

July 05-07, 2018
Berlin, GermanyMustafa Tuzen, Arch Chem Res 2018, Volume 2
DOI: 10.21767/2572-4657-C3-008

GREEN EXTRACTION TECHNIQUES FOR SEPARATION AND ENRICHMENT OF TRACES ANALYTE IONS IN WATER, FOOD AND ENVIRONMENTAL SAMPLES

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Direct determination of traces analyte ions in water, food and environmental samples is restricted by two main difficulties. These are very low concentration of analyte ions, which may be lower than the detection limit of spectroscopic techniques and the interfering effects of the matrix components. These problems can be solve by using separation and enrichment methods. Microextraction techniques has recently attracted great interest in modern research due to its simplicity, cost effective, high efficiency and reduced exposure of toxic chemicals to the environment. In this presentation, various microextraction methods such as solid phase microextraction (SPME), magnetic SPME, dispersive liquid- liquid microextraction, solidified floating organic drop microextraction, ultrasound assisted ionic liquid dispersive microextraction, fibers, hallow fiber liquid phase microextraction, direct immersion, head space single drop microextraction, supramolecular solvent extraction, switchable solvents, deep eutectic solvent extractions (DESs) and its application will discussed. DESs are obtained by mixing two or more cheap and green components, including hydrogen bond donor and hydrogen bond acceptor, with the ability to relate to each other by hydrogen bond interactions. DESs are frequently achieved by means of generating complex of salt named choline chloride (Vitamin B4, ChCl) (e.g. inexpensive, nontoxic and biodegradable) through hydrogen bond donor (HBDs) or a metal salt (e.g. low-cost and green, sugars, glycerol and carboxylic acids). Separation and enrichment of organic and inorganic analytes will be discussed by using sensitive, selective and green extraction techniques (1-3).

Biography

Mustafa Tuzen is Professor in chemistry department, Gaziosmanpasa University in Turkey. He administrated seven masters and five doctoral theses under his supervision. He completed several national and international projects. He is member of Turkish Academy and Sciences. He is well known specialist in analytical environmental chemistry. He is working on analytical chemistry, trace element analysis, enrichment and separation, speciation analysis, adsorption, biosorption, green extraction techniques, sample preparation methods, microextraction of trace organic and inorganic species. He has got 243 paper in SCI journals, cited papers in SCI journals: 10316, H factor: 62 according to Web of Science. His research interests are analytical chemistry, trace element analysis, enrichment and separation, speciation analysis, adsorption, biosorption, green extraction techniques, sample preparation methods, microextraction of trace organic and inorganic species

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