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STUDIES OF THE CATALYTIC ACTIVITY OF SOME PORPHYRIN AND PHTHALOCYANINE COMPLEXES FOR ACTIVATING THE OXIDATION OF SOME PHENOL DERIVATIVES BY OXYGEN

A Thesis Submitted to the Faculty of Science Tanta University

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In Partial Fulfilment for the Degree of Master of Science (Chemistry)

(1997)



To My Family

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Aim Of The Work

AIM OF THE WORK

Catalysts are essential for most chemical transformation to take place in living cells as well as in industrial chemical processes. The use of model system to mimic the utilization of dioxygen in biological systems has been subject of numerous studies.

Transition-metal ligand complexes can activate and transfer dioxygen to organic compounds. Selective oxidation of organic molecules with dioxygen catalyzed by transition-metal complexes capable of binding dioxygen is of current interest from the standpoints of organic syntheses and biological oxidations.

Cobalt (II) complexes of porphyrin and phthalocyanine have been found to be effective catalysts for transfer of oxygen to different classes of organic compounds.

The objective of the present work is to study the activities of cobalt (II) complexes of some tetra (*p*-substitutedphenyl) porphyrins and tetrasodium phthalocyanatocobalt (II) tetrasulphonate for catalyzing the oxidation of some phenol derivatives, in organic solvent as well as in aqueous medium. And to investigate the activity of cationic polymer colloid as support for 5,10,15,20-tetrakis (*p*-sulfonatophenyl) porphinatocobalt (II) complex in the autoxidation of 2,6-di-tert-butylphenol in water.

Introduction