Chapter 13
Stingless Bees and Honey Bees of West Sumatra, Indonesia

Siti Salmah
Universitas Andalas, Indonesia

Henny Herwina
Universitas Andalas, Indonesia

Jasmi Jasmi
College of Health Sciences Indonesia, Indonesia

Idrus Abbas
Universitas Andalas, Indonesia

Dahelmi Dahelmi
Universitas Andalas, Indonesia

Muhammad N. Janra
Universitas Andalas, Indonesia

Buti Yohenda Christy
Universitas Andalas, Indonesia

ABSTRACT

This chapter summarizes the works on Sumatran bees from three research periods: between 1980-1987 on several locations in West Sumatra, 1990 at Kerinci Seblat National Park, and between 2019-2020 at some beekeepers in West Sumatra. In total, there were 27 stingless bee species, one stingless bee forma (Tetragonula minangkabau forma darek), and three honey bee species identified. Most of these stingless bee and honey bee species inhabit the Sumatran lowland primary forest.

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There were four patterns of species distribution observed in this study: rare species that were confined to primary forest, moderate or abundant species that were bound to primary forest, species that inhabited both primary and secondary forest, and species that adapt to disturbed areas. Apis andreniformis, A. dorsata, A. cerana indica, Heterotrigona itama, Sundatrigona moorei, Tetragonula fuscobaltealta, T. drescheri, T. laeviceps, and T. minangkabau were example of adaptive species.

INTRODUCTION

There are three tribes of Apidae bees in Southeast Asia: the stingless bees of Meliponini tribe, the honey bees from the Apini tribe and the bumblebees of the Bombini tribe (Maa, 1953; Sakagami, 1975, 1978; Schwarz, 1948). Honey bees and stingless bees are not only considered ecologically important, but they also produce honey. In addition, some valuable bee products such as wax, royal jelly and propolis (resin or cerumen) are also yielded. Recently, there has been an increasing interest in using pollen harvested from beehives as part of the human diet. European athletes were among the first to take advantage of using pollen as a food supplement, and the positive effects on performance were reported. Nowadays, pollen is used in two general ways. Europeans, Russians and Americans consider it a "healthy food" with similar efficacy as the general tonic. In Europe and Russia, Pollen is also used to clinically treat chronic prostatitis, bleeding stomach ulcers, respiratory infections, and allergy reactions. Hence, the demand for pollen has remarkably increased, urging the active involvement of beekeepers in collecting and trading pollen (Shimizu & Morse, 2018).

The attention has now shifted to stingless bee products, especially as the honeybee's demand cannot be supplied alone. It is supported by various studies that addressed medical properties contained in stingless bee's products. Its honey contains many important compounds, including tannins, flavonoids, coumarin and carbohydrates (Chuttong et al., 2016). Meanwhile, its bee pollen contains bioactive compounds such as proteins, amino acids, lipids, carbohydrates, minerals, vitamins, and polyphenols that are essential for treating metabolic disorders (Khalifa et al., 2021). The propolis from stingless bee propolis has antibacterial potency against Enterobacter sakazakii (Hasan et al., 2016) and toward Staphylococcus aureus and Eschericia coli (Yusop et al., 2018). In Indonesia, meliponiculture started gaining momentum around 2015, much later than apiculture.

Sumatran stingless and honey bees make up to 74% of the total known pollinator insects for various flowering plants on the island (Inoue & Salmah, 1990); it was similarly observed in the Malay Peninsula (Yoshikawa, 1969). Concerning the emergence of rampant meliponiculture activity in Sumatra, there are challenges in preserving the diversity of stingless and honey bees therein. It is common for