Simultaneously determination of bisphenol A and uric acid by zinc/aluminum-layered double hydroxide-2-(2,4-dichlorophenoxy) propionate paste electrode

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A novel zinc/aluminium-layered double hydroxide-2-(2,4-dichlorophenoxy) propionate (Zn/Al-LDH-DPPA) nanocomposite to modify with multi-walled carbon nanotube (MWCNT) paste electrode for simultaneously determination of uric acid and bisphenol A. The Zn/Al-LDH-DPPA/MWCNT morphology was carried out by a scanning electron microscope and transmission electron microscope, electrode-electrolyte interface properties were examined by electrochemical impedance spectroscopy, and electrochemical responses thoroughly investigated by square-wave voltammetry. The electrode established linear plot for uric acid and bisphenol A from 5.0×10^{-6} M to 7.0×10^{-4} M ($R^2 = 0.9980$) and ($R^2 = 0.9960$) and the detection limits were 7.95×10^{-7} M and 8.71×10^{-7} M (S/N=3). The as-prepared sensor is reproducible, highly stable, sensitive as well as ascribed good anti-interference ability. The Zn/Al-LDH-DPPA/MWCNT electrode is applicable to evaluate simultaneously determination of UA and BPA in lake, river and, urine samples with good percentage recovery.

Keywords: Uric acid; bisphenol A; multi-walled carbon nanotube; square wave voltammetry; zinc layered double hydroxide

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