1. Introduction

India is one of the 12 mega biodiversity centers having 45,000 plant species; its diversity is unmatched due to the 16 different agroclimatic zones, 10 vegetative zones, and 15 biotic provinces. The country has a rich floral diversity. Traditional medicine is the synthesis of therapeutic experience of generations of practicing physicians of indigenous systems of medicine. Traditional preparation comprises medicinal plants, minerals and organic matters etc. Herbal drug constitutes only those traditional medicines that primarily use medicinal plant preparations for therapy. The ancient record is evidencing their use by Indian, Chinese, Egyptian, Greek, Roman and Syrian dates back to about 5000 years. About 500 plants with medicinal use are mentioned in ancient texts and around 800 plants have been used in indigenous systems of medicine. Indian subcontinent is a vast repository of medicinal plants that are used in traditional medical treatments, which also forms a rich source of knowledge (Zeeshan et al., 2009).

A review on Indian Traditional system of medicine

Traditional knowledge associated with medicinal herbs and cultivation, innovation and preservation of medicinal herbs is a highly gendered activity in most countries. Traditional medicine is widely used in India, particularly in rural areas; Ayurveda, Unani, Siddha, naturopathy, homeopathy and yoga are recognized by the Government of India under the Central Council of Indian Medicine Act (WHO 2001).

The various indigenous systems such as Siddha, Ayurveda, Unani and Allopathy use several plant species to treat different ailments. In India around 20,000 medicinal plant species have been recorded recently (Dev, 1997). But more than 500 traditional communities use about 800 plant species for curing different diseases (Kamboj, 2000).

1.1 TRADITIONAL HERBAL MEDICINE AND PUBLIC HEALTH CARE

India traditional medicine is based on various systems including Ayurveda, Siddha and Unani. These traditional systems of Indian medicine have their uniqueness, but there is a common fundamental principles and practices. According to the WHO, the definition of traditional medicine may be summarized as the sum total of all the knowledge and practice, used in the diagnosis, preventions and elimination of the
physical, mental or social imbalance and relying exclusively on practical experience and observation handed down from generation to generation, whether verbally or in writing (Ramawat et al., 2008). Traditional medicinal might also be considered as a solid amalgamation of dynamic medical known and ancestral experience.

The medicinal plants play a major role and constitute the backbone of the traditional medicinal. India material medical includes about 2000 drugs of natural origin almost all of which are derived from different traditional system and folklore practices.

The traditional systems of health care have undergone a major revival in the last twenty years. Every region has at one time in its history a form of traditional medicinal. This medicinal is traditional because it is deeply rooted in a specific sociocultural context, which varies from one community to another. Each community has its own particular approach to health and therapeutic behavior. The interest in traditional knowledge is now widely recognized in development policies, the media and scientific literature. In India traditional health and remedies made from plants play an important role in the health of millions of people.

Traditional use herbal medicine is the basis and integral part of various cultures for thousands of years. Plant based drugs (natural drugs) may be used directly or they may be collected, dried and used as therapeutic agents (crude drugs) or their chief constituents/active principles separated by various chemical processes which are employed as medicines. The active principles may be carbohydrates, glycosides, tannins, lipids, alkaloids etc. These active principles are manufactured chemically to produce the synthetic drugs.

**Problems with modern drugs**

- High cost and long time taken in development of a new drug.
- Toxicity
- Non-renewable source of basic raw materials.
- Environmental pollution by the chemical industry.
- Inadequate, especially in management of certain chronic diseases.
Advantages of Plant Based Drugs

- Long history of use and better patient tolerance as well as public acceptance.
- Renewable source.
- Cultivation and processing environmental friendly.
- Local availability, especially in developing countries.
- Several important recent breakthrougths.
- Plant constituents are considered to be a major source for identification of lead compounds in the drug development techniques.

In spite of the fast trend in synthetic chemistry, more of the populations still rely on tradition system of medicine based on the belief that herbs are safe and free from side-effects.

