












Stingless beekeeping in Uganda: an industry in its infancy

M. Chemurot¹ [§], A.S. Otim² , D. Namayanja² , H. Onen¹ ,
C. Angiro² , R. Mugume³ , R. Kajobe⁴ , J. Macharia⁵ , M. Gikungu⁵ ,
P.P. Abila²  & P. Kasangaki^{2*} 

¹Department of Zoology, Entomology and Fisheries Sciences, College of Natural Sciences, Makerere University, Kampala, Uganda

²National Livestock Resources Research Institute (NaLIRRI), Kampala, Uganda

³Rwebitaba Zonal Agricultural Research and Development Institute, Fort Portal, Uganda

⁴Faculty of Agriculture, Muni University, Arua, Uganda

⁵National Museums of Kenya, Nairobi, Kenya

Stingless bees are important resources for pollination of crops, production of medicinal honey and other products. However, throughout the developing countries in Africa, meliponiculture has received less attention in beekeeping development programmes. Here, the current situation of stingless beekeeping in Uganda is assessed. First, stingless bee species utilised for their products were collected and identified. Thereafter, the economic benefits derived from stingless beekeeping in the Western Highlands agro-ecological zones of Uganda with anecdotal reports of meliponiculture were analysed. The findings reveal that stingless beekeeping is in its early stages of development in Uganda. Four stingless bee species were identified: *Meliponula bocandei*, *Meliponula nebulata*, *Meliponula ferruginea* and *Plebeina hildebrandtii* that are currently used for honey and propolis. These stingless bee species can be selected for domestication, targeting different products such as honey, propolis and pollen to make meliponiculture more profitable. Indigenous knowledge of beekeepers that can assist in locating wild stingless bee nests for domestication was documented as it is essential for the preservation of this practice. In order to transform the stingless beekeeping industry in Uganda, training needs such as hive making, colony management, product harvesting and processing will have to be addressed.

Key words: *Meliponula* spp., *Plebeina hildebrandtii*, meliponiculture, domestication, agro-ecological zone, Lake Victoria Crescent, Western Highlands.

INTRODUCTION

Throughout the tropics, indigenous communities including the Batwa in Uganda (Cortopassi-Laurino *et al.* 2006), Maya from Mexico, Kayapó and Quilombola from Brazil and several Aborigines from Australia (de Carvalho *et al.* 2014; Jaffé *et al.* 2015) have used stingless bee products since time immemorial. Notably, stingless bee honey is used as medicine, *e.g.* to alleviate constipation and to treat wounds (Cortopassi-Laurino *et al.* 2006; Jalil *et al.* 2017). However, stingless bees have received little attention in beekeeping (Sommeijer 1999; Reyes-González *et al.* 2014). Particularly in developing countries, despite their importance in the production of medicinal honey, propolis and pollen (Rasmussen & Cameron 2010; Hrcir *et al.* 2016), meliponiculture remains under-developed. This is partly due to the limited understanding

of the benefits of stingless bees (Jaffé *et al.* 2015).

Uganda's beekeeping sector is developing and providing a source of income, food and employment to many rural households (UEPB 2005). However, beekeepers in Uganda mainly keep honeybees (*Apis mellifera*), while the stingless bees remain to be domesticated despite the presence of important species including *Meliponula bocandei* and *Meliponula nebulata* being documented (Kajobe 2006a, 2006b, 2007). The activity of keeping stingless bees can complement the production of honey and pollination services provided by honeybees (Byarugaba 2004). Importantly, stingless bees are remarkable for their medicinal honey (Jalil *et al.* 2017), propolis and pollen, which have high market demand. For example, honey production ranging from 0.6–3.2 l per colony of



*Author for correspondence. E-mail: pkasangaki@gmail.com

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