



NOVEL SOLID-PHASE EXTRACTANTS WITH THE USE OF IONIC LIQUIDS

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Ionic liquids have recently received a great deal of attention in different areas of chemistry and technology, particularly in analytical chemistry. Due to unique physicochemical properties ionic liquids are applied for separation science: as alternative solvents for liquid-liquid extraction, for gas and liquid chromatography, capillary electrophoresis, *etc.* The ability of ionic liquids to be kept on solid surfaces can be also used for preparation of solid-phase extractants. Solid-phase extraction of trace elements is widely used in analytical practice, where extractants represent different solid matrices with supported ligands ensuring the complex formation with elements in solutions.

The present work demonstrates the possibility of ionic liquid application for preparation of solid-phase extractants providing trace element recovery. Peculiar interest is paid to solid-phase extractants for preconcentration of elements from high acid solutions, for example, platinum group metals and actinide elements. To prepare the solid-phase extractants designed for the use in acid media we selected phosphonium-type ionic liquids, which are characterized by high stability in different solutions. The conditions of ionic liquid immobilization on different matrices (granules, fibers, nanotubes) were determined. Experimental data on the application of prepared solid-phase extractants for preconcentration of platinum metals and actinides have been obtained. It was found that novel solid-phase extractants with phosphonium ionic liquids possess fast kinetic properties and sufficient stability in high acid solutions. It makes them very promising for preconcentration and separation of trace elements.