PENENTUAN KADAR ASAM URAT PADA URIN MANUSIA MENGGUNAKAN VOLTAMETRI SIKLIK DENGAN ELEKTRODA EMAS

INTISARI

Nurul Hudha Subroto
NIM. 12612079

Telah dilakukan penelitian tentang studi voltametri siklik asam urat dengan elektroda kerja emas (Au) dan aplikasinya pada analisis urin.

Metode analisis voltametri siklik dengan sensitifitas tinggi dan mudah diterapkan telah diteliti dalam analisis asam urat. Karakterisasi puncak asam urat dalam voltamogram dilakukan untuk menentukan karakteristik puncak spesifik asam urat. Pengaruh operasional meliputi, pemakaian elektrolit, konsentrasi asam urat dipelajari dan ditentukan untuk menghasilkan metode yang optimum. Aplikasi analisis seperti linearitas, limit deteksi (LOD), dan limit kuantifikasi (LOQ) dan recovery (%) dipelajari melalui penerapan pada sampel urin dengan metode yang ditemukan.

Hasil penelitian menunjukkan bahwa karakteristik puncak urea ditemukan sistem kuasi dapat berbalik pada E_{pa} 0,513611 V dengan elektrolit NaOH 0,1 M.. Pengaruh konsentrasi pada arus menunjukkan linearitas dengan R^2= 0,997. Aplikasi analisis memperoleh hasil memuaskan dengan R^2=0,997, LOD=0.00067 M dan LOQ= 0.00223 M dengan *recovery* sebesar 100,261 % dan konsentrasi asam urat dalam urin= 4,679 mg/dL.

Kata kunci: voltametri siklik, asam urat, elektroda emas

DETERMINATION OF URIC ACID IN THE HUMAN URINE USING CYCLIC VOLTAMMETRY BY GOLD ELECTRODE

ABSTRACT

Nurul Hudha Subroto
NIM . 12612079

The research on cyclic voltammetry studies of uric acid with Gold working electrode (Au) and its application to the analyze of urine have been done.

Cyclic voltammetry analysis method with high sensitivity and easy to implement have been investigated in the analysis of uric acid. Characterization of urea peak in voltamogram was conducted to determine the characteristic specific peak of uric acid. The effect of using electrolyte, uric acid concentration studied and determined to produce the optimum method. Analysis applications such as linearity, limit of detection (LOD), limit of quantification (LOQ) and recovery, through the application studied in urine with the found method.

The result showed that the characteristic peaks of uric acid found in the system can be turned E_{pa} 0.513611 V with NaOH 0,1 M electrolyte. Effect of concentration on current showed linearity with R^2= 0.997. Application analysis obtain satisfactory results with, R^2 = 0.997, LOD=0.00067 M dan LOQ= 0.00223 M with 100.261 % of recovery, and uric acid concentration in the human urine = 4.679 mg/dL.

Keywords: cyclic voltammetry, uric acid, gold electrode