PREFACE

The study of polymerization process has now become a very large of both industrial and academic science and reviews of one aspect or other of this field appear fairly frequently in various scattered locations.

The monograph entitled "Studies on polymerization of vinyl monomers in presence of heterocyclic ylide", embodies the detailed studies on the polymerization of methyl methacrylate, vinyl acetate, methyl acrylate and styrene using α- or β-picolinium-p-chlorophenacylde and imidazolium-p-chlorophenacylde as initiator/accelerator. The thesis has been arranged into five chapters, each deals with the specific aspects on the polymerization of vinyl monomers in the presence of heterocyclic (nitrogen) ylides.

Chapter I reports an introduction to the problem of the present monograph with brief survey of the literature on heterocyclic ylides and radical polymerization; its characteristic features, problems and deviations.

Chapter II deals with the structure and classification of ylides and literature survey regarding their applications in the field of polymer chemistry. Literature search shows that the little amount of data are available on the uses of ylide in the field of polymer chemistry and detailed mechanistic speculation at this point would be idle.
Chapter III describes the experimental part of the present thesis. The thermal polymerization reactions were carried out in a modified dilatometric apparatus, whereas, the photopolymerization reactions were carried out in a borosilicate glass ampoules. The various kinetic data of the systems were evaluated and finally, polymers were characterized by viscometric technique, spectroscopy (IR, NMR & ESR) and elemental analysis.

Chapter IV gives an account of the results of our research investigation and their discussions. This chapter has been divided into five subchapters:

1. Photopolymerization of methyl methacrylate using β-picolinium-p-chlorophenacylide as a photoinitiator.
2. Polymerization of vinyl acetate initiated by β-picolinium-p-chlorophenacylide.
3. Polymerization of methyl acrylate initiated by α-picolinium-p-chlorophenacylide.
5. Polymerization of methyl methacrylate initiated by imidazolium-p-chlorophenacylide.

Chapter V is bibliography, which provides the list of references used in the text of the thesis. These are sequentially
arranged as the serial of author(s) name, name of the concerning journal, volume number (underlined), page number and year of the publication (in brackets) of the article.

While every due care has been taken to give proper credit to other authors in the literature, the author would like to apologize for many omissions which might have occurred due to an oversight or error in judgement. My research investigations are based on the fundamental research, focused on synthetic polymer and physical organic chemistry. I am very hopeful that my findings will be very useful, helpful and applicable to the viewers.