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Necati MENEK

Ondokuz Mayıs University, Turkey

Biography

Necati Menek has completed his BSc in Chemistry-Physics Department from Ondokuz Mayıs University in 1986 and Master degree in chemistry from Institute of Science Ondokuz Mayıs University in 1988. He has completed his PhD degree in physical chemistry area at the same university. He was an assistant professor in 1996, association professor in 1998 and professor doctor in 2004 at Ondokuz Mayıs University. He has been working on physical chemistry and electro chemistry area. He had been a visiting-professor at McGill University (Montreal, Canada) and Nis University (Nis, Serbia). His research interests are electro chemistry, voltammetry, electro chemical reaction mechanism, chemical degradation, molecular spectroscopy. He is currently a manager of Kavak Vocational College at Samsun University and as an academic staff at Department of chemistry science and art faculty in Ondokuz Mayis University.

nmenek@omu.edu.tr

Note:

INVESTIGATION OF ELECTROCHEMICAL REACTION MECHANISM OF SOME AZO DYES BY USING VOLTAMMETRIC TECHNIQUES

Azo compounds all have the same functional group -N=N-, which is a chromophore. So many kinds of them are common dyes for food, pharmaceuticals beverages and textile industry as coloring agents, biomedical studies, advanced application in organic synthesis and high technology areas as laser, liquid crystaline displays, electro-optical devices and ink-jet printers. But they also represent a human hazard because their degradation products including amines are carcinogenic. Thus, it appears necessary to identify and quantify with accuracy the dyes present demonstrate the need for developing fast, accurate and selective techniques for synthetic dyes analysis[1-4]. Modern polarographic and voltammetric methods are particularly suitable for these purposes because of their high sensitivity, their applicability over an unusually wide concentration range, and their low investment and running costs. There are a large number of articles published that are discussing various aspects of azo compound reduction and the interest in this topic is continuing. The aim of the majority of the investigations are studying different aspects of the electrode processes or finding suitable compounds and conditions for analytical applications involving azo compounds. The polarographic and voltammetric experiments were carried out using a computer controlled electroanalysis system is Metrohm 757 VA Computrace Electrochemical Analyser. A three electrode combination system was used. This consisted of a Multi Mode Electrode (DME, SMDE and HMDE), a Ag/AgCl reference electrode and a Pt wire auxiliary electrode. Azo compounds with reducible or oxidizable moieties are electrochemically active. These substances yield faradaic current as a result of redox process and they can be determined by direct polarographic and voltammetric methods. Electroinactive azo compounds can be determined in the same way after derivatization. The detailed elucidation of the reduction mechanism of the azo compounds in a variety of experimental condition can be explained by using different voltammetric and polarographic techniques. Electrochemical and physicochemical properties of azo, heterocyclic azo, their derivatives and their metal complexes have been explained by different voltammetric and polarographic techniques.