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A Novel Hydrophobic Task Specific Ionic Liquid for the Extraction of Cd(II) from Water and Food Samples as Applied to AAS Determination

Ning LI[1)], Guozhen FANG[1)], Bing LIU[1)], Jia ZHANG[1)], Lijie ZHAO[1)] and Shuo WANG[1)]

1) Key Laboratory of Food Nutrition and Safety, Ministry of Education, Tianjin University of Science & Technology

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Hydrophobic task specific ionic liquid (TSIL) functionalized 2-mercaptobenzothiazole (MBT) was synthesized and characterized by NMR and HRMS. The capability of TSIL-MBT for the selective separation and preconcentration of Cd^{2+}, which was determined by flame atomic absorption spectrometry (FAAS) from water and food samples, was investigated. The TSIL-MBT with high selectivity for the extraction of Cd^{2+} was discussed by comparing with a traditional extractant, such as ammonium pyrrolidine dithiocarbamate (APDC) and diethydithiocarbamate (DDTC), and the recoveries of the extraction Cd^{2+} by TSIL-MBT were much better than APDC and DDTC. The proposed method was evaluated by analyzing two certified reference materials. The Cd^{2+} concentration, determined by the developed methodology, was in good agreement with certified values.

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