Richness, Cultural Importance and Conservation of the Wild Spices in the Sudano-Guinean Zone of Benin

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Abstract

In recent decades, wild spices (WS) have been increasingly studied for their flavor-enhancement characteristics and their medicinal properties. In Benin, many spices used daily for medicine, food and ceremony are gathered from the wild. But so far, little attempt has been made for their domestication and cultivation. Consequently, many WS are being extinct due to overexploitation and habitat loss. This study investigated the diversity of the wild spices as well as it ecological drivers, and document the associated traditional knowledge for their valuation, sustainable management and conservation in the Sudano-Guinean zone of Benin. Data were collected during field expeditions and using semi-structured interviews in ten localities across three phytodistricts. Occurrence data were recorded in the field and from Global Biodiversity Information Facility database. Species richness and Shannon's diversity index were estimated using species accumulation curves and based on presence-absence data obtained from semi-structured interviews. Species distribution and richness were then mapped, and their driving forces identified using conditional inference trees. Use-report and Cultural importance index were used along with a Generalized linear model to test for differences in traditional knowledge. Priority WS were identified using an approach combining eight criteria in four prioritisation methods. Fourteen species, belonging to 12 genera and 9 families were inventoried. The most prominent families were Zingiberaceae (21.43 %), Annonaceae (21.43 %) and Rutaceae (14.29 %). The species were unequally distributed and several spice-rich areas were identified. More than 200 specific uses were reported, with Tchabè people holding the greatest level of knowledge (70 uses; UR=5.70±0.33). The most culturally important spices differed among sociolinguistic groups. Overall, people perceived WS as declining due to agriculture, grazing and drought. Eight species were identified as of highest priority for conservation: *Aframomum alboviolaceum*, *A. angustifolium*, *A. melegueta*, *Lippia multiflora*, *Monodora tenuifolia*, *Securidaca longipedunculata*, *Xylopia aethiopica* and *Zanthoxylum zanthoxyloides*. This study provides basic data to engage conservation and domestication actions for WS in Benin. Priority species could be integrated into home gardens and traditional agroforestry systems in particular for sustainable management. However, for this to be effective, further research should be engaged on morphological and genetic diversity, and propagation methods of those spices.

Keywords: Biodiversity, conditional inference tree, ecological drivers, geographical distribution, prioritisation, quantitative ethnobotany

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