Methods and objects of chemical analysis, 2018, Vol. 13, No. 3, 136–140

The Study of the Electrochemical Behavior of Triamcinolone Acetonide on the Carbon Paste Electrodes for its Voltammetric Determination

P.M. Zagrzewski*†, K.N. Belikov†‡, I.A. Zinchenko†

† State Scientific Institution "Institute for Single Crystals" of NAS of Ukraine, Nauki ave, 60, Kharkiv, 61001, Ukraine;
‡ V. N. Karazin Kharkiv National University, 4 Svobody Sq., Kharkiv, 61022, Ukraine;
*e-mail pavel.voltammetry@meta.ua

Recieved: July 27, 2018; Accepted: September 26, 2018
DOI: 10.17721/moca.2018.136-140

The electrochemical properties of triamcinolone acetonide on carbon-paste electrodes have been studied. By the cyclic voltammetry method it was revealed that this steroid is irreversibly reduced at a potential from -0.9 to -1.4 V, depending on the solution pH and the potential sweep rate, while an increase in the sweep rate results in a shift of the peak position to more negative potentials. The limiting stage of the process of reducing triamcinolone acetonide on carbon-paste electrodes is diffusion. The calibration graph was linear in the concentration range from 2 to 46 μmol/L, the detection limit was 1.5 μmol/L. The possibility of using differential pulse voltammetry on carbon-paste electrodes for the determination of the active substance content in ampoules of a suspension of Kenalog 40 was shown.

Keywords: triamcinolone acetonide, triamcinolone, glucocorticosteroid, carbon-paste electrodes, cyclic voltammetry, differential pulse voltammetry