

Preface

The knowledge of Traditional Medicine and the medicinal plants, parts of plants and isolated phytoconstituents for prevention and treatment of various health ailments has been in use from time immemorial. Traditional medicine is being used as primary healthcare by about 65-80% of population in developing countries. It is also attracting attention in developed countries as an alternative to high cost modern drugs; for diseased condition with no or inadequate modern medicine and also being less toxic with fewer side effects as compared modern drugs. About 25% of drugs prescribed worldwide are derived from plants and 121 such active compounds are in use. Of the total 252 drugs in WHO's essential medicine list 11% is exclusively of plant origin. In India about 80% of the rural population uses medicinal herbs or indigenous systems of medicine.

Compromise in congruity of any tissue is classified as a wound (example skin breaks, muscle tears, burns or a bone fracture). It may result from a random fall, a bruising accident, surgery, an infection or a covert etiological ailment. The causative factors, signaling intermediaries, pre-existent diseases and type of injury all cumulatively determine whether the wound will be acute or chronic. Wound healing is a dynamic complex mechanism aimed towards re-attainment of tissue integrity and homeostasis involving inflammation, re-epithelization, granulation tissue formation, neovascularization, wound contraction and remodeling of extracellular matrix. It is coordinated by complicated signaling system involving various growth factors, cytokines and chemokines. Cell proliferation is an imperative step in tissue repair and regeneration in wound healing process. Constrained healing hampers the life of plenty, and

consequently more efforts are being directed towards investigating cost effective and accessible therapeutic approaches.

Plants and their phytoconstituents have been long-established to treat wounds. *Leea macrophylla* Roxb. ex Hornem. (Leeaceae), commonly known as Hastikarnapalasa is a wild edible plant with high nutritive value in terms of minerals and vitamins content (B1, B2, C and B12). Despite a few leads have been taken to investigate the pharmacological activity of the plant, however no scientific report has been explored about the traditional use of it in the treatment of wound healing. Hence, the present study intends to investigate pharmacognostical standardization of *Leea macrophylla*, which includes macroscopical, microscopical, physicochemical and phytochemical evaluations and DNA fingerprinting analysis. Further, the study also scientifically validates the traditional wound healing claims of *Leea macrophylla* root tubers.

The subject matter of the thesis has been divided into the following chapters:

- **Chapter I** deals with the introductory part which provides information about the importance of medicinal plants in human health care system. It also provides brief information on wound healing.
- **Chapter II** deals with the detailed literature review on wound healing and the therapies available for it. It also provides detailed information of the plant under investigation i.e. *Leea macrophylla*.
- **Chapter III** deals with the objective of the study and briefly describes the plan of the present study.
- **Chapter IV** includes the experimental methods implemented in the pharmacognostical standardization and evaluation of wound healing activity of *Leea macrophylla*.

- **Chapter V** represents the results section.
- **Chapter VI** deals with the discussion on the observed results.
- **Chapter VII** includes conclusion section which is followed by references and list of papers published.