#### **SYNOPSIS**

The dissertation entitled, "<u>SYNTHESIS OF SOME NEW PHENOTHIAZINE</u> <u>DERIVATIVES</u>" presented to the Faculty of Science, Shivaji University, Kolhapur; in partial fulfilment of the degree of <u>Master of Philosophy</u> in chemistry.

The dissertation consists of three chapters. <u>Chapter</u> - I deals with an introduction to the subject, a brief review of the literature on the pheno-thiazines and the scope of the present work, <u>Chapter-II</u> includes experimental part, spectral interpretation and characterisation data of compounds. <u>Chapter-III</u> is on evaluation of antibacterial activity of synthesised compounds, results and discussion.

### CHAPTER- I

This chapter describes phenothiazine and its substituted derivatives as an interesting class of heterocyclic compounds having a wide range of applications. It includes a brief review of the literature on the phenothiazine and its derivatives, especially N10- substituted phenothiazine derivatives; with reference to their methods of synthesis and their biological importance. Many important biologically active substances constitute this series of heterocyclic The biological activities as anti-inflammatory, compounds. antibacterial, antifungal, ant helmintic, antihistaminic, antiparkinsonian, antipsychotic, transquilizer and anticubercular activities have been reported. In addition to these phenothiazines have industrial applications as antioxidants. Recently it

has found that  $N_{10}^{-}$  substituted phenothiazines show some enzyme inhibitor activity. Phenothiazine derivatives have also been valuable in human medicine and in the treatment of gastro-intestinal nematodes of sheeps, cattles, horses etc. The same chapter includes the scope of the present work.

#### CHAPTER - II

Chapter-II deals with the experimental work. It consists of two parts. Part-I describes the details of experimental methods used for the synthesis of  $N_{10}$  - substituted carboethoxy phenothiazines,  $N_{10}$  - hydražidophenothiazines,  $N_{10}$ - substituted five membered heterocycles. The strategy employed for the synthesis, involved the reaction of phenothiazine with halosubstituted ester in dry acetone in the presence of anhydrous potassium carbonate to form  $N_{10}^{--}$ substituted carboethoxy phenothiazines followed by nucleophilic substitution with hydrazine hydrate to give corresponding  $N_{10}$ - hydrazido phenothiazines, which when 'reacted with phenyl isothiocyanate furnished Nin- substituted phenothlazine thiosemicarbazides which form the key littermediates in the synthesis of desired heterocycles. The thiosemicarbazides on cyclisation with sodium hydroxide, lodine in potassium lodide and phosphoric acid furnished the targetted  $N_{10}^{-}$  substituted five membered heterocycles ( scheme 1) Part-II describes the synthesis of  $N_{10}$  - sulphonamido phenothiazine derivatives. N10 - chloroacetyl phenothiazine and sulphonamides were synthesised by report-Various sulphonamides on condensation with  $N_{10}^{-}$  chloroacetyl ed methods. N10- sulphonamido phenothiazines. All the phenothiazine gave desired compounds reported in Part I and Part II were characterised by M.P.; elemental analysis, UV, IR and PMR spectral studies.

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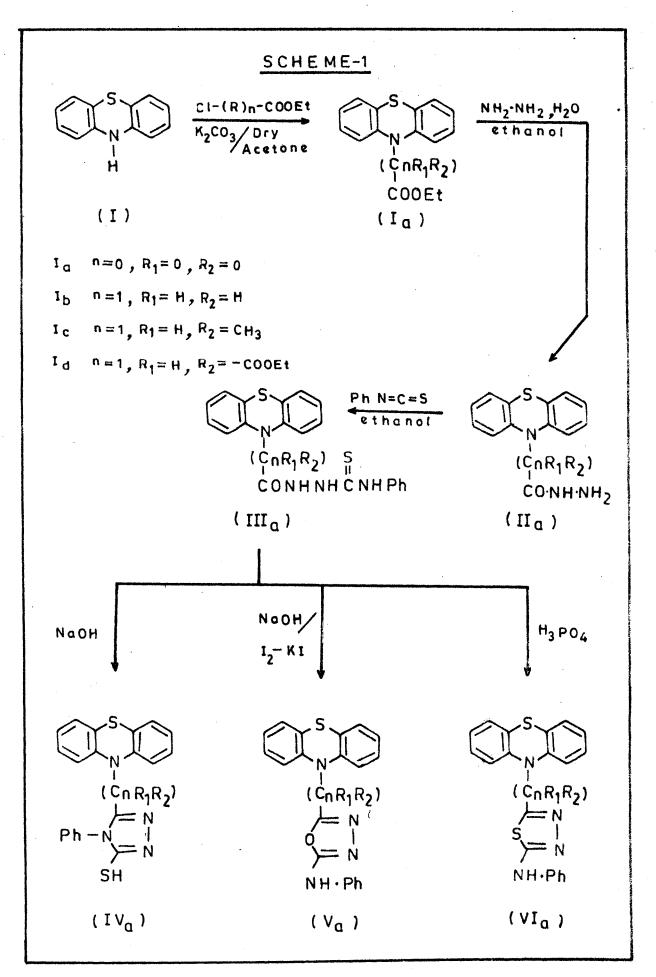
# <u>CHAPTER - III</u>

Chapter III deals with the evaluation of the antibacterial activity of the compounds. On the basis of the screening results the relation between the structure and their antibacterial activity has been established.

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