

Simultaneous voltammetric determination of dopamine and ascorbic acid at an electrode modified with the gold-palladium binary system

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Abstract

The catalytic activities of gold, palladium, and rhodium particles and their binary systems electrodeposited on the surface of a glassy-carbon electrode in the oxidation of dopamine and ascorbic acid are compared. As compared to individual noble metals, the Au-Pd binary system exhibits a higher catalytic activity that manifests itself in a multiple increase in the oxidation current of the mediator and in a decrease in the oxidation potential of the substrate. It is found that dopamine and ascorbic acid can be simultaneously determined by voltammetry at an electrode modified with the Au-Pd binary system. The catalytic currents of substrate oxidation are linear functions of the concentrations in the ranges from (1×10^{-3} to 1×10^{-7}) M for dopamine and from (5×10^{-3} to 1×10^{-6}) M for ascorbic acid. © 2009 MAIK Nauka.

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