

**University POLITEHNICA of Bucharest, Faculty of Chemical  
Engineering and Biotechnologies**

**Department of Chemical and Biochemical Engineering**

**DOCTORAL SCHOOL OF CHEMICAL ENGINEERING AND  
BIOTECHNOLOGIES**

**PhD. Thesis Title**

**STUDIES ON ELECTROCHEMICAL AND SPECTRAL  
CHARACTERISTICS OF SEVERAL NITROGEN  
HETEROCYCLES**

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**Abstract**

The study conducted within the doctoral thesis refers to two nitrogen-containing heterocycles, namely tetrahydroacridines and salen derivatives. The first class are widely distributed in nature, being found in both plants and marine organisms. Initially used as pigments and dyes, but more recently extensively investigated as potential pharmaceutical agents for the treatment of a wide range of diseases, including cancer, Alzheimer's disease, bacterial infections and protozoa. The second class of compounds that have been studied is Salophen and its Ni(II) complex, Ni(II)-Salophen, which have aroused the increased interest of researchers due to their multiple applications in topical fields such as non-linear optics, molecular magnetism, functional materials and organic electronics, light-emitting diodes (OLEDs), and display magnetic properties. New organic compounds were synthesized and electrochemically characterized by cyclic voltammetry, differential pulse voltammetry and rotating disk electrode, new chemically modified electrodes were obtained and tested.