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Potential of Herbal Medicines: A Review

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ABSTRACT *India has variety of medicinal plants than in any other country. These plants have been used as effective therapeutic agents for the prevention and treatment of severe diseases for centuries by almost every known culture for safety, efficacy, cultural acceptability and minimal side effects to human body. Due to side effects associate with synthetic drugs, these herbs are in great demand all over the world but some studies have recently reported that all these medicinal plants are not safe as severe consequences are reported for some herbal drugs. There is need to evaluate the biological activity of compounds in unexplored medicinal plants. Combination of newer modern technologies with established traditional practices would provide cure for many dreadful diseases in a more effective way.*

Introduction
Medicinal plants may be defined as those plants that are commonly used in treating and preventing specific ailments and diseases and that are generally considered to be harmful to humans (Anselem, 2004). Medicinal plants perform a very dynamic and a supporting role in human health sector since the dawn of civilization. India has a long, rich, cultural and biological diversity. In India, approximately 2500 species as having medicinal value (Thatoi and Rout, 2011). According to the WHO, 80% of the rural population in third world countries used different kinds of locally available medicinal plants parts to cure of primary diseases.

It is estimated that about 64% of the total globe's population depend on traditional medicine (Famworth, 1994). The World Health Organization (WHO) has listed 21,000 plants, which are used for medicinal purposes around the world. India is the largest producer of medicinal herbs and is called as botanical garden of the world (Seth and Sharma, 2004). Approximately 3000 plants species are known to have medicinal properties in India (Praksha et al., 2010).

Chemistry of medicinal plants
All of the medicinal plants contain biochemical agents called as phytochemical constituents. Presence of medicinally active compounds like alkaloids, glycosides, flavonoids, steroid, terpenoid and tannins in most of the medicinal plants is responsible for their antibacterial property (Shinde and Mulay, 2015)

There are many different chemical elements that occur in nature, but only a relative few are found in phytochemicals. The most common ones are carbon, hydrogen, oxygen, nitrogen, sulfur, and phosphorus. Sometimes elements and ions like calcium, magnesium, iron, copper, selenium, or fluorine are associated with particular phytochemicals.

Do they really work?
Medicinal plants play crucial role in the treatment of dreadful diseases. Maurya and Shrivastava (2011) have reviewed several plant species which possess antiulcer, antipyretic, anti-diabetic and anti-cancerous activity. Green tea, Ginseng and garlic are known as chemopreventive agents. Mishra et al., (2000) review studies indicate that ashwagandha possesses anti-inflammatory, antitumor, antistress, antioxidant, immunomodulatory, hemopoietic, and rejuvenating properties along with its positive influence on the endocrine, cardiopulmonary, and central nervous systems. Since the ancient times, role of chaste tree (Vitex agnus-castus) in treating gynecological disorders has been well documented (Weisskopf et al., 2005). Saffron is effective anticancer and chemo preventive agent (Abdullaev and Espinosa-Aquire, 2004). Various antioxidants may prevent and/or improve diseased states (Sies, 1996; Devasagayam et al., 2004; Thomas and Kalayanaraman, 1997 and Yoshikawa et al., 2000).

Why people use herbal medicines?
Herbal medicines are being used by 75-80% of world population especially those living in developing countries (De Araujo Junior et al., 2012). It has been reported that most plants and plant extracts are used as prescribed medicines in France and Germany (Mukherjee et al., 2001) and in several parts of the world. These herbal medicines give hope to cancer patients, preventing disease to convert to metastatic form and minimizing the side effects of chemotherapy (Tavakoli et al., 2012). It is claimed that various parts of plant extract work together in a synergetic way. Because using several modern drugs at the same time is avoided as much as possible (Pal and Shukla, 2003). Herbal medicines are sophisticated natural compounds influencing at the same time the different phases of diseases through different mechanisms.

Are they really safe?
The literature includes a number of reports which clearly states that negative outcomes of using herbal medicines must not be ignored. The main cause which is making these potential drugs unsafe is due of the addition of synthetic compounds to make them more effective (Cohen, 2009). Most of the side effects associated with the herbal drugs include hepatotoxicity (Sheikh et al., 1997) cardiovascular complications (Haller and Benowitz, 2000) and prolonged unexplained bleeding (Rivera et al., 2009). Valdivia-Correa et al., (2016) reviewed dozens of different herbs and herbal products used for different reasons, some

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of which have been implicated in causing toxic liver disease. Herbs drugs are adulterated with many drugs (Anonymous, 2008) and with detectable levels of lead, mercury, and arsenic (Saper et al., 2008). The study of the safety of marketed drugs including the adverse events that have previously been unrecognised despite evaluation in clinical trials is known as Pharmacovigilance (Mann and Andrews, 2002).

There is another critical problem regarding the use of herbals due to quality issues, including use of poor quality herbal material, incorrect or misidentified herbs, in correct processing methods, supply of adulterated or contaminated herbs or products (Shaw, 2010). So this issue can be checked by regulating requiring GMP standards for manufacturing. Due to different manufacturing standards and regulations, the poor quality products are likely to remain a problem (Debbie et al., 2012).

Nanotechnology: An Emerging Technique in Herbal Medicine

Nanotechnology has proved its existence in several areas of science and technology. There is no doubt it has re-engineered the man made world, molecule by molecule. Active constituents of herbs called phytoconstituents are used in the preparation of nanophytomedicines which improves the efficacy and decrease the side effects of administered drugs (Sahu, 2013).

Conclusions

Herbal drug preparation is possible only through the development of standardized herbal products. The health care systems are going to become more and more expensive therefore, we have to develop technologies to essentially introduce and integrate herbal medicine system in our health care. If the herbal medicines are used properly they don't have any side effects. They cause adverse events if not monitored or used correctly. Adequate clinical trials are necessary to understand the potential benefits and risks of these drugs. It is very important to encourage researchers and clinicians to explore medicinal plants. It is still a dream to see whether in the future highly active, safe and causally-acting plant derived preparations will be able to replace some synthetic drugs?

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