

CHAPTER 3

AIMS AND OBJECTIVES

The aims and objectives of the study are as follows:

- To study the effects of ISO on the levels of various biochemical, hemodynamic and histopathological changes with reference to oxidative stress.
- To evaluate, whether vitamin E, green tea, lycopene, *Lagenaria siceraria* fruit juice and pomegranate fruit extract possess cardioprotective effects during experimental myocardial infarction in rats.
- To, investigate, whether vitamin E alone and in combination with green tea, lycopene, *Lagenaria siceraria* fruit juice and pomegranate fruit extract could counteract the oxidative stress induced during experimental myocardial infarction in rats by evaluating various biochemical, hemodynamic and histopathological changes.
- To, investigate, whether vitamin E alone and in combination with green tea, lycopene, *Lagenaria siceraria* fruit juice and pomegranate fruit extract could counteract the necrotic and apoptotic changes during experimental myocardial infarction in rats.
- To study the comparative antioxidant activity of Vit.E, green tea extract, Lycopene, LSFJ and PGFE by using *in vitro* methods, like DPPH assay, superoxide radical assay, nitric oxide scavenging assay and iron induced lipid peroxidation.

Scope of the Study

- Vitamin E in combination with green tea, lycopene, *Lagenaria siceraria* fruit juice and pomegranate fruit extract when proved to possess a potent cardioprotective combination would serve as an efficient phytopharmaceutical/nutraceutical that is ubiquitously available and non

toxic as only low doses of the drugs will be required for the cardioprotection due to its potent actions.

- Vitamin E in combination with green tea, lycopene, *Lagenaria siceraria* fruit juice and pomegranate fruit extract when proved to possess a potent cardioprotective combination would certainly serve as an indigenous substitute for very expensive cardiovascular drugs/therapy and serve as novel strategy to make protocols in antioxidant therapy against several oxidative stress mediated biochemical disorders.
- Understanding the biochemical and molecular mechanisms of Vit.E alone and its combination with above antioxidants mediated cardioprotection may have a significant impact in the clinical treatment of myocardial diseases and such an understanding will promote further research and clinical trials in using these combinations as potent cardioprotective agent.

Thus the present study holds significance in an attempt for an effective therapeutic approach with the use of reduced drug dosage to avoid toxicity and adverse side effects