

Porphyrins and their derivatives constitute an important group of compounds taking part in vital biological processes such as transport of oxygen in blood and in photosynthesis. Electrochemical experiments such as cyclic voltammetry allow to examine the energetic balance of oxidation and reduction processes of particles under study. In spectroelectrochemical studies, the experiment is extended with optical characterization of the arising oxidized or reduced species. These are means to study of electronic structure of species and available electron transitions. Such studies are especially interesting in case of porphyrins due to possible elucidation of electron transfer in photosynthetic chains. This work presents: (a) an elementary theoretical treatment of electrode reactions fundamental for electrochemical experiments, (b) description of the experimental realization of spectroelectrochemical study of porphyrins and derivatives in non-aqueous solvents, and (c) results of original spectroelectrochemical measurements on protoporphyrin IX in medium dimethylformamide.