

## INTISARI

### **AKTIVITAS HARIAN LEBAH KLANCENG (*Tetragonula laeviceps* Smith, 1857), KEANEKARAGAMAN PAKAN *BEE-POLLEN*, DAN KOMPOSISI SENYAWA BIOAKTIF PROPOLIS DI TURI, SLEMAN**

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Indonesia memiliki keanekaragaman biodiversitas yang dapat dimanfaatkan sebagai obat alternatif, salah satunya adalah propolis dari lebah *Tetragonula laeviceps*. Faktor yang mempengaruhi khasiat, sifat fisik, dan kimia propolis dipengaruhi oleh jenis polen dan aktivitas harian lebah sedangkan propolis dipengaruhi oleh faktor geologis. Adapun aktivitas harian lebah dapat menunjukkan keberadaan sumber pakan serta keadaan lingkungan biologis disekitar sarang. Oleh karena itu penelitian ini bertujuan untuk mempelajari keanekaragaman sumber pakan berdasarkan aktivitas harian lebah *Tetragonula laeviceps*, mengetahui keanekaragaman polen dan komposisi senyawa bioaktif propolis lebah *Tetragonula laeviceps* di wilayah Turi. Hubungan antara aktivitas lebah *Tetragonula laeviceps* keluar masuk sarang dengan faktor lingkungan menggunakan model kuadratik. Identifikasi keanekaragaman polen menggunakan metode asetolisis. Identifikasi komposisi propolis menggunakan GC-MS. Pengukuran morfometri sampel lebah menggunakan *Digital Microscope Supereyes* sedangkan identifikasi sampel lebah menggunakan acuan jurnal. Hasil penelitian menunjukkan bahwa puncak aktivitas lebah terjadi saat temperatur udara dan kelembaban udara mendukung. Polen yang mendominasi berasal dari *family* tanaman *Arecaceae*, *Asteraceae*, dan *Malvaceae*. Senyawa bioaktif yang mendominasi propolis lebah *Tetragonula laeviceps* adalah 2-Fluoro- $\beta$ -alanine ( $C_3H_6FNO_2$ ) sebesar 33,55% yang termasuk dalam golongan alkaloid.

Kata Kunci: Aktivitas harian lebah, polen, propolis, *Tetragonula laeviceps*, senyawa bioaktif, sumber pakan

## ABSTRACT

### DAILY ACTIVITIES OF THE STINGLESS BEE (*Tetragonula laeviceps* Smith, 1857), BEE-POLLEN FEED DIVERSITY, AND COMPOSITION OF PROPOLIS BIOACTIVE COMPOUNDS AT TURI, SLEMAN

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Indonesia has a diversity of biodiversity that can be used as an alternative medicine, one of which is propolis from the bee *Tetragonula laeviceps*. Factors that affect the efficacy, physical and chemical properties of propolis are influenced by the type of pollen and daily activities of bees, while propolis is influenced by geological factors. The daily activities of bees can indicate the presence of feed sources and the state of the biological environment around the hive. Therefore, this study aimed to study the diversity of feed sources based on the daily activity of the bee *Tetragonula laeviceps*, to determine the diversity of pollen and the composition of the propolis bioactive compound of the *Tetragonula laeviceps* bee in the Turi region. The relationship between the activity of the *Tetragonula laeviceps* bee in and out of the hive with environmental factors using a quadratic model. Identification of pollen diversity using acetolysis method. Identification of propolis composition using GC-MS. The morphometric measurements of the bee samples used a Digital Microscope Supereyes, while the identification of the bee samples used a journal reference. The results showed that the peak of bee activity occurred when the air temperature and humidity were supportive. The dominating pollen comes from the Arecaceae, Asteraceae, and Malvaceae plant family. The bioactive compound that dominates *Tetragonula laeviceps* bee propolis is 2-Fluoro-β-alanine ( $C_3H_6FNO_2$ ) by 33.55% which is included in the alkaloid group.

Keywords: Daily activities of bees, pollen, propolis, *Tetragonula laeviceps*, bioactive compounds, feed sources