

## The Use of Medicinal Plants in Human Healthcare: A Scoop on Safety

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Traditional medicines represented the basis of healthcare throughout the world since the earliest days of mankind. Medicinal plants have been known for millennia as a rich source of therapeutic agents for the treatment and prevention of various diseases occupying an important place in the socio-cultural, spiritual and medicinal field. Over the last century, the drastic modifications of human life style and food habits lead to the emergence of various chronic pathologies. Recently herbal 'renaissance' is a visible phenomenon all over the globe and it has been suggested that two-thirds of the world's plant species may have medicinal value [1]. The World Health Organization estimates that 80% of the African and Asian populations use traditional medicine as the first source for their health care needs [2]. In addition, in the USA, more than 40% of the population recently reported using complementary and alternative medicines, including botanical dietary supplements [2]. In the past decade, a remarkable effort has been deployed leading to the isolation of many bioactive drugs from plants. Generally, the synthetic products are considered as unsafe while the plant products appear to symbolize the safety. Nonetheless, the safety, dosage and potential interactions with standard conventional therapies are categorically needed because the plant material could be toxic due the presence of naturally occurring toxic constituents, heavy metals, toxins, pesticides, or bacteria [3]. In addition the misidentification of a plant species in a product, the possible formation of electrophilic metabolites, the eventual organ-specific reactions or the botanical-drug interactions are some serious risks which may represent the limits of the safety of any plant material. Furthermore, the risk for adverse reactions is more important when the herbal products are taken in association

with conventional drugs. Actually, an increasing importance has been given to the therapeutic standardization of herbal drugs by evidence-based randomized controlled clinical trials in order to support their clinical efficacy. However, few high quality clinical trials have yet been realized to assume the safety and efficacy of herbal medicines. Moreover, standardization is known to limit the commercial utility of herbal products and poses numerous challenges related to non-availability of universally acceptable technical standards for testing and implementation of quality control/safety standard. In addition, in the developing world, a serious problem consists on the lack of sufficient information about the composition, the eventual toxicity and the adverse reaction of herbal products. As far as the legislative controls are concerned, a few structured models related to the herbal products exist actually. Consequently, systematic pharmacovigilance is crucially needed in any country to elaborate valuable information on the safety of herbal medicines for the development of appropriate guidelines about the safe effective use in accordance with the internationally agreed standards of safety, quality, and efficacy.

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