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Polyurethane nanoparticles as support for peroxidase immobilization and electrochemical detection of dopamine TÂNIA CRECZYNSKI-PASA, MAURÍCIA FRITZEN-GARCIA, INÊS OLIVEIRA, BETINA ZANETTI-RAMOS, UFSC, ORLANDO FATIBELLO-FILHO, UFScar, VALDIR SOLDI, ANDRÉ PASA, UFSC, DEPARTAMENTO DE CIÊNCIAS FARMACÊUTICAS, UFSC TEAM, DEPARTAMENTO DE QUíMICA, UFSC COLLABORATION, DEPARTAMENTO DE FíSICA, UFSC TEAM, DEPARTAMENTO DE QUíMICA, UFSCAR COLLABORATION — Two different carbon paste electrodes were constructed by the immobilization of peroxidase extracted from the pine kernel homogenate (I) or purified HRP (II) on pegylated polyurethane nanoparticles for dopamine detection. The polyurethane nanoparticles were characterized by AFM and DLS (260nm) and, showed good potential as a support material for enzyme immobilization. The best analytical response was obtained for the electrodes containing 2.5 U of peroxidase mg^{-1} of carbon paste (I) and 0.25 U of HRP mg^{-1} of carbon paste (II). The analytical curves were linear for dopamine from 9.9×10^{-5} to 1.6×10^{-3} mol L^{-1} with a limit detection of 9.0×10^{-6} mol L^{-1} for electrode I and 1.7×10^{-5} to 1.9×10^{-3} mol L^{-1} with a limit detection of 2.0×10^{-6} mol L^{-1} for electrode II. The recoveries of dopamine from pharmaceutical are in agreement with the official method.

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