PREFACE

Recently considerable work has been reported on an interesting class of heterocycles the 'Meso-ionic compounds'. Of the various meso-ionic compounds, sydnones are the most extensively studied members since they undergo a great variety of reactions and also they are biologically active.

In this thesis entitled "Studies in Meso-ionic Compounds", the use of sydnones in the preparation of many heterocycles as synthons has been pointed out. The preparation of some sydnone derivatives, reactions, spectral studies and their biological evaluation have also been discussed.

In chapter I, a discussion on the general nature of meso-ionic compounds is reviewed. Here, attention has also been focussed on their biological properties.

Chapter II has been divided into seven parts viz., A, B, C, D, E, F and G. Part A deals with the structure, methods of synthesis, physical properties, chemical properties and biological properties of sydnones and bissydnones.

Biological properties displayed by 1,3,4-thiadiazoles, 1,3,4-oxadiazoles, thiazolidinones, pyrroles, pyrazoles and thiazoles are described in parts B, C, D, E, F and G respectively.
In chapter III, is described the aim of the present investigation. The preparation of starting materials and the reagents used in the present work have been given in brief. The use of sydnones in the preparation of some heterocycles has been recorded. The methods employed in the preparation of various sydnone derivatives with different heterocyclic moieties in C-4 and phenyl nucleus of N-phenylsydnone have been discussed in brief. The reactions carried out on these compounds have also been given.

Chapter IV is divided into seven parts A, B, C, D, E, F and G. Parts A and B consist of the experimental procedures for the preparation of starting compounds and the reagents used in this work. Part C describes the synthetic utility of various sydnones. Part D gives the experimental procedures for introducing various heterocyclic systems in the phenyl nucleus of N-phenylsydnone. Part E and F consist of the experimental procedures for the preparation of two types of sydnone-4-heterocycles. Part G describes the experimental procedure for the preparation of bissydnones.

Chapter V gives a detailed account of the IR, PMR, CMR and MS studies made during the present investigation. All the new compounds synthesised during the present study, have been characterised by their elemental analysis and spectral data.

In chapter VI, the details of antimicrobial evaluation (antibacterial and antifungal) are mentioned and the results are tabulated.