

Research Application Summary

Utilization of woody plants as food in times of food scarcity in selected dryland areas of Iringa district, Tanzania

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Abstract

Iringa District in Tanzania is a semi-arid area that is prone to frequent crop failures. Food insecurity is widespread and often the communities use woody plants as alternative source of livelihood. Although the use of woody plants as food during food scarcity is widely known, still, the knowledge of the useful woody plants, preferred woody plants, species regeneration/population structure, density, frequency, nutritinal values and conservation priorities is insufficiently known. Therefore, this study will compile floristic checklist, species preferences, population ecology of key woody plants, nurtritional qualities and conservation priorities in Iringa drylands.

Key words: Drylands, edible woody plants, nutritional qualities and conservation, population ecology

Résumé

Le district d'Iringa en Tanzanie est une zone semi-aride qui est sujette à de fréquentes mauvaises récoltes. L'insécurité alimentaire est très répandue et souvent les collectivités utilisent les plantes forestières comme source alternative de revenus. Bien que l'utilisation des plantes forestières comme nourriture pendant la pénurie alimentaire est largement connu, encore, la connaissance des plantes forestières utiles, les plantes forestières préférées, la régénération des espèces/ la structure de la population/, la densité, la fréquence, les valeurs et les priorités de conservation nutritionnelle n'est pas suffisamment connue. Par conséquent, cette étude a l'intention de documenter sur la liste floristique, les préférences des espèces, l'écologie des populations des principales plantes forestières, les qualités et les priorités nutritionnelles de conservation dans les zones arides d'Iringa.

Mots clés: Zones arides, comestibles de plantes ligneuses, les qualités nutritionnelles et de la conservation, l'écologie des populations

Background

Fifty percent of the Tanzanian land area is semi-arid that is prone to frequent crop failures. Food insecurity has been for a long time experienced in the country. As such the use of alternative livelihood practices such as utilization of woody plants is common. Woody plants can persist longer than herbaceous foods plants that are rare in the drylands; they provide improved household food security and nutrition. Despite the fact that the use of woody plants as a component of local response to increasing food scarcity is widely known, the use of woody plants as a viable livelihood alternative has been under-estimated over the decades in different parts of Tanzania. Woody plants are increasingly used in rural areas, but information on the useful woody plants species commonly used, species regeneration/population structure, density, frequency, nutritional values and conservation priorities is not well documented. Therefore, this study is examining the floristic composition of the dryland woody plants, the commonly used and preferred woody plants for food, the structure, and the density and frequency of key wood plants. The study will also assess the regeneration potential of key woody plants, the nutritional and antinutritional qualities of products from key woody plants and recommend possible conservation strategies.

Literature Summary

Rural communities in Tanzania are heavily dependent on woody plant resources which they utilise for food and income. Almost 50% of the country is covered by arid and semi-arid rangelands that are generally characterised by low human population compared to the high potential areas (URT, 2000). Nyingili (2003) revealed that for decades, communities living in these areas had insignificant impact on locally available tree and shrub resources, but this is changing rapidly considering that they are characterised these days by high variability in rainfall and low productivity. Thus, use of trees and shrubs is inevitable.

Sene (2000) showed that many tree and shrub species have potential for multiple uses. In the dry areas, products from multipurpose tree and shrub species provide many products for food access and availability. However, little research has been done on their utilization such as bark, leaves, flowers, fruits and seeds, in making products such as food. On the other hand FAO (1989) reported that the use of edible products from woody plants is central in food security strategy in developing countries. Although they cannot replace agricultural food source to any significant extent, forest trees and shrubs contribute to the food supplement as other food source at different levels (FAO, 1990). Though it is widely recognized that foods derived from woody

plants may not be consumed in great quantities in comparison to the main food staples, they add variety to diets, improve the palatability of staple foods and provide essential vitamins and protein. Moreover, FAO (1990) and Sene (2000) reported that forest foods can offer vital insurance against malnutrition or famine during times of seasonal food shortage or emergencies such as droughts and floods. While forest gathering activities are not restricted to groups that are poor, landless or nomadic, these are the groups most likely to be affected by reductions in the availability of such foods as the woody plant resource is reduced or degraded. Therefore, products from woody plants have an important role to play in household livelihoods but it is unclear whether or not the use of woody plants will result in increased conservation strategies.

Study Description

The study will be conducted in the drylands of Iringa district in Tanzania. The district has Village patches of woodlands namely Mfyome, Kiwere, Mbeleli, Kinyali, Migoli and Makuka, in which majority of the people depend on during food scarcity. Methods of data collection will consist of a series of semi-structured (N=120) and informal interviews (N=30) with resource users and technical staff to determine the highly preferred/key species.

Forest inventories will be done in six forest patches in the district by using a straight line method and rectangular plots (20 x 25m) at an interval of 100m. In every plot vegetation census will be done with emphasis on the overall floristic composition, density and frequency of key preferred woody plants. Regeneration potential of key wood plants will be assessed in 5 x 15m subplot of which all the saplings and seedlings will be enumerated. Edible products of key woody plants will be collected during inventory phase and processed for laboratory analyses to determine the antinutritional (cyanides, alkaloids, phenols etc) and nutritional qualities (macro and micronutrients, proteins, fibres etc). Subsequently, discussions will be held with communities, technical experts and policy organs to establish conservation priorities and strategies.

Research Application

The study will generate recommendations for conservation strategies to enhance resource use of woody plants species for food security. Additionally, the results from the study will raise awareness on resource sustainability and stakeholder's participation to counteract the food insecurity problems in the study area.

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