A Novel Glassy Carbon Electrode Modified with Multi-Walled Carbon Nanotubes for Potentiometric Xipamide Determination

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Abstract

Solid contact electrodes are widely used in analytical fields due to their outstanding performance over classical ones. However, they showed formation of a water layer affecting stability of those electrodes' type. Herein, we develop a solid contact ion selective electrode to overcome this common drawback through application of multi-walled carbon nanotubes as a hydrophobic layer between the ion sensing membrane and a glassy carbon electrode. This fine modification improved stability of the electrode via preventing the formation of this water layer. The obtained potential was steady over 30 days with a drift of 0.8 mV hī1. The MWCNTs-modified electrode was used for determination of xipamide with a Nernstian slope of ī56.01 over a linearity range of 1.0 Ĭ 10ī5ï1.0 Ĭ 10ī2 mol lī1 and detection limit of 6.0 Ĭ 10ī6 mol lī1. The proposed sensor was effectively applied for determination of the cited drug in its marketed pharmaceutical dosage form and spiked human plasma.

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