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Relative selectivity coefficient as a new concept for the evaluation of electrochemical sensors

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The Relative Selectivity Coefficient (RSC) was introduced and was applied for evaluating the selectivity properties of dopamine electrode using Zareh's equation. Average relative selectivity coefficient (ARSC) and total average relative selectivity coefficient (TARSC) were defined and calculated as new parameters for each electrode. This concept was applied for several electrochemical sensors. As example two types of electrochemical sensor were introduced for the selective determination of dopamine. Both potassium tetrakis-[3,5-bis-(trifluoromethyl)-phenyl] borate (K-TFPB) and a synthesized N,N-bis-ethoxycarbonyl-1,10-diaza-4,7,13,16-tetraoxacyclo-octadecane (DZCE) were used as charged ionophore and a neutral carrier. In addition, atropine selective electrodes based on TFPB was introduced as a charged ionophore were evaluated for their selectivity by using the Relative Selectivity concept. The use of the new concept of the relative selectivity coefficient is very useful in judgment between the different electrodes those are selective to the same ion. It made the comparison more accurate and specific.

Biography

Mohsen Zareh has completed his Ph.D at the age of 31 years from Zagazig University and postdoctoral studies from Warsaw Technical University, Poland. He is the head of Analytical Chemistry Group, Department of Chemistry, Faculty of Science, Zagazig University, Egypt. He has published more than 31 papers in reputed journals. He is a referee for several international journals.

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