1.2. ROLE OF MEDICINAL PLANTS AND ITS RECENT DEVELOPMENT

Today, majorities of the medicines are prepared from the plant, animal products, minerals and metals etc. Major pharmaceutical industries depend on the plant products for the preparation of Ayurvedic medicines. In the present context, the Ayurvedic system of medicine is widely accepted and practiced not only in the Indian Peninsula but also in the developed countries such as Europe, United States and Japan. Plant derived medicines have been the first line of defense in maintaining health and combating diseases. (John, 1984 and Veale et al., 1992).

In the last century, roughly 121 pharmaceutical products have been discovered based on the information obtained from the traditional healers (Anesini et al., 1993). Chemical principles from natural sources have become much simpler and have contributed significantly to the development of new drugs from medicinal plants. (Cox et al., 1994 and Perumal et al., 2010)

Biologically active compounds from natural sources have always been of great interest to scientists working on infectious diseases. Research to find out scientific evidence for claims of plants used for Indian Ayurvedic system of medicine has been intensified. Detailed research on the chemistry and pharmacology of products of plant
origin are much essential and this may eventually lead to the discovery of medicine that can be used in the treatment of several diseases.

1.3. HERBAL MEDICINES AND ITS ADVANTAGES

There are a number advantages associated with using herbal medicines as opposed to pharmaceutical products.

**Reduced risk of side effects**

Most herbal medicines are well tolerated by the patient, with fewer unintended consequences than pharmaceutical drugs. Herbs typically have fewer side effects than traditional medicine, and may be safer to use over time. Herbal medicines are known to be more productive in comparison to other forms of medication in curing certain conditions. Unless mixed with other chemical components, they are known to be all natural. One of the greatest benefit associated with herbal medicine is the non existence of side effects. Also, they tend to offer long lasting benefits in terms of overall wellness.

**Effectives with chronic conditions**

Herbal medicines tend to be more effective for long-standing health complaints that don't respond well to traditional medicine. One example is the herbs and alternative remedies used to treat arthritis. Another example obesity was a growing problem which was known to have hazardous issues on an individual’s health. Herbal medicine can help one deal with the problem of obesity very effectively without consuming much time and efforts.

**Lower cost**

Another advantage to herbal medicine is cost. Herbs cost much less than prescription medications. Research, testing, and marketing add considerably to the cost of prescription medicines. Herbs tend to be inexpensive compared to drugs.

**Widespread availability**

Yet another advantage of herbal medicines are their availability. Herbs are available without a prescription. You can grow some simple herbs, such as peppermint.
and chamomile, at home. In some remote parts of the world, herbs may be the only treatment available to the majority of people.

**Demand of Herbal Medicine**

Despite the dramatic advancement and advantages of conventional medicines herbal drug have much to offer. Today, herbal drugs are coming back into prominence. Side effects of the conventional medicines such as antibiotics, antimicrobial agents are the major problems. Over the years, some of the infectious organisms have developed resistance to synthetic drugs too. Medicinal chemist is taking for more potent and effective drugs hence more complications.

Herbals are used in the art of healing since the time immemorial. The primitive man through trial and error gained knowledge of herbal and passed it on to the next progeny. It is reasonable to assume that for ten thousands of year herbs were perhaps used for the magical power as well as for their medicinal values.

Despite the development in the modern medicines, the use of herbs is still increasing, why? For thousands of year and other products from the natural source have been used in treating various diseases. Some of those in current use have been an ancient heritage, whereas other have arisen from discoveries and cultural trend in more recent centuries. All therapy referred to as alternative or complementary came from outside the main stream (Raman et al., 2001).

### 1.4. WHO STATEMENT ON HERBAL DRUGS

About 70.80% of the world populations, particularly in the developing countries, rely on non-conventional medicine in their primary healthcare as reported by the World Health Organisation. In recent years, there has been growing interest in alternative therapies and the therapeutic use of natural products, especially those derived from plants (Akerele, 1993). This interest in drugs of plant origin is due to several reasons, namely, conventional medicine can be inefficient (e.g. side effects and ineffective therapy), abusive and/or incorrect use of synthetic drugs results in side effects and other problems, a large percentage of the world population does not have access to
conventional pharmacological treatment, and folk medicine and ecological awareness suggest that natural products are harmless.

