

Melissopalynology of Kelulut Honey from Malaysia

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Structured Abstract

Background: Bee is an essential insect as it acts as the primary pollinator of the world. They play an important role for wild plants and flowers to spread their pollen. Through the process of extracting nectar from flowers, pollen will stick on the legs of the bees thus spreading as the bee flies from one flower to another. Kelulut bee is also known as stingless bee or the scientific name *Meliponini*. They are one of the main pollinators for main plants. Melissopalynology is a study of pollen that is used to identify the type and the count of pollen that can be found in the honey.

Methods: The honey sample was prepared prior to acetolysis to remove impurities, lipids, and other unwanted substances from the grains to expose to enhance the pollen grain structure. Next, the identification and quantification of pollen were conducted under the Leica microscope and the pollen were identified and counted in order to determine the type of pollen in each of the honey samples. Lastly, the physicochemical properties of honey such as the colour, moisture, sugar content and pH were measured.

Results: This study shows for KHK there are 8 different plants species belonging to 7 distinct families which Solanaceae and Fabaceae are the predominant. Next, for KHT there are 13 different plant species belonging to 9 distinct families with Myrtaceae, Lamiceae and Fabaceae were the most abundant pollen. The physicochemical of the two honeys are significantly different. pH from KHT (pH 3.52) is more acidic than KHK (pH 3.87). Water content for KHK (27%) is higher than KHT (25%). Sugar content for KHT (73 Brix) is higher than KHK (71 Brix). Colour intensity for KHK is light amber colour while KHT is amber colour.

Conclusion: In conclusion, KHT is more stable than the KHK. This is because based on the result of physicochemical of KHT has lower moisture content, more acidic and higher sugar content which inhibit the growth of microbial and increase the shelf life of the honey. Next, it also shows that Kelulut honey is a polyfloral thus there is no dominant pollen.

Keywords: Kelulut honey, physicochemical properties, pollen analysis, melissopalynology

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