

## Chemical constituents and antioxidant activity of *Borussus flabellifer*, *Elaeis guineensis*, *Mimosa diplotricha* and *Mimosa pigra*

Sompop Saeheng<sup>1</sup>, Malinee Wongnawa<sup>2</sup>, Choathip Purintavaragul<sup>1,\*</sup>

<sup>1</sup>Department of Biology, Faculty of Science, Prince of Songkla University, Hatyai, Songkhla 90112, Thailand

<sup>2</sup>Department of Pharmacology, Faculty of Science, Prince of Songkla University, Hatyai, Songkhla 90112, Thailand

\*Corresponding Author: choathip@gmail.com; Tel: +66 7428 8485; Fax: +66 7458 8480

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### Abstract

Four pollen types were found in bee pollen in Palmyra Palm (*Borussus flabellifer* L.), Oil palm (*Elaeis guineensis* Jacq.), Sensitive plant (*Mimosa diplotricha* C. Wright ex Suavale) and Giant sensitive tree (*Mimosa pigra* L.). Lipids, proteins, fiber, ash and humidity and DPPH scavenging activity of 4 pollen species were evaluated by AOAC standard methods. Result showed that the highest protein and lipids contents were found in *M. diplotricha* pollen (38.85±0.53%) and *B. flabellifer* bee pollen (1.84±0.1%), respectively. IC<sub>50</sub> (143.9 µg/mL) of *M. pigra* pollen displayed the best antioxidant activity. However, it is less when compared to BHT (IC<sub>50</sub> 5.0 µg/mL) and gallic acid (IC<sub>50</sub> 0.32 µg/mL).

**Keywords:** Bee pollen; chemical content; antioxidant

### Introduction

Bee pollen is collected by honey bee *Apis mellifera*. The bees are extremely discriminate to select the best pollen from millions of presented grains by using their accumulated forelegs. Then, pollen grains are mixed with 10% nectar sticky substance for packing together with  $\alpha,\beta$ -galactosidase which secreted from their hypopharyngeal gland of stomachs. Allowing the packed pollens are adhered to rear legs in "pollen baskets" in order to safely transport it to their hives. (Carpes et al., 2009). Bees used pollens to provide for larvae and worker and stored pollen pellets in hive. When pollen pellets were kept for a long time, they will be produced lactic acid formation (Herbert et al., 1978). Honey bee seeks various flowering plants to make bee pollen, so the products from bee pollen were not uniform of nutritional value depend on botanical sources. Bee pollen was claimed as supplementary food and given some medicinal properties. Bee pollen rich of essential nutrition composed of protein (up to 35%), lipid, reducing sugars, non-reducing sugars, crude fiber, pectin, mineral salts, and amino acid (Herbert et al., 1978; Campos et al., 1996). The different botanical origins of bee