



PROCEEDINGS OF UZBEKISTAN-CHINA INTERNATIONAL SYMPOSIUM ON "CURRENT ISSUES IN THE CULTIVATION AND UTILIZATION OF MEDICINAL PLANTS"



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CURRENT SCENARIO AND CHALLENGES IN CULTIVATION OF MEDICINAL AND AROMATIC PLANTS

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Today, growing medicinal and aromatic plants (MAPs) is not only a highly viable way of stopping their over-collection, which allows rare endemic vulnerable and endangered species to survive and maintain their natural genetic diversity, but the economic sector of MAPs, at the same time, providing the supply of food, pharmaceutical and cosmetic industries with high quality raw materials, is also very significant. Typically, medicinal plants are viewed as minor crops and most of them tend to face serious challenges in domestication and cultivation on small, medium and large scales. These challenges relate to cultivation technology as well as to market and price changes. Unlike wild gathered raw materials, the herbal trade is choosing cultivated MAPs more and more because it is easier to control the plant's productivity, quality and pharmacological content. There are different factors, like the profitability of cultivating medicinal plants being compared with that for production of standard field crops, for which a specialized apparatus exists and a uniform technique is used for application of fertilizers and agrochemicals to control weeds, pests and diseases. To be able to compete in the international market, and against wild plants, high quality raw material should be produced using low input cultivation methods. The most familiar problems producers of medicinal plants face are market, abundance and accessibility of wild populations, agro-environmental conditions, labor availability and costs, investments in machinery, post-harvest processing, and profitability of production. According to genotypes is very important for profitable production of the high quality medicinal plants' raw material.

Only a small percentage of cultivated medicinal plant species is clearly genetically defined and represented on the seed market for variety. And other crops, traditional breeding methods, biotechnological procedures and selection assisted with molecular markers are used in development of new varieties and cultivars of MAP with the perspective of their desirable characteristics improvement. This means enhancing the output of a particular drug and the content of desired secondary metabolites in the plant. Identifying genes and DNA sequences linked to the biosynthesis of specific metabolite classes will be a future challenge in the breeding programs of medicinal and aromatic plants (MAPs). Presently, the focus of research is on the genetic diversity among different species of medicinal plants using various types of DNA markers, like restriction fragment length polymorphism (RFLP), amplified fragment length polymorphic DNA (AFLP), random amplified polymorphic DNA (RAPD), cleavage amplified polymorphic sequence (CAPS), simple sequence repeat (SSR), and sequence characterized amplified region (SCAR) markers. It is a well known fact that the main purpose for targeted alteration of traits in medicinal plants is the content of bioactive compounds. Though, for their use as crops, aspects of basic agronomy related to uniformity, stability, growth and development, and resistance to biotic and abiotic stresses, also need to be enhanced.

Keywords: cultivation, medicinal and aromatic plants, market, machinery, DNA markers.

CURRENT ISSUES OF USING MEDICINAL PLANTS IN PHARMACOLOGY, MEDICINES AND FOOD INDUSTRY

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Abstract. Medicinal plants have won full significance in the pharmacology, medicine and meal business due to their healing ability, natural basis and increasing customer preference for plant-based total products. Despite their widespread use, many challenges persist to limit their safe and powerful use. The gift explores opinions on primary problems associated with the use of medicinal plants in pharmaceutical formulations, health products, nutritional and food systems. A comprehensive assessment of medical literature, regulatory advisories, and commercial reports was conducted to grasp key concerns. The findings show that variability in phytochemical composition, adulteration, heavy metal contamination, pesticide residues, microbial pathogens, and lack of standardization are a number of the fundamental demanding situations affecting product quality and efficacy. Furthermore, incomplete scientific evidence, inconsistent regulatory frameworks, and unacceptable first-rate manipulative practices detract from the worldwide reputation of natural products. The food industry faces several issues related to protection assessment, labeling accuracy, bioactive ingredient stability, and consumer awareness. Environmental issues, including overharvesting and lack of biodiversity, similarly threaten the sustainable use of medicinal plants. Advanced