



Status of stingless bees in Tanzania: Ecology, Productivity and Management

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1. INTRODUCTION

Beekeeping in Tanzania has traditionally focused on the western honey bee, *Apis mellifera* L. Recently, stingless beekeeping (meliponiculture) has gained momentum, yet documentation on species distribution, hive designs, productivity, and management remains limited. This study investigated these aspects to provide a clearer picture of the meliponiculture landscape in Tanzania. The study is part of an ongoing project aimed to develop standardized protocols for managing local stingless bee species.

3. RESULTS & DISCUSSION

3.1 Species Distribution

Axestotrigona species are dominant across most areas of Tanzania.

Hypotrigona species are prevalent in coastal zones and Zanzibar.

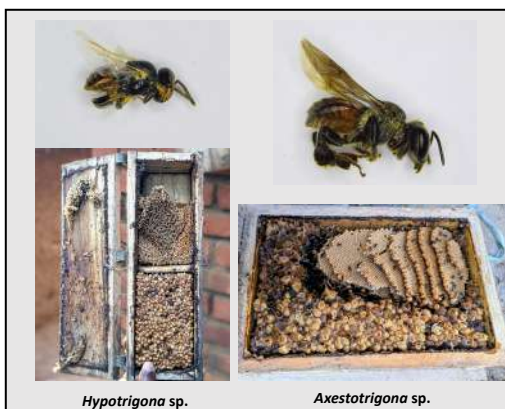
3.2 Hive Designs

Modern hives with vertical or horizontal partitions are common.

Traditional hives are made from local materials such as logs, bark, straws and grasses, bamboo & baobab fruit shells.

2. METHODOLOGY

A total of 68 stingless beekeepers were interviewed. The survey spanned 26 districts across 16 regions, including mainland Tanzania and Zanzibar islands. Data collected included species kept, hive types, colony stocking techniques, and general management practices. Bee specimens were collected and stored in 70% ethanol for identification.



3.3 Colony Stocking Techniques

Main technique: Transferring wild colonies to managed hives.

Colony splitting and trap-nest techniques are less common but practiced in some areas.

3.4 Management Practices

Majority keep stingless bees near their homesteads.

This facilitates easy and regular colony inspection.

Meliponary Layouts include:

- Tree meliponaries
- Breast-height (stand) meliponaries
- House-eaves meliponaries (most prevalent)
- Meliponary shades



4. CONCLUSION

Meliponiculture is growing as an income-generating activity with great potential for enhancing livelihoods and forest conservation. Further research is needed for optimizing hive design, colony management, and sustainable practices

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BACKGROUND: Beekeeping activities in Tanzania have long been practiced using the western honey bee, ""*Apis mellifera*"" L. However, only in recent years has beekeeping with stingless bees begun to gain pace. To date, there is limited documentation regarding their ecology, distribution, productivity, and management. This study explored the status of stingless bees in Tanzania, specifically focusing on species richness, distribution, hive designs, stocking techniques, and management practices.

METHODOLOGY: A total of 68 stingless beekeepers from 26 districts across 16 regions in mainland Tanzania and Zanzibar islands were visited and interviewed to gather information on the type of bee species they keep, the hive designs they use, their stocking methods, and their management practices.

RESULTS AND CONCLUSIONS: The findings indicated that ""*Axestotrigona*"" species were the most widely managed across the country, with the exception of coastal areas and Zanzibar islands, where ""*Hypotrigona*"" species were prevalent. Wooden box hives were commonly used, occasionally featuring vertical or horizontal partitions to separate brood and food storage chambers. Traditional hives were also observed, made from split and non-split logs, barks, straws, grasses, bamboo internodes, and baobab fruit shells. Four types of meliponary layouts were noted: tree, breast-height (or stand), house-eaves, and meliponary shades. Notably, house-eaves meliponaries were the most common across all districts. The primary technique for stocking stingless bees involved transferring established colonies from wild nests to managed hives. Although not common, colony splitting and trap-nest techniques were also utilized in some areas. The majority of respondents practiced stingless bee-keeping near their homesteads, allowing for easy and regular inspection. These findings highlight a significant growth in the stingless beekeeping industry in Tanzania, demonstrating a huge potential for income generation. Further research is needed to optimize the management of local stingless bee species and enhance sustainability of the practice in Tanzania and Africa at large.