High-efficient determination of niclosamide in tablet based on multiple-walled carbon nanotubes/cyclodextrins composite modified glassy carbon electrode

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Niclosamide (NA) is a commonly used teniacide against cestodes infecting humans. In order to realize the high-efficient determination of NA, an electrochemical sensor was fabricated with the multiple-walled carbon nanotubes/cyclodextrins composite modified glassy carbon electrode (MWCNT/CD/GCE), which was applied to analyze the NA residual. Multiple-walled carbon nanotubes (MWCNT) showed a one-dimensional nanorod structure with high electrical conductivity and large specific surface area, and cyclodextrins (CD) with good molecular recognition performance could promote the uniform dispersion of MWCNT. The fabricated MWCNT/CD/GCE sensor gave full play to their respective advantages of MWCNT and CD, which effectively improved the determination performance of NA. Under the optimal conditions, the fabricated MWCNT/CD/GCE sensor exhibited good determination performance of NA with a low detection limit of 19.5 nM in a great linear NA concentration of 0.06-0.8 μ M and 1-15 μ M. Moreover, the MWCNT/CD/GCE sensor showed a good practicability for the determination of NA in tablet.

Keywords: Multiple-walled carbon nanotubes; Cyclodextrins; Niclosamide determination; Electrochemical sensor; Tablet

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