

A Brief Dissertation on the Cultivation of Medicinal Plants

Isabel Martínez-Solís^{1,2*}

¹Department of Pharmacy, Faculty of Health Sciences, Universidad Cardenal Herrera-CEU, CEU Universities, Alfara del Patriarca-Valencia, Spain

²Botanical Garden, University of Valencia, Cavanilles Institute of Biodiversity and Evolutionary Biology (ICBiBE), Valencia, Spain

***Corresponding Author:** Isabel Martínez-Solís, Department of Pharmacy, Faculty of Health Sciences, Universidad Cardenal Herrera-CEU, CEU Universities, Alfara del Patriarca-Valencia and Botanical Garden, University of Valencia, Cavanilles Institute of Biodiversity and Evolutionary Biology (ICBiBE), Valencia, Spain.

Received: November 29, 2018; **Published:** November 30, 2018

Firstly, I would like to thank the EC Agriculture Journal for the invitation to collaborate with an editorial article in which we expose a controversial issue: the need to cultivate medicinal plants and benefits, and the problem when cultivated species are alien plants or invasive alien plants.

On the one hand, the medicinal plants' cultivation can be an alternative or a new possibility in countries where agriculture is an important factor in the economy. This cultivation type is especially interesting in the worldwide-depressed areas where it can be an economic resource [1]. Moreover, it is well known that the rise of Phytotherapy and the use of natural products or medicinal plants have caused an increase in the number of patients suffering detrimental health effects because of the low quality of products. In fact, WHO acknowledges that insufficient attention has been paid to the guarantee and quality control of herbal medicines and natural products in general [2]. The raw materials of products from medicinal plants have their origin in nature, in the wild and cultivated fields. This is the starting point to obtain natural products (Figure 1).

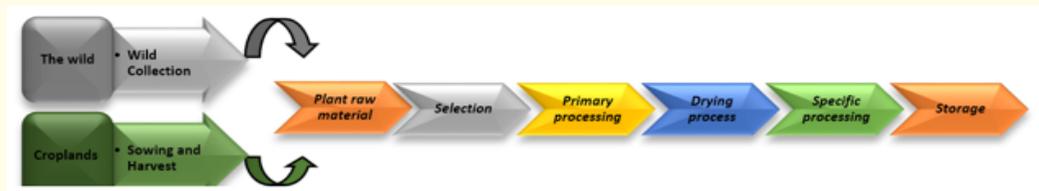


Figure 1: Steps towards obtaining natural products.

Good agricultural practices are the first step towards the quality, safety and efficacy of products from medicinal plants. In addition, these practices play a very important role in the protection and conservation of natural resources. They are necessary for the sustainable exploitation of medicinal plants. There are WHO Guidelines on Good Agricultural and Collection Practices of Herbal Medicines (GACP) which describe techniques, processes and other necessary measures to ensure suitable and controlled cultivation and harvesting [3]. The training of farmers and other stakeholders, such as producers, handlers and processors of medicinal plant material is necessary. This training is one in a series of many important measures aimed at ensuring that good agricultural and collection practices are applied in guaranteeing high quality medicinal plant raw materials. WHO also recommends that the medicinal plant crops be carried out according to the background on species and their behavior when they are being grown. In the absence of specific scientific data, WHO recommends applying traditional methods of cultivation when they are viable or developing new methods through research. In general, suitable agronomic principles, including crop rotation and tillage, should be applied adapted to the characteristics of plants and environment conditions. Conservation agriculture must be applied because of it protects water resources, forms and protects soil, sustains biodiversity, provides habitats for native wildlife, stores and cycles nutrients, provides carbon sinks, maintains water table levels, maintains regional weather patterns, reduces risk of salinity and soil erosion, provides shelter for stock and crops and conserves genetic resources. An optimal agricultural practice should take into account the selection of territories, knowing possible impacts on the ecological and social

environment, adapting techniques to climate and soil, and having mechanisms to maintain and protect the plants. Despite compliance with WHO recommendations, problems arise with alien medicinal plants. Alien species are species that have become established in areas outside their natural range. These plants can be cultivated without interaction with the new environment, or become naturalised, or they can be invasive damaging, even destroying, native ecosystems. That is, in many cases, alien species do not pose a significant risk and many are even beneficial. However, in those cases where alien species are capable of causing significant harm to environment, economy or society, these plants are "invasive alien species". The same alien species can be invasive alien plant in a territory but not in others, because of the invasive behavior that depends on the environmental conditions and ecosystem characteristics. This is the reason that justifies that the alien species cultivation is always a potential risk and requires control measures in order to protect native ecosystems and landscapes all over the world [4]. Everybody understand that we must eradicate the alien plants declared invasive from places where these plants behave as such, and we should not use them. However, in places with depressed economy and those with deeply rooted traditional customs, people use these species as medicinal plants and resort to wild-collection for obtaining them [5]. These situations make it difficult to control invasive alien plants and we can be consider them as a disincentive to medicinal alien plants crops.

The medicinal plants' cultivation is necessary and so is the exotic species control where these can be invasive alien plants. We must find a balance that allows, on the one hand, to respond to the continuing demand for these plants, on the other, to safeguard native ecosystems. We can achieve this objective defining and limiting in clear form the invasive alien species concept and trying to all countries accept the concept and implement it. We must take into consideration potential economic and environmental damages. We need find a balance so as not to harm the development of economy nor ecosystems. From there, we can propose control measures for enhancing the safety of medicinal alien plant crops. It is not about not cultivating, it is about cultivating the right species in the right places. In this way, the benefit can be global: Users, including industry, would have the demanded medicinal plants and the agriculture in countries throughout the world could benefit from the cultivation of new species, alien but not invasive, that do not harm the environment when the adequate control measures are implemented worldwide.

Bibliography

1. Wiersum KF, et al. "Cultivation of medicinal plants as a tool for biodiversity conservation and poverty alleviation in the amatola region, South Africa". In: RJ Bogers, LE Craker and D Lange (eds), *Medicinal and Aromatic Plants*. Springer. Netherlands (2006): 43-57.
2. Organización Mundial de la Salud. "Estrategia de la OMS sobre medicina tradicional 2014-2023". Organización Mundial de la Salud. Ginebra (2013).
3. Organización Mundial de la Salud. "Directrices de la OMS sobre buenas prácticas agrícolas y de recolección (BPAR) de plantas medicinales". Organización Mundial de la Salud. Ginebra (2003).
4. Henderson L. "Invasive, naturalized and casual alien plants in southern Africa: a summary based on the Southern African Plant Invaders Atlas (SAPIA)". *Bothalia* 37.2 (2007): 215-248.
5. Lesibana Peter Maema, et al. "Invasive alien plant species used for the treatment of various diseases in Limpopo province, South Africa". *African Journal of Traditional, Complementary and Alternative Medicines* 13.4 (2016): 223-231.

Volume 4 Issue 2 December 2018

©All rights reserved by Isabel Martínez-Solís.