

ANALISIS ASAM URAT SECARA VOLTAMMETRI MENGGUNAKAN ELEKTRODA MODIFIKASI GRAFIT-*IMPRINTED* ZEOLIT

NUR IZZATI MACHRITA

Dra. Miratul Khasanah, M.Si

KKC KK MPK 40 11 Mac a

ABSTRAK

Modifikasi terhadap elektroda seringkali dilakukan untuk meningkatkan selektivitas elektroda agar analisis terhadap analit tidak diganggu oleh matriks lain. Pada penelitian ini dikembangkan sensor untuk analisis asam urat secara voltammetri lucutan (*stripping voltammetri*/SV) dengan cara modifikasi elektroda grafit dengan *imprinted* zeolit (zeolit tercetak molekul asam urat). *Imprinted* zeolit disintesis dari TEOS, TBOT, TPAOH, air, dan analit asam urat. Kemudian asam urat diekstraksi sehingga terbentuk cetakan. Elektroda modifikasi grafit-*imprinted* zeolit digunakan untuk analisis asam urat pada kondisi optimum potensial akumulasi 0 mV, waktu akumulasi 90 detik, dan pH larutan 6 dengan penambahan elektrolit pendukung KCl 3 M. Hasil karakterisasi elektroda diperoleh sinyal arus mulai dari yang terbesar berturut-turut menggunakan elektroda grafit-*non imprinted* zeolit, grafit, grafit-zeolit, grafit-*imprinted* zeolit. Validitas metode yang diperoleh meliputi linieritas sebesar 0,9990, presisi (ketelitian) berkisar antara 0,18 % - 7,27 %, sensitivitas sebesar 2,5529 $\mu\text{A/ppb}$, limit deteksi sebesar 0,2127 ppb (0,00127 μM), dan akurasi sebesar 95,02%.

Kata kunci : asam urat, voltammetri lucutan, elektroda grafit, *imprinted* zeolit.

ABSTRACT

Modification of the electrodes is often done to increase the selectivity of electrodes. This study developed a sensor for uric acid analysis by stripping voltammetry using graphite electrodes modified imprinted zeolite (zeolite which is imprinted by uric acid). Imprinted zeolite was synthesized from TEOS, TBOT, TPAOH, water, and uric acid. Then uric acid was extracted to form the mold. Graphite electrodes-modified imprinted zeolite was used for the analysis of uric acid in the optimum conditions of accumulation potential 0 mV, accumulation time 90 seconds, and pH 6 with addition of supporting electrolyte KCl 3 M. The current signal obtained from the electrode characterization from the highest consecutive was graphite-non imprinted zeolite, graphite, graphite-imprinted zeolite, and graphite-zeolite, respectively. The validity of method obtained include linearity 0.9990, precision ranged between 0.18% - 7.27%, sensitivity 2.5529 $\mu\text{A/ppb}$, detection limit 0.2127 ppb (0.00127 μM), and accuracy 95.02%.

Key words : *uric acid, stripping voltammetry, graphite electrode, imprinted zeolite*