During the evolution biological systems became complex. Aberrations in these complex systems caused ill health. With the acquisition of physical skills, the will emerged to mould things according to one's wishes. This led to the search for remedies to treat ill health. Some contemporary logic, some empiricism and considerable experience led to systematisation of this search and practice. As in the case of all knowledge and experiences, the art of healing also was passed down the generation, as a tradition over several centuries. This is what we know as traditional medicine which was being practised all over the world until few centuries ago. This traditional medicine was an integral part of the lifestyle which remained stable for a very long period. Certain communities advanced more rapidly in the scale of civilisation and the systems of medicine also became more organised. With improved communications these thoughts and systems spread to other parts of the world and got altered according to local situations, while retaining the basic concepts and practices. As the modern scientific thought evolved in Europe, and physical science developed, the roots of traditional medicine also got influenced, acquired the spirit of enquiry and was ultimately transformed into what is known as modern medicine. The British rulers introduced western education system in India about 200 years ago and the modern medicine automatically followed and flourished. But inspite of the royal patronage to modern medicine, the traditional systems of medicine in India could not be replaced and continued to be popular. This could not have happened unless there were some merits in these systems.

After independence, the traditional Indian systems of medicine received state patronage, but by this time modern medicine
had acquired respectability among the local educated urban Indians. The impression was created that the traditional medicine is empirical, stagnant, crude, ineffective and used by uneducated rural poor people because they had no alternatives. On the other hand the modern medicine was scientific, progressive, refined, spectacularly effective and accepted by all.

These comparisons are highly misleading because two systems of medicine have entirely different philosophies regarding ill health and disease. Whereas Unani and Ayurvedic medicines aims at preserving and restoring health by selecting proper habits and environment, suitable to physiological processes including the temperament, the modern medicine has concentrated its efforts, on finding the causes of ill health and influencing physiological processes through chemicals to reverse or overcome the pathological processes. It is only recently that the modern medicine has been forced to study the influence of habits, environment, temperament and body's natural defences - the factors which are so basic to Ayurvedic and Unani systems of medicine.

During the early years of independence it was realised that the traditional Indian systems of medicine should be evaluated by modern scientific methods. The emphasis then was on evaluating the traditional remedies by established modern techniques of drug evaluation and compare these with prototype drugs in modern medicine.

About seventy to eighty percent of the total Indian population, particularly those living in villages and who ill-afford to go in for costly modern medicines, rely on indigenous medicinal systems to provide relief from diseases. Medicinal wealth of agricultural countries like India is enormous due to varied climatic
Ill conditions and the plants form the basis of our ancient Unani and Ayurvedic systems of medicine. Despite the spectacular advances, synthetic drugs have experienced setback due to acute toxicity and side effects and this has created a revival of interest in the exploration and development of natural products for therapeutic purposes. Efforts were first initiated at the School of Tropical Medicine, Calcutta, Haffkins Institute, Bombay and later on at Central Drug Research Institute, Lucknow, University of Delhi and Calcutta etc.

Plants with medicinal properties enjoy the highest reputation in the indigenous systems of medicine all over the world. Search for therapeutic agents from natural sources has equipped modern medicine with a wide range of curative agents which despite the remarkable success in synthetic drugs have retained their importance. Plants have been the subject for the search of new or better drugs and new lead molecules for the drug development programme. These include digoxin and digitoxin from foxglove, Digitalis purpurea, to treat an ailing heart to give a slower and stronger heart beat; quinine, the major alkaloid from Cinchona officinalis, the bark of which was used by the Incas to treat malaria; reserpine from Rauwolfia serpentina which is used for treating hypertension; leu-rocristine and vincaleucoblastine as antileukaemic agents from Catharanthus roseus etc.

Plants such as these are becoming increasingly important in medical research. Researchers throughout the world are carrying out methodical surveys of untested plants in the hope that chemicals like digoxin or reserpine will be found to cure our many ills. Some International organisations e.g. WHO, UNICEF and NIH are taking...
interest in sponsoring research programmes based on the therapeutic claims of traditional medicines in developing countries. In India such type of research programmes are financed by Council of Scientific and Industrial Research and Indian Council of Medical Research to evaluate the importance of indigenous drugs, it is estimated there are some 5,00,000 practitioners of traditional medicine already involved in Indian health care.

The WHO has compiled an inventory of medicinal plants, the list contains some 20,000 plants from 90 countries. For immediate practical use an initial list of 228 plants has been prepared which have effective pharmacological activities.

In an attempt to exploit the floral wealth and to take advantage of vast knowledge of our ancient Ayurvedic and Unani treatises, Central Drug Research Institute, Lucknow, has started a systematic comprehensive programme since 1965. Under this programme each plant collected is subjected to primary pharmacological and other biological tests, such as anticancer, antimicrobial, anti-amoebic, antihelmintic and for various pharmacodynamic activities like antifertility, cardiotonic, spasmylytic, diuretic and anti-inflammatory etc. Those plants which are confirmed in any of these test systems, are subjected to detailed chemical investigation. About 3,000 plants have been screened so far and about 300 have been selected for detailed chemical follow up studies on the basis of their marked biological activities.

As a part of the above programme, this dissertation embodies the results obtained from the chemical investigations of three plants viz. Rhynchosia suaveolens, Lonicera hypoleuca and Heracleum thomsoni and is described in chapters 1—3. These plants showed antibacterial
and spasmolytic activities during the preliminary screening of their crude extract.

The potential therapeutic utility of some natural products is severely limited by their acute toxicity and rather narrow spectrum. Researches have therefore been directed towards the preparation and testing of structural analogues of these natural products in an effort to obtain compounds that might have a more favourable therapeutic index. Keeping in view this objective structural analogues of 4-hydroxy and 4-hydroxy-1-methyl-2 (1H)-quinolinones and ginnol as potential antiadrenergics were prepared which is described in chapter—4. The last chapter summarises the biological activities of the compounds described in the present investigational work.