PREFACE

The thesis deals with studies on the applications of some organic compounds as oxidimetric titrants in nonaqueous or partially aqueous media.

Three oxidimetric titrants have been studied. These are iodosobenzene diacetate (abbreviated as IBDA), pyridinium tribromide (abbreviated as PTB) and 1-chloro-1,2,3-benzotriazole (abbreviated as CBT). Except for a brief work on the use of pyridinium tribromide as a titrant in the determination of unsaturation of some organic compounds, these three compounds are being used as oxidimetric titrants for the first time.

Potentiometric methods have been developed for several diverse types of reductants using each of the above mentioned oxidants as titrant. In the case of PTB, biamperometric methods were found to be particularly convenient; in this case, therefore, biamperometric methods were also developed.

The solvent used for the titrant in all cases was anhydrous acetic acid. The titrates were taken either in anhydrous acetic acid or in a mixed aqueous-acetic acid
medium. Studies have also been carried out on the effect of addition of mineral acids, halide ions and catalysts. Specific procedural recommendations have been given for the determination of the reductants studied.

A brief study has been made on the possibility of using some visual redox indicators in these titrations for end-point detection. This work is described as Cognate Work I. The thermal stability of the three compounds (IBDA, PTB, and CBT) has been examined by thermogravimetric techniques. The results of these studies are presented as Cognate Work II.

The work embodied in the thesis has been published/presented in international conferences/under publication as detailed below:


3. "Novel Redox Titrants in Nonaqueous or Partially Aqueous Media - IX: 1-Chloro-1,2,3-benzotriazole." (under publication).