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Editorial: Edible wild plants and fungi - resource to explore, preserve, and valuate

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Editorial on the Research Topic
Edible wild plants and fungi - resource to explore, preserve, and valuate

Useful plants and fungi have the potential to satisfy the basic needs of populations for food, medicine, and phytochemicals, among others, and possibly represent the most significant ecosystem provision service available for rural communities. Some wild and semi-cultivated species are traded in local and city markets but only a few have acquired economic importance. Many of them are important components in agroforestry systems and are suitable for the sustainable intensification of crop production.

Human communities have used edible wild plants and fungi since historical times. In developed countries, the use of such species has largely been abandoned, but there is currently an increasing trend to revalue them, for example as fine ingredients in *haute cuisine*. Conversely, in less developed regions, the harvesting and use of wild plants and mushrooms remain a current practice, and several species are also marketed and have large socio-economic importance.

A large diversity of plants and fungi are used by rural communities, namely fruits, leaves, and tubers from herbs, shrubs, vines, and trees, as well as mushrooms. Several species are undergoing domestication or are protected by local people for cultural or religious reasons, such as some species of fruiting trees and palms.

Many traditional foods have been associated with functional properties that can prevent or treat a wide variety of ailments, with great potential to correct or avoid malnutrition and mineral deficiencies, and with the prevention of many health conditions. The chemical characterization of plants and fungi to assess their nutritional and functional properties, and the identification of molecules responsible for reported effects, is a matter of increasing attention from researchers. Nevertheless, such species remain largely neglected by mainstream international science.

The Research Topic "*Edible wild plants and fungi - resource to explore, preserve, and valuate*" was intended to gather contributions that illustrate the current research trends and gaps concerning the characterization and potential importance of wild edible species as natural resources for local communities and as sources of potentially useful compounds of global interest. Several contributions were received from a diverse range of subjects and geographical origins.

A comprehensive review of the nutritional properties of traditional foods in India—including cereals, legumes, green leafy vegetables, mushrooms, roots and tubers, fruits, etc.—, presented by Kapoor et al., shows that despite their nutritional benefits and cultural importance, most of them remain underutilized in the usual diets of the indigenous communities. As causes for this, the authors point to habitat destruction, agricultural expansion, changing social values and lack of awareness among younger generations. Documenting and popularizing the nutritional benefits of such foods will be crucial to enhance their consumption and demand in the global food systems. This review highlights the need for further research on the nutritional characterization of the large variety of traditional foods and their potential role in alleviating malnutrition, especially among vulnerable segments of the population.

Further research to support food diversity and dietary quality of traditional communities is also recommended for the Mediterranean region by Baydoun et al.. These authors report that a high number of wild leafy vegetable species (including some threatened endemics), associated with a rich ethnobotanical traditional knowledge, are still used in Lebanon. However, their availability is declining, primarily due to habitat loss and land degradation.

In southern Angola, as reported by Kissanga et al., several herbs that grow spontaneously in disturbed places, locally known as *lombi*, are used as vegetables and traded in local markets. These wild edibles have both nutritional and socio-economic importance and contribute to the food security of the local population.

Also, the main challenges impacting the production of an important leafy vegetable, the spider plant, *Gynandropsis gynandra,* in northern Namibia and central Malawi were analyzed by Chataika et al.. The authors consider as main constraints for the production the lack of seed, poor soil fertility, poor seed germination, and drought, and identified the traits preferred by smallholder farmers—high yield and drought tolerance.

Taking the example of baobab in Malawi, Meinhold and Darr analyze the consequences of supply chain elongation prompted by increased domestic and global demand and acceptance of wild forest products. They conclude that adding to the risk of overexploitation of such products, quality aspects concerning the transition from subsistence use to retail commodity must also be considered, e.g., concerning appropriate harvesting periods, handling practices, and storage conditions during the entire production-to-consumption chain.

Much remains to know and explore regarding the properties, uses, and valorization potential of edible wild species, such as their chemical composition and functional attributes, the conservation status of intensively harvested species, the role of crop wild relatives for food security, local varieties and landraces of common species, the selection of suitable species for agroforestry systems and domestication, the food processing systems, market chains and economical importance of traded products, as well as traditional food systems of indigenous peoples, and the potential of edible wild species to increase the food security of rural communities.

In a time marked by climate change, overexploitation of natural resources, increasing global population, and food insecurity, knowledge on the properties and availability of natural resources, their valorization and their sustainable use are crucial. This Research Topic collection shows that studies on wild edible species of plants and fungi should be greatly promoted, as they can make important contributions to the knowledge of their nutritional and functional properties, to the valorization of useful species, to food security, and increase incomes in rural areas through the exploration of non-wood forest products or improvement of traditional crops.

Author contributions

LB, LC, and MR: conceptualization. LC and MR: writing—original draft preparation. LB: writing—review and editing. All authors have read and agreed.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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