1. INTRODUCTION

The use of plants by man as food dates back to ancient times when man was just emerging from the wild beast stage. Since then, the evaluation of plants as source of food, fabric, fuel, for construction, and medicine has always attracted human curiosity and driven his quest for such and other sources. Early searches had been for edible plants (many of which proved to be poisonous) but were found to relieve pain and cure certain diseases, when used in mild quantities or small doses. Such plant species were designated by man as the drug plants or medicinal plants.

The knowledge of our Rishis and Herbalists about medicinal plants has proved a great blessing for the people, since times immemorial. This created awareness and curiosity among the people to seek this knowledge from these ascetics and scholars. A few dedicated locals were lucky to inherit this knowledge which in turn got passed on from generation to generation and forms the traditional practice of ‘herbal cure’ even today. In many parts of the world, herbs are still used to cure various diseases such as snake bite, scorpion sting, rabies, bone fractures, eczema, wounds, gangrene, and even for inducing abortions and birth control. Many verses, songs, folk-tales, myths and legends written about the virtues of plants are in existence in different parts of the India. The evolution of this information has yielded amazing results and provided many new potent drugs to the industry.

However, the practice of herbal cure has mostly depended on the good memory of the practitioners and suffered a lot, owing to illiteracy and lack of proper written records. The person knowing the art of healing usually did not reveal his knowledge to novice for fear of being misused. As a result, much of the valuable knowledge of practitioners used to be lost with their death.

As a result of the pursuits of earlier physician-cum-botanists, the study of drugs and drug plants has developed into Modern Pharmacognosy, dealing with the knowledge of history, botany, properties, method of collection, preparation and preservation, and commerce of crude drugs. Throughout the world, primitive people have utilised several thousands of different plants and plant products as cure for human ailments. However, many of these have now become obsolete because of the availability of synthetic drugs.
which are more potent. During the last quarter of the 20th century, there has been a renewal of interest in natural plant products as they have been found to be biologically most compatible with human systems and comparatively less toxic than their synthetic forms. This realization created an urge for unravelling the secrets of those plants that had been, and were still used for the treatment of human infirmities. During the past few decades, ‘Ethnobotany’ has been recognised as a valid discipline for playing a very important role in the development of new drugs. The so called ‘Wonder Drugs’ of the recent past have revolutionised the modern medical practices. Scientists in various countries are now engaged in discovering or rediscovering the usefulness of plant materials, which are mentioned in folklore or traditional systems as indigenous cures for several ailments.

Throughout human history people have relied on natural products in general and the plants in particular, to promote and maintain good health and to fight sickness, pain, and disease. However, the past 200 years have witnessed not only an acceleration in the rate of extinction of plant and animal species, but also the erosion of traditional knowledge related to the medicinal properties and uses of plants and other natural products. While ‘modern’ (allopathic) medicine has, in many parts of the world, replaced traditional medical practices to the benefit of individual and public health, we are becoming increasingly aware of its limitations, i.e. its ineffectiveness in dealing with a large number of conditions and diseases, the often unforeseen negative side effects of synthetic drugs, and the ever-rising costs of medical treatment, including pharmaceuticals. As a result, the public and an increasing number of physicians and public health specialists throughout the world are taking a second look at ‘alternative’ or ‘complementary’ medicines in general and traditional plant based drugs in particular.

Regardless of the future of plant based drugs in health-care systems of the more affluent countries of the world, effective western-style medicine is neither accessible nor affordable for hundreds of millions of people worldwide (Bodeker et al. 1997; Lambert et al. 1997). Nowhere is this more true than in India where, inspite of the rapid and widespread diffusion of western medical practices throughout the country during the past 150 years, the majority of the population continues to rely on traditional medicine for its health care needs. As in China, traditional medicine in India has a more or less unbroken
history going back millennia (Van Alphen and Aris 1995). In addition to several well
known systems such as Ayurveda, Siddha and Unani, that have developed in South Asia
over the centuries, there still exists a wealth of uncodified knowledge that is part of the
cultural heritage of the hundreds of tribal societies in India today.

India has been gifted with rich resources, coupled with diversity in soil, climate
and biota. With less than 8% of the total area of the world, India is home to 8% of the
world’s biodiversity, making it as one of the 12 mega diversity centres of the world
(Tyagi et al. 2003). India enjoys the privilege of having time tested traditional systems of
medicine, based on the natural products. These traditional Indian systems of medicines,
namely Ayurveda, involves dispensing of herbal and plant products in various forms such
as powders, extracts and decoctions. It is estimated that even today the herbal drugs
constitute about 80 percent of the Indian medicines. Some of these drugs have withstood
the test of time and have shown their remarkable curative properties, even after being
subjected to vigorous testing by the modern scientific techniques. Many species of
medicinal plants have entered the list of endangered species or have become extinct with
the passage of time due to human ignorance about their virtues, or the greed for collecting
more quantity to earn instant money. In India, about 2535 species of plants are credited
with medicinal properties and only a few of these are cultivated, while others grow in
wild state (Chopra et al. 1958). National Cancer Institute (USA) screened over 1,80,000
plant extracts from 3500 plant genera and obtained interesting leads (Aszalos 1982; Dev
1997). In India, Central Drug Research Institute (Lucknow) has screened nearly 2500
plant species for a wide range of pharmacological activities during the past 20 years (Dev
1997). The National Chemical Laboratory, Pune, the Central Council for Research in
Ayurveda and Sidha, and various University Departments and Medical and
Pharmaceutical Institutes are also engaged in chemical and biochemical screening of
plants.

