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Potentiometric sensors based on polyaniline and thiacalixarenes for green tea discrimination

Evtugyn G., Shamagsumova R., Stoikova E., Sitdikov R., Stoikov I., Budnikov H., Ivanov A., Antipin I.
Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

The performance of potentiometric sensors based on carbon screen-printed and glassy carbon electrodes covered with polyaniline (PANI) and thiacalix[4]arene receptors have been compared in the determination of some ions and discrimination of green tea brands. The optimization of PANI electropolymerization provided satisfactory characteristics of screen-printed electrodes comparable with those of conventional sensors based on glassy carbon. The potentiometric sensors make it possible to determine 1×10-2-1×10-6 M Fe3+ ions. Also, successful discrimination of twelve tea brands was performed with three-sensor array. The 100% true prediction was confirmed by principal component analysis (PCA) and linear discriminant analysis (LDA). © 2011 WILEY-VCH Verlag GmbH & Co. KGaA, Weinheim.

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Keywords

Electronic tongue, Potentiometric sensor, Thiacalixarene