Sensitive Sulfadiazine Sensor Based on Multiwalled Carbon Nanotubes Wrapped with Polystyrene Sulfonate Polymer Chain

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A significant improvement in the solubility of multiwalled carbon nanotubes (MWCNTs) was obtained by using a sodium polystyrene sulfonate (PSS) solution as the dispersing medium. A highly sensitive amperometric sulfadiazine (SD) sensor was fabricated by immobilizing the MWCNT–PSS modifier onto a glassy carbon electrode. The modified electrode showed substantially enhanced analytical performance such as good stability, wide linear range, and lower detection limit for the determination of SD owing to the synergistic effect of MWCNTs and PSS. The significant catalytic activity exhibited by the MWCNT–PSS-based modified electrode indicates great promise for diverse analytical applications.

Keywords: carbon nanotube, sodium polystyrene sulfonate, electrochemistry, sulfadiazine.

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