Botanicals: Innovative Tools for Pharmaceutical, Cosmetic and Nutraceutical

FDA defined “botanicals” as products of plant materials, algae, macroscopic fungi, and their combinations and considered them as finished, labeled products containing vegetables as ingredients, that can be used as conventional foods, dietary supplements, drugs, cosmetics, or medical devices depending on its route of administration, formulation, safety and intended use [1, 2].

Today, the use of medicinal plant remains widespread, and a significant portion of the world's population utilizes herbal natural products and supplements as the primary mode of healthcare [3,4]. In the United States, for instance, nearly 20% of adults and 5% of children utilize botanical supplements to treat different diseases.

The increase in adoption of herbal remedies may be ascribed to: a general preference of natural therapies and aversion for other interventions like surgery, allopathic medicines etc; inclination towards self-medication based upon experience; affordable cost of herbal medicines and ease of availability; side effects associated with conventional medicines (especially in cases of chronic problems) and growing promotion of herbal medicines [4].

Botanicals in medicine are usually recommended for disease prevention and to maintain good health, while rarely their use is suggested for acute and/or life-threatening problems. More recently, it is observed a growing use of herbal medicine when conventional medicine is ineffective or for pain palliation in case of long-standing problems like cancer, arthritis etc. [5].

Also cosmetic market has been influenced by botanicals. In particular, it has been observed a growing trend in incorporating antioxidants in sunscreens and skincare products to replenish the natural reservoirs in the skin [6].

This “new renaissance” of herbal product obliges us to employ them with a real scientific method. Researchers having access to innovative technologies can optimize the use of herbal ingredients in natural formulations, to give safety and efficacy to the formulation across a scientific view, validating the traditional use, with no previous scientific evidence.

On these basis, this special issue is aimed to give an overview on the current state of botanicals research, in order to collect recent scientific data on the development of pharmaceutical products, cosmetics and nutraceuticals. The attention is focused on the chemical composition, biological activities [7-11] and nutritional aspects of new herbal product [8, 11,12] and on the application of innovative technologies or formulative approaches to improve their stability and bioavailability [8-10, 12-15]. Readers will find information about new natural products endowed with healthy activities. Flaxseed oil, for instance, is a very important product characterized by anti-oxidant, anti-inflammatory and anti-dysmetabolic effects and has been evaluated for a potential application in different diseases [8]. Brassica vegetables also possess anti-oxidative properties and are associated with the risk reduction of chronic diseases including cardiovascular diseases and cancer [9]. The focus of the present special issue is also on some indigenous underutilized wild edible plants, such as Pereskia aculeate, a natural diet supplement studied as “novel food” in virtue of its high nutritional value [10] and Momordica cochinchinensis, a super fruit, of the functional food industry [11].

Finally, our readers will find interesting examples of innovative delivery strategies to increase the bioavailability of natural active compounds from vegetable sources [12]. Extensive discussion on this special issue about different nanocarriers for the delivery of natural products, functional foods, dietary supplements and herbal medicinal products is also addressed [13-15].

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