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APPLICATION OF MAGNETIC CARBON NANOTUBE AS A SOLID PHASE EXTRACTANT IN SEPARATION TECHNIQUES

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Sample preparation is an essential step of the analytical process. Solid phase extraction (SPE) is one of the most routinely used procedures for the separation and pre-concentration of a variety of compounds and elements from complex samples due to their well-known advantages, which include the high enrichment factor, good recovery, use of small quantities of organic solvents and the possibility of automation (off- or on-line) of the whole process. Carbon nanotubes (CNTs) have been proposed as a solid phase extractant for various inorganic and organic compounds at trace levels. In general, CNTs are insoluble in most common solvents, due to the aggregation induced by Van der Waals attractions. To optimize the potential applications of CNTs, it is essential to modify them with functional groups and/or nanoparticles in order to integrate the CNTs into desired structures or attach suitable nanostructures to them. One such approach is the magnetization of CNT with iron oxide nanoparticles. This article mention the different applications of magnetic carbon nanotube (MWCNT) in separation science such as pre-concentration and extraction, photo degradation, enantioseparation and speciation for inorganic and organic compounds in different matrices. Magnetic separation and pre-concentration using MWCNT provided optimum and selective sample pretreatment procedures that minimized the required sample preparation time, reduced the number of matrix manipulations and the sample-preparation steps, and avoided the introduction of sources of uncertainty in the analytical process.

Biography

Ghazale Daneshvar Tarigh completed her PhD in Analytical Chemistry from University of Tehran, Iran in 2015. She completed BSc in Pure Chemistry at University of Zanjan, in 2003 and MSc under the direction of Prof. Yadollah Yamini at TMU and Prof. Ali Jabbari at KNTU in 2009. Her field of interest is the development of new extraction technologies, with an emphasis on miniaturized sample preparation methods and separation techniques.

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