative method for glucose analysis in the health field.

Keywords : *glucose, potentiometry, carbon paste electrode modified imprinted zeolite, selectivity coefficient*