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Could Ecological Importance Value of Wild Edible Fruit Trees Predict their Ethnobotanical Use Value in Protected Areas?

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Abstract

In Benin, rural populations are highly dependent on non-timber forest products (NTFPs) for their food, feeds and incomes. The high use of some wild edible trees has led to their overexploitation by the populations even in natural forests which constitute the reservoir of wild edible trees. For this reason human pressure on wild edible species is ever increasing in protected areas, this stir up the need to assess the relationship between use value and ecological importance value of wild edible fruit species in the protected areas. An ethnobotanical survey with 136 respondents enabled assessing the use values (UV) of wild edible fruit trees. Following, the ecological importance values (IVI) of trees were estimated using the relative density, the frequency, and relative coverage of wild edible fruit species inventoried in 53 plots of $45\text{m} \times 45\,\text{m}$ installed in the Lama Reserve Forest. Thereafter, the relationship between these two values was estimated performing a simple linear regression analysis. Our study reported ten edible trees of which *Dialium guineense* had both, the highest use value and ecological importance value (UV=0.7 and IVI=1.424) while *Pterocarpus santalinoides* had the lowest value for both parameters (UV=0.0001 and IVI=0.003). Regression analysis showed significant positive relationship between use value and ecological importance value for edible fruit trees in the Lama Reserve Forest: UV = 0.362 IVI ($R^2 = 0.42$), suggesting that wild edible fruit trees with multiple-uses had high ecological importance value. It is unexpected that a species with a high use value shows high ecological importance value, this observation made in the protected area of the Lama forest is an indication that riparian populations have limited access to the reserve. We recommend that same studies be repeated in other protected areas in Benin to confirm this correlation between use values and ecological importance values of wild edible fruit species. The species that had the highest use value should be introduced in plantation in the surrounding area of the Lama Forest, but also in agroforestry systems to take advantage of this endogenous conservation strategy that would enhance the conservation measures applied to the protected areas.

Keywords: Benin, ecological importance value, lama forest reserve, use value, wild edible fruit trees

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