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VOLTAMMETRIC SENSORS IN THE ANALYSIS OF DRUG COMPONENTS

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The determination of trace contents of organic species in pharmaceutical preparations, as well as in biological and environmental samples is one of the fundamental tasks of modern analytical chemistry. For these determinations the chromatographic and spectroscopic methods are usually applied, which often require the long-time step of sample preparation. Among the electrochemical techniques, voltammetry and in particular adsorptive stripping voltammetry is a method with multiple possibilities of application in the analysis of organic compounds because of its high sensitivity, accuracy, precision and low-cost equipment. In voltammetry a whole range of working electrodes are used. The type of the applied working electrode affects the possibility of obtaining low limits of detection and good separation of the analytical signals. Until the year 2000 mercury electrodes, such as the hanging mercury drop electrode and the mercury film electrode were frequently used in voltammetry. However, in spite of their multiple advantages, these electrodes have one serious drawback, namely both mercury and its salts are volatile and highly toxic. That is why attempts have been made to search for new materials that would allow researchers to obtain electrodes that would possess all the advantages of mercury electrodes, at the same time being less toxic. In this presentation, examples of environmentally friendly voltammetric sensors will be presented. Their preparation and application in the analysis of drug components will be discussed.

BIOGRAPHY

Katarzyna Tyszczyk-Rotko has completed her PhD from Maria Curie-Skłodowska University, Lublin, Poland. She was awarded the Postdoctoral Degree in 2013. Currently she is an Associate Professor at the Department of Analytical Chemistry and Instrumental Analysis, Maria Curie-Skłodowska University, Poland. She has 59 publications that have been cited over 800 times and her publication H-index is 17. Her research area of interest is the voltammetric determination of biologically active compounds and metal ions in different samples.

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