Magnesium layered hydroxide-3-(4-methoxyphenyl) propionate modified single-walled carbon nanotubes as sensor for simultaneous determination of Bisphenol A and Uric Acid

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A facile electrochemical sensor based on single-walled carbon nanotubes/magnesium layered hydroxide-3-(4-methoxyphenyl) propionate nanocomposites paste electrode (MWCNT/MLH-MPP) for determination of bisphenol A (BPA) and uric acid (UA) was constructed in this study. According to experiments, several parameters affecting the electroanalytical responses of the prepared electrode were optimised, such as amount of modifier, square wave voltammetry parameters, and pH effect. Under optimum experimental conditions, electrochemical current of BPA and UA oxidation were linearly proportional to the concentrations from 3.0×10^{-7} M to 1.0×10^{-4} M and 1.0×10^{-7} M to 1.0×10^{-4} M for BPA and UA respectively with the both limit of detection of 5.0×10^{-8} M. The small percentage of relative peak currents changes with added some interference indicated that the modified electrode can be used for the determination of BPA and UA in real samples such as baby teether and urine.

Keywords: single-walled carbon nanotube; nanocomposite; bisphenol A; uric acid; electrochemical sensor

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