Abstract

Specially constructed carbon paste electrodes were coated with 10 mM cetyltrimethylammonium halide (CTAX) solutions, bromide and chloride being the counter anions. These surfactant modified electrodes were used to detect the catecholamine neurotransmitter dopamine using cyclic voltammetry. The coated electrodes gave reproducible quasi-reversible behavior for the analyte dopamine over a range of concentrations from 1 mM to 200 mM. When combined in solution with common interferents ascorbic acid (1 mM) and uric acid (300 μM), all cathodic and anodic current peaks maintained resolution at the biological pH of 7.4. When the coating solutions were below the critical micelle concentration (0.5 mM), reduced anodic peak current was observed. Throughout multiple experiments, no discernible difference in performance between cetyltrimethylammonium bromide and cetyltrimethylammonium chloride was found.