This work entitled “Evaluation of Synergistic Immunotherapeutic Potentiality of Polysaccharide Derived from Aegle marmelos in Mucoadhesive Drug Delivery by Using Levamisole as a Model Drug” has been carried out on drug levamisole for preparation of mucoadhesive immunostimulant formulation with purified polysaccharide of Aegle marmelos purified polysaccharide. The present work and its experimental findings were drafted into a thesis which has been divided into eight chapters that are presented in order. These chapters cover all the aspects of research work.

Chapter 1 covers with the Introduction of immune system, natural and synthetic immunostimulants drugs and different immunostimulant polysaccharides isolated from natural origin along with their synergistic activity. Further, an introduction to Aegle marmelos and the drug profile of Levamisole have been presented. A general introduction to mucoadhesive drug delivery systems and the recent application of polysaccharide based drug delivery also have been discussed.

Chapter 2 deals with review of literature supporting the present research work based on natural immunostimulation agents with a special emphasis on immunostimulants polysaccharides. This part also covers brief review on mucoadhesive drug delivery system with natural polysaccharides.


Chapter 3 covers the basic aim and objectives of present research work. This includes a brief description of the approaches used to achieve the objectives.

Chapter 4 describes the extraction of polysaccharide from *Aegle marmelos* and its evaluation as pharmaceutical excipient.

Chapter 5 deals with Toxicity test of purified polysaccharide extracted from *Aegle marmelos* (AMPS) for discerning the compilations arising from the therapeutic use.

Chapter 6 covers the preparation of controlled release mucoadhesive tablets of Levamisole by using AMPS and evaluation of mucoadhesive properties by different methods.

Chapter 7 deals with immune synergistic activity of levamisole along with polysaccharide extracted from *Aegle marmelos* via different immunostimulation test models such as carbon clearance test, neutrophil adhesion test, haemagglutination antibody (HA) titer test and SRBC-Induced Delayed-type hypersensitivity (DTH) test.

In Chapter 8 a precise summary and conclusions of the entire work have been drawn. List of publications based on present research work and related to the approaches are included at the end of the thesis.