Preface

This work was carried out as part of the project entitled “Anti aging & Anti wrinkle Formulation with Matrix Metalloproteinase Inhibitory Activity from Natural Resources”, supported by Drug and Pharmaceutical Research Program (DPRP), Department of Science & Technology, Ministry of Science & Technology, Govt. of India, New Delhi.

Herbs have been used by all cultures throughout history but India has one of the oldest, richest and most diverse cultural living traditions associated with the use of medicinal plants. The use of complementary and alternative medical therapies has become a common trend around the world and its utilization has been documented extensively over the last decade. Evaluation of anti-aging efficacy of herbal drugs has become one of the major concerns with tremendous increase in the application of traditional medicine for the treatment of skin aging and related diseases worldwide. Lot of skin care products including anti-aging creams, ointments is available for protecting and restoring the skin damage. In spite of their good antioxidant property or skin care property they have several disadvantages like side effects, allergic reactions, high cost, contact time during cleansing is too little to ensure any anti-wrinkle effect etc. Hence it is of great interest to search new anti-aging skin care leads from natural resources so as to ensure the desire anti-aging effect of herbal products through quality control measures. Preclinical evaluation is important not only for establishing the therapeutic efficacy of the medicinal plants but also validate their traditional claim in folklore system.

In this thesis work four traditionally important Indian medicinal plants were screened for anti-aging activity standardized with respect to their major bioactive compounds through RP-HPLC analysis. This thesis highlights anti-aging potential of different methanol extracts of botanical, and their ethyl acetate, n-butanol and aqueous fractions screened for in-vitro hyaluronidase, elastase and matrix metalloproteinase-1 enzymes inhibition assays. All the analytical procedures were optimized in our laboratory. Among them some standard analytical methods for RP-HPLC were validated with special reference to ICH guidelines. Medicinal plants are therapeutically used for various diseases in different countries and mostly lack of proper validation on their quality control and assurance. Cosmetic formulations based on botanical ingredients have been used since from ancient times, and botanical and natural extracts plays a major role in contemporary cosmetics. Scientific researches continue to corroborate traditional uses of many plants for skin benefits to elucidate biochemical mechanisms of action for a growing number of phytochemicals. The results can be useful for an initial assessment of anti-aging activity of selected plants for the potential risk of skin aging and related diseases. Additional pre-clinical research is mandatory to optimize the application of natural ingredients for cosmetics.

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