MWCNT-modified Electrode for Voltammetric Determination of Allura Red and Brilliant Blue FCF in Isotonic Sport Drinks

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A fast and simple electrochemical sensor is presented for the determination of allura red and brilliant blue in isotonic sport drinks, using a glassy carbon electrode modified with multi-walled carbon nanotubes. The electrochemical behavior of the colorants was studied by cyclic and differential pulse voltammetry in 0.1 M PBS, pH 7.0. The solution pH, the amount of nanomaterial on the surface of the electrode and the accumulation time of each colorant were optimized. Under the optimal conditions, the sensor exhibited a linear response to allura red and brilliant blue with detection limits of 7 ?g L ?1 and 52 ?g L ?1 , respectively. The sensor was applied to the analysis of commercial isotonic sports drinks that contain individual or mixed colorants, showing good sensitivity and reproducibility. The results were compared with a chromatographic method showing that the levels of colorants are low and did not show a risk for a consumer's he