Natural products are the major source of bioactive molecules and have played a
dominant role in the discovery of lead compounds for the development of drugs for the
treatment of human diseases (Newmann and Cragg 2007). Among the bioactive
secondary metabolites present in medicinal plants, alkaloids, bioflavonoids, isopronodes
and steroids are of high interest. Discoveries of anti-cancer compounds such as taxol,
vinblastine and colchicines have encouraged the total synthesis of these compounds (Nicolaou et al. 1994; Graening and Schmalz 2004) or synthesis via natural product based scaffolds or pharmacophores (Newmann and Cragg 2007).

The advent of high-throughput screening technology in the 1990s resulted in the generation of chemical libraries. However, despite the generation of impressive, extensive chemical libraries, the change-over from traditional to combinational synthesis has been slow to generate any significant increase in the number of new drugs that enter the market (Leach and Hamm 2000). Indeed Newmann and Cragg (2007) pointed out that only one anti-cancer drug (sorafenib or nexavar) was developed de novo during the last 25 years. Because of the slow rate of new drug discovery, a return to biological sources for drug discovery is under way.

In recent decades, there has been a vigorous effort within India to conserve, document and promote knowledge of plant drugs and to develop pharmacological research programmes for the benefit of both traditional and modern medical systems. An impressive number of research centres have been established by government agencies, private organizations, universities and pharmaceutical companies to study the taxonomy, distribution, ethnobotany, cultivation, genetic improvement, and the chemical and pharmacological properties of plants used in traditional Indian medicine (Mitra and Jain 1991). Today there are over 500 government and non–government organizations, agencies, associations, foundations, societies, and universities which study and publish articles on traditional Indian systems of medicine, medicinal plants and related subjects. More than 200 public and private organizations, including Ayurvedic, Siddha and Unani Colleges offer training in medicinal plant studies, traditional Indian systems of medicine, and related disciplines. Throughout India, hundreds of botanical gardens, museums, germplasm and seed banks, nurseries, herbaria, analytical and testing facilities, and plant drug certification services have been established to provide quality plant material and reliable information on the properties, uses and cultivation of medicinal plants. Numerous books and nearly 200 journals and other periodicals reporting on indigenous medicinal plants are published in India each year that are available to the public through more than 100 publishers and major book distributors. In addition to an estimated 7500 Ayurvedic, Siddha and Unani pharmacies and countless numbers of small phyto–pharmaceutical
businesses in India today, there are nearly 300 major, mostly commercial enterprises engaged in plant drug research and manufacture.

Although, there has been an increasing upsurge of interest in the study of medicinal plants, there is still a huge resource of medicinal plants growing in nature, which remain to be recognized, identified and properly evaluated for their medicinal properties. It is encouraging to note that studies have been initiated for the analytical and scientific determination about the efficacy of better known medicinal plants in the treatment of various diseases. Much activity has also been witnessed in the study of evaluation of the medicinal plant wealth of various geographic regions of India, as evidenced by the appearance of a large number of publications on this aspect of study. It is likely that with extensive survey and screening of our plant wealth, many newer sources of drugs would become available for the services of mankind. There are still many more plants growing in nature, which have yet to be recognized, identified, and properly evaluated for their medicinal properties. The folklore medicines of the primitive tribes and aboriginals are also the reservoirs of information which need to be exploited (Mehra et al. 1969; Nautiyal and Nautiyal 1983). Today, and in the decades to come, we have a golden opportunity, and indeed an obligation, to take stock of the vast store of traditional knowledge on the healing properties of the earth’s plant resources and to facilitate a constructive dialogue among research scientists and medical professionals across disciplinary, political and cultural boundaries to better meet the growing health-care needs of people, while effectively managing and conserving these vital resources.

As a result of extensive efforts of scientists, some meticulous details about the description of medicinal plants have now become available but an authentic identification of several of these species has always been a handicap. The ignorance about the authentic identification of plants has led to a situation where the same herbal plant is known by different names and even widely different species have been assigned the same name. This has led to serious implications. An authentic description of herbal plants, in certain and currently valid terms, illustrations depicting distinguishing features, local and scientific names, the chemical constituents and the active principles, has been an essential need of the physicians and manufactures of herbal medicines, formulations and mother tinctures.
It is with this aim of contributing to this void of knowledge, that the present study on Medicinal Plants of Amritsar was undertaken with the following objectives:

1. To survey existing medicinal flora (wild and cultivated) of Amritsar district.
2. To collect, describe and identify medicinal plants and their preservation in the form of herbarium sheets.
3. To compile therapeutic properties of the above plants from literature, local people, herbal doctors, internet etc.
4. To photograph plants in flowering/fruiting season so as to focus on complete plant and its parts of medicinal importance.
5. To document the use of these plants in various Ayurvedic formulations being undertaken by different companies.