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A Preliminary Investigation on Locally-Based Identification and Use Determinants of Multipurpose Tree (MPT) Species in the Yayu Forest Coffee Biosphere Reserve, South West Ethiopia

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Abstract

Currently, more than half of Ethiopian farmers are not capable to produce or purchase enough food to cover their own demands. Production systems of small farmers are traditional: human and animal labour-based, use of low inputs and rain fed. Under such scenario, agroforestry practices have shown to be cost-effective means to enhance small householders' food security, through by-products generating income, and conserve the environment. The study area, the Yayu Forest Coffee Biosphere Reserve, registered by UNESCO as a center of origin and diversity for *Coffea arabica* and sanctuary of several other plants and animal species, is well known for hosting long-lasting traditional practices for the effective utilisation of the forest resources on which rural households depend greatly. As part of a study aimed on understanding the nexus between agroforestry and food and nutrition security, the existing multipurpose tree (MPT) species in the study area were identified, their uses listed, and the characteristics of their adoption determined. Methods combined botanical transects (n=16) and semi-structured interviews with key informants (n=40). Sampling sub-sets considered of eight categories, systematically defined as function of the distance to markets and the biosphere reserve. Univariate and multivariate statistical analyses were applied to compute the relative influences of the two factors on the use of MPTs. A total of 43 edible MPT species were identified in the study area, among these 17 exotic and 26 native. Main uses include food, fodder, fuel, and honeybee production. About 22 MPT species (50% of the total species encountered) are potentially merchantable. The proximity to the biosphere's core area is significantly correlated with the presence of trees important for production of honey ($p < 0.05$). Several exotic species show a strong correlation with the proximity to the market ($r = 0.760$ and $p < 0.01$). In general, the proximity to the market has been found as major determinant of the variability and use of MPT species.

Keywords: Coffee-tree system, food security, mountain forest, edible trees, Yayu

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