However, the use of these substances is not always authorized by legal authorities dealing with efficacy and safety procedures, and many published reports point to the lack of quality in the production, trade and prescription of phytomedicinal products. About 25% of the drugs prescribed worldwide come from plants, 121 such active compounds being in current use. Of the 252 drugs considered as basic and essential by the World Health Organisation (WHO), 11% are exclusively of plant origin and a significant number are synthetic drugs obtained from natural precursors. Examples of important drugs obtained from plants are digoxin from *Digitalis* spp., quinine and quinidine from *Cinchona* spp., vincristine and vinblastine from *Catharanthus roseus*, atropine from *Atropa belladonna* and morphine and codeine from *Papaver somniferum* (Vulto et al., 1988).

1.5. A REVIEW ON THERAPEUTIC ROLE OF MEDICINAL PLANTS

Medicinal plants play an important role in the development of potent therapeutic agents. During 1950-1970 approximately 100 plants based new drugs were introduced in the USA drug market including deserpidine, reseinnamine, reserpine, vinblastine and vincristine which are derived from higher plants. From 1971 to 1990 new drugs such as ectoposide, guggulsterone, teniposide, nabilone, plaunotol, lectinan, artemisinin and ginkgolides appeared all over the world. 2% of drugs were introduced from 1991 to 1995 including paciltaxel, toptecan, gomishin, irinotecan etc (Rates, 2001).

Plant based drugs provide outstanding contribution to modern therapeutics. For example serpentine isolated from the root of Indian plant *Rauwolfia serpentina* in 1953, was a revolutionary event in the treatment of hypertension and lowering of blood pressure. Vinblastine isolated from the *Catharanthus roseus* is used for the treatment of Hodgkins, choriocarcinoma, non-hodgkins lymphomas, leukemia in children, testicular and neck cancer. Vincristine is recommended for acute lymphocytic leukemia in childhood advanced stages of hodgkins, lymphosarcoma, cervical and breast cancer (Sheetal Verma et al., 1987). Phophyllotoxin is a constituent of *Phodophyllum emodi*
currently used against testicular, small cell lung cancer and lymphomas. Plant derived drugs are used to cure mental illness, skin diseases, tuberculosis, diabetes, jaundice, hypertension and cancer. Medicinal plants play an important role in the development of potent therapeutic agents. Plant derived drugs came into use in the modern medicine through the usage of plant material as indigenous cure in folklore or traditional systems of medicine. More than 64 plants have been found to possess significant antibacterial properties; and more than 24 plants have been found to possess antidiabetic properties. *Daboia russellii* and *Naja kaouthia* used as antidote activity. Venom neutralization by lupeol acetate isolated from the root extract of *Indian sarsaparilla* and *Hemidesmus indicus* (Farnsworth *et al*., 1977)

**Need of scientific studies on herbal plants**

Tribal healers in most of the countries, where ethnomedical treatment is frequently used to treat cut wounds, skin infection, swelling, aging, mental illness, cancer, asthma, diabetes, jaundice, scabies, eczema, venereal diseases, snakebite and gastric ulcer, provide instructions to local people as how to prepare medicine from herbal. They keep no records and the information is mainly passed on verbally from generation to generation. World Health Organization (WHO) has shown great interest in documenting the use of medicinal plants used by tribal’s from different parts of the world. Many developing countries have intensified their efforts in documenting the ethnomedicinal data on medicinal plants. Research to find out scientific evidence for claims by tribal healers on Indian herbs has been intensified. Once these local ethnomedicinal preparations are scientifically evaluated and disseminated properly, people will be better informed regarding efficacious drug treatment and improved health status (Chatterjee *et al*., 2006).