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Electrocatalytic Determination of Ascorbic Acid Using Glassy Carbon Modified with Nickel(II) Macrocycle Containing Dianionic Tetraazaannulene Ligand

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Abstract: A symmetric Ni(II) tetraaza macrocycle modified glassy electrode shows electrocatalytic activity for the oxidation of L-ascorbic acid at pH 7. It was shown the peak potential shifted to the negative by 250 mV compared with that for the bare electrode in the cyclic voltammograms. The calibration curve was linear up to 5 mM with a detection limit of 2.5×10^{-4} mM and RSD% better than 2.8%. Excipients used as additives in pharmaceutical formulations and foods did not interfere in the proposed procedure. This new modified electrode was applied to commercial pharmaceutical tablets, injections and foods. The obtained results were identical to those obtained by the classical 2,6-dichlorophenolindophenol method.

Key Words: Ni(II) tetraaza macrocycle, Sensor, Electrocatalytic oxidation, L-Ascorbic acid

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