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## Determination of targeted pesticides in aqueous samples using coconut shell activated carbon for preconcentration prior to high performance liquid chromatography

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Pesticides released from agricultural practices are an important class of pollutants due to their widespread use, toxicity, persistence, polar nature and water solubility. Monitoring of the pesticides comprises a sample preparation step - for separation and enrichment, and high performance techniques for quantifications. Solid phase extraction (SPE) has been proved to be an effective sample pretreatment method due to high enrichment efficiency, low consumption of organic solvents, simplicity and easy operation. The choice of appropriate adsorbent is a crucial factor to obtain high recoveries and high enrichment factors in SPE procedure. The aim of this study was to investigate the possibility of using activated carbon (AC) derived from coconut shell as the SPE packing material for the preconcentration of five varying polarity pesticides (imidacloprid, acetamiprid, carbendazim, simazine and linuron) from aqueous solutions before determination by high performance liquid chromatography with diode array detector (HPLC-DAD). The effects of the solution pH, eluent type, eluent volume and flow rate were investigated for optimization of the presented procedure. The adsorption was achieved quantitatively on AC column at the pH range 2.0 – 8.0, then the retained pesticides content was eluted with dichloromethane. Under the optimized conditions, the detection limit was found to be 29.3 - 121.4 ng/L, depending on the pesticide. The obtained results indicated that the proposed method could be used for the simultaneous determination of the varying polarity pesticides in environmental water samples at trace levels.

### Biography

Ksenija Kumrić has completed her PhD at the Faculty of Physical Chemistry, University of Belgrade, Serbia. She is employed at the Laboratory of Physics, "Vinča" Institute of Nuclear Sciences, Belgrade, Serbia and engaged in the realization of the project "Physics and Chemistry with Ion Beams" financed by the Ministry of Education, Science and Technological Development of Republic Serbia. Her research work is focused in the field of separation chemistry, especially membrane based separation processes and adsorption, and its application in radiochemistry, analytical and environmental chemistry.

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