PREFACE

Among various plants of medicinal significance, Pomelo [Citrus maxima (J.Burm.) Merr.] and Bitter orange (Citrus aurantium Linn.) are popularised world wide for their delicious taste of fruits and health promoting properties. The fruits of citrus can be consumed mostly fresh and has been used as a herbal medicine or additive or food supplement. Citrus is believed to possess bioactivities such as antioxidant, anti-inflammatory, antimicrobial and is suggested to be prevention of cancer and degenerative diseases. Those bioactivities of citrus are due to the presence of bioactive compounds such as phenolics, flavonoids, essential oil, vitamins and the most important antioxidants. Antioxidants are the substances, compounds or nutrients in our bodies, which are able to remove the deleterious effects of free radicals within our body.

The present research work embodied in this thesis is planned to investigate and asses some effective anti-microbial anti-oxidant components of Citrus maxima (J.Burm.) Merr. and Citrus aurantium Linn. (Family:Rutaceae) leaf, stem bark and fruit peel extracts through the various profiles, such as, Acute Toxicity (LD$_{50}$), Antimicrobial activity which includes Antibacterial and Antifungal Activity, In-Vitro Antioxidant Activity, Analgesic Activity, Anti-inflammatory Activity, In-Vitro Anticancer Activity of Tryphan Blue Exclusion Assay for cell viability/cell death and In Vivo Antitumor Activity.
The plan of work consists of introduction, objectives, literature survey, experimental methodology, experimental results, discussion of results and summary, conclusion and recommendations which are incorporated in 7 chapters.

The investigations through all the foresaid methods revealed that, *Citrus maxima* and *Citrus aurantium* could be a potential natural source of various useful bioactive compounds which can be employed to treat some bodily disorders and infections in man.

Overall the Leaves, stem bark and fruit peels of *Citrus maxima* (*Pomelo*) and *Citrus aurantium* (*Bitter orange*) are having *in vitro* antioxidant, anti microbial, anti inflammatory, analgesic and anti-cancerous properties against HeLa cell line by trypan blue dye exclusion method and also against Ehrlich ascites carcinoma (EAC) inoculated tumor-bearing mice.