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"Solidarity in a competing world — fair use of resources"

Harnessing Wild Edible Plants Diversity for Food Security in the Context of Climate Variability and Change in Semi-arid Areas of Benin

Alcade Christel Segnon[1], Enoch G. Achigan-Dako[2]

[1] *Horticulture & Genetics Unit, Faculty of Agronomic Sciences, University of Abomey-Calavi, Benin*
[2] *University of Abomey-Calavi, Faculty of Agronomic Sciences, Horticulture & Genetics Unit, Benin*

Abstract

Agrobiodiversity is said to contribute to the sustainability of agricultural systems and food security. However, how this is achieved especially in semi-arid areas where climate variability is strong and expected to increase is rarely documented. In this study, we investigated two contrasting areas in Benin to explore the diversity and utilisation of wild edible plants and their potentials for addressing food security in a context of climate variability and change. Data were collected through focus group discussions in 12 villages in Bassila (sub-humid Sudano-Guinean region) and Boukoumbé (semi-arid Sudanian region). Semi-structured interviews were carried out with 180 farmers. Species richness and Shannon-Wiener diversity index were estimated using species accumulation curves. Hierarchical cluster analyses were performed to assess the similarity among communities in term of the utilisation of edible plants species. Our results showed that 115 species belonging to 48 families and 92 genera were used as food plants in the study areas. Overall, wild species represent 61 % (70 species belonging to 38 families and 61 genera) of edible plants collected (60 % in the sub-humid area and 54 % in the semi-arid area). They represent 46 % of the most cited species by communities. Vegetable species represent about 57 % while fruit species account for roughly 47 % of wild edible plants cited. About 25 % of wild edible plants were under domestication. Edible species richness and diversity in the sub-humid area were significantly higher than in the semi-arid area. The interplay of socio-cultural attributes and agroecological conditions explains the diversity of food plants selected by communities. This study highlighted the diversity of wild edible plants harnessed by local communities to address food security in a context of climate variability. We call for more recognition of wild plant resources in food production and consumption policies as well as climate change adaptation policies in semi-arid areas. For this to happen we discuss a number of actions such as a thorough documentation of wild edible plants and their importance and contribution to household diets, promotion of the "bringing into cultivation" practices, investigating habitat suitability and ecophysiological responses of the most important wild edible species under future climatic conditions

Keywords: Agrobiodiversity, Benin, dry areas, edible food plants, food security, socio-cultural attributes, species richness

Contact Address: Alcade Christel Segnon, Horticulture & Genetics Unit, Faculty of Agronomic Sciences, University of Abomey-Calavi, Cotonou, Benin, e-mail: alcadese@gmail.com