

Rizki, D. A., 2015. Analisis Kreatinin Secara Voltammetri Lucutan Menggunakan Elektroda Pasta Karbon Termodifikasi *Molecularly Imprinted Polymer*. Skripsi di bawah bimbingan Dr. Miratul Khasanah, M. Si dan Drs. Handoko Darmokoesoemo, DEA Departemen Kimia, Fakultas Sains dan Teknologi Universitas Airlangga, Surabaya

ABSTRAK

Penelitian yang telah dilakukan ini bertujuan untuk mengembangkan sensor voltammetrik kreatinin melalui modifikasi elektroda pasta karbon dengan *molecularly imprinted polimer* (Pasta karbon-MIP). MIP dibuat dengan cara mereaksikan melamin, kloranil, dan kreatinin dengan rasio mol 1: 1: 0,1. Selanjutnya padatan diekstraksi dengan air panas untuk melepaskan kreatinin dari rantai polimer sehingga terbentuk cetakan yang spesifik untuk kreatinin. Elektroda pasta karbon-MIP dibuat dengan mencampurkan karbon aktif, parafin, dan MIP dengan rasio massa 9 : 8: 3. Kondisi optimum analisis kreatinin secara voltammetri lucutan menggunakan elektroda kerja pasta karbon-MIP adalah potensial kerja -1000 hingga 900mV, pH larutan 5 dengan waktu akumulasi 90 detik. Hasil penelitian menunjukkan linieritas kurva kalibrasi untuk konsentrasi 0,1-0,5 ppb sebesar 0,9979, presisi sebesar 88,71 – 96,29 %, dan akurasi sebesar 95,30 - 103,60%. Limit deteksi metode yang diperoleh yaitu 0,0315 ppb.

Kata kunci: Kreatinin, voltammetri lucutan, *molecularly imprinted polymer*, elektroda pasta karbon

Rizki, D. A., 2015, Analysis of Creatinine by Stripping Voltammetry Using Carbon Paste Electrode Modified Molecularly Imprinted Polymer. The final research is under guidance of Dr. Miratul Khasanah, M. Si and Drs. Handoko Darmokoesoemo, DEA Department of Chemistry, Faculty Science and Technology Airlangga University, Surabaya.

ABSTRACT

Voltammetric sensor of creatinine through a modification carbon paste electrode with molecularly imprinted polymer (CPE-MIP) has been developed in this research. MIP was made by reacting melamine, chloranil and creatinine with molar ratio 1: 1: 0,1. Creatinine was extracted from polymer chain by using hot water, so that form a specific imprinted for creatinine. Carbon paste- MIP electrode is made by mixing active carbon, paraffin, and MIP with mass ratio 9 : 8: 3. The optimum condition of creatinine analysis by stripping voltammetry with carbon paste-MIP electrode were the working potential between -1000 mV to -900 mV at pH 5 solution for 90 seconds of creatinin accumulation time. Result of this research was obtained correlation factor (r) 0.9979, the range of precision and accuracy for creatinine's concentration 0.1-0.5 ppb were 88.71-96.29 % and 95.30 – 103.60%. Limit of detection of this method was 0.0315 ppb.

Keywords: *Creatinine, voltammetric sensor, molecularly imprinted polymer, carbon paste electrode.*