Ionic liquids intercalated in montmorillonite as the sorptive phase for the extraction of low-polarity organic compounds from water by rotating-disk sorptive extraction

Fiscal-Ladino, Jhon A.

Obando-Ceballos, Mónica

Rosero-Moreano, Milton

Montaño, Diego F.

Cardona, Wilson

Giraldo, Luis F.

Richter, Pablo

 Montmorillonite (MMT) clays were modified by the intercalation into their galleries of ionic liquids (IL) based on imidazolium quaternary ammonium salts. This new eco-materials exhibited good features for use as a sorptive phase in the extraction of low-polarity analytes from aqueous samples. Spectroscopic analyses of the modified clays were conducted and revealed an increase in the basal spacing and a shifting of the reflection plane towards lower values as a consequence of the effective intercalation of organic cations into the MMT structure. The novel sorbent developed herein was assayed as the sorptive phase in rotating-disk sorptive extraction (RDSE), using polychlorinated biphenyls (PCBs), representative of low-polarity pollutants, as model analytes. The final determination was made by gas chromatography with electron capture detection. Among the synthetized sorptive phases, the selected system for analytical purposes consisted of MMT modified with the 1-hexa