Herbals –Origin of Medicament

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***Abstract*- Medicinal plants also called Herbs, have been discovered and used in traditional therapeutic practices since prehistoric times. Herbal plants play an important role in preventing and treating of human diseases. Plants produce thousands of chemical substances like phytochemicals for various functions including defense protection against bacteria, fungi, virus, insects and herbivorous mammals. However, plants are considered as thepotential source for the development of new herbal drugs. Medicinal plants are widely usedin non-industrialized societies because they are cheaper and lesser side effects than modern medicine. The annual global export value of the thousands of types of plants with medicinal properties was estimated to about US60$ billion per year and it is growing at the rate of 6% per annum. In many countries, there is little regulation of traditional medicine, but the WorldHealth Organization coordinates a network to encourage safe and rational usage. Therefore, the aim of present review is to understand the knowledge of the medicinal plants as a future source of herbal drugs.**

Keywords: **Medicinal plants, Herbal drugs, drug development.**

INTRODUCTION:

From the very beginning of human existence, man has familiarized himself with plants and used them in a variety of ways throughout the ages. Primitive man in searchof food and to cope successfully with human sufferings began to distinguish those plants suitable for medicinal purpose from others with definitive pharmacological action. Thisrelationship between plants and man has grown and many plants came to be used as medicines for the treatment of various diseases. The growth of knowledge curing diseases continued and number of new drugs invention increased likewise. At present, about 8 out of 10 drugs used to treat infection, cardiovascular disease, or cancers, or as immunosuppressive,come from plants, directly or as derivatives. Between 1981 and 2006, approval was grantedto 155 antitumor drugs, of which almost half were derived from natural products.

Many drugs that are available in the market today were derived from natural sources. An important example is the analgesic activity of Aspirin World's best medicine originated from the plant species *Salix* spp. and *Populus* spp. and it is related to salicin. Another example

Paclitaxel (Taxol [22]), which was first isolated from the bark of the Pacific yew tree *Taxus brevifolia* (Taxaceae), is the most recent example of an important natural product that has made an impact in medicine.

Using Various Methodologies to Discover New Plant-Derived Medicinal drugs.

The isolation of morphine, the first natural and pure plant-derived compound, from *Papaver somniferum* in 1803 marked the beginning of the era of drug discovery. About 80,000 herbal plants have been used for medicinal applications mainly in Asian medicines. About 20% of the available plants are used for medicinal purposes in India.

Wali et al. used an in vivo study on rats to demonstrate the anti-oxidant, hepatoprotective,and anti-inflammatory activity of the flavonoid naringenin (mainly found in Citrus fruits) Thementioned effects were observed upon administration of naringenin prior to treatment with the anticancer drug doxorubicin. The latter is known to increase the production of reactive oxygen and nitrogen species that can damage cells and lead to inflammation. The authorsused a variety of biochemical tests to measure the levels of reactive oxygen species (ROS), lipid peroxidation products, anti-oxidant enzymes, and inflammatory mediators released in rats treated with naringenin and exposed to doxorubicin. Naringenin was found to decrease lipid peroxidation by diminishing membrane fluidity and lowering the production of ROS, increase anti-oxidant enzymes, and decrease the levels of inflammatory mediators. A further histological investigation on liver tissues confirmed the preventative effect of naringenin against doxorubicin-induced hepatotoxicity.

Examples of modern drug discovery from plants:

An outstanding example of such a drug discovery process is artemisinin derivatives from *Artemisia annua*. Also known as Qing-hao in Chinese, this plant yields a highly oxygenated sesquiterpene called artemisinin. This is poorly bioavailable on oral administration despite its potent antimalarial activity. The Thornapple Datura stramonium has

been used for asthma, because it contains the alkaloid atropine, but it is also a powerful and potentially fatal hallucinogen.

The discovery of bicyclol for the treatment of hepatitis, an often fatal condition, is another example. The hepatitis B virus alone causes millions of cases and over a million deaths every year. Bicyclol is a synthetic second-generation derivative of a compound obtained from the fruit of the Chinese magnolia vine or orange magnolia vine (*Schisandra chinensis*), followingthe direction of traditional Chinese medicine (TCM).

The development process of a drug derived from medicinal plants includes:

* Isolation or chemical production of bioactive ingredients from plants.
* Standardisation of Raw drugs.
* Safety studies by different methods including systems pharmacology and conventionalpharmacology.
* Regulatory approval

Current status of herbal medicine

The Government of India has taken several measures to promote cultivation and export of medicinal plants. The International Cooperation Scheme by the Ministry of AYUSH providesfinancial assistance to exporters to help them participate in trade fairs, organise international business meets & conferences and avail product registration reimbursements. An equipped supply chain management and formation of farmer associations will improve the production and sales of medicinal plants in the country. The sector has observed recent entries of start- ups bringing in technology upgradation. These start-up are using precise farming techniques by integrating artificial intelligence (AI) and data analytics for crop profiling, seed analysis for better germination, among others.

Conclusion: With growing interest in herbal drug development with minimum side effects, there are better opportunities to explore the medicinal and other biological properties of previously inaccessible natural products. In the new era of twenty-first century, no life is possible on earth without herbal drugs or products that are obtained through natural herbal drug discovery. The discovery of plant-derived chemicals potentially useful for a range of therapeutic applications requires the use of a combination of approaches that involve ethnobotany, phytochemistry, medicinal chemistry, and pharmacology. Future discoveries in this field rely on the sustainable bioprospecting of plants. Finally, herbal harvesting must be done such that it does not affect the environment.

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