Preface

The α-oxoketene dithioacetals are versatile three carbon synths with ambident 1,3-electrophillic centres permitting the designs of various carbocyclic and heterocyclic molecules. Our continuing interest in these class of compounds has centered around in exploiting the differential electrophilicity of 1,3-carbon centres for the regioselective construction of new C-H and C-C bonds involving either 1,2- or 1,4- nucleophilic additions leading to a number of synthetic routes for the synthesis of a wide range of organic compounds.

The work presented in this thesis has been carried out as a part of our ongoing investigations on α-oxoketene dithioacetals and their sister counterparts. The work undertaken describes the synthesis of β-oxodithioates, methyl dithiocarbamates, thioureas and also a synthetic transformation using α-oxoketene dithiaoacetal as the precursor.

The first chapter of this thesis provides a brief account on the general reactivity profile of α-oxoketene dithioacetals and some of the recently developed synthetic strategies employing these class of compounds.

The second chapter describes the reaction of 1-(methylthiocarbonyl) imidazole and 3-methyl-1-(methylthiocarbonyl)imidazolium iodide with active methylene compounds, to obtain β-oxodithioates using a new synthetic strategy.
An efficient route for the synthesis of methyl dithiocarbamates, symmetrical thioureas and unsymmetrical thioureas on reacting 1-(methylidithiocarbonyl) imidazole and 3-methyl-1-(methylidithiocarbonyl)imidazolium iodide with amines has been developed and the results of this investigation has been presented in the third chapter.

The last chapter of this thesis describes that α-oxoketene dithioacetals undergo 1,4-addition in a highly regio- and stereo- selective manner using organo zinc reagents to give β-alkyl-β-alkylthio-α,β-enones by the displacement of one methylthio group.