

Analysis of Sugar Profile and Organoleptic Characteristics of Malaysian Tualang and Acacia Honey

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Structured Abstract

Background: Honey is a naturally sweet substance made by honeybees from plant nectar, secretions, or excretions of plant-sucking insects. Malaysian honey is primarily produced by two bee species: *Apis* and *Trigona* spp. This study focused on Tualang honey (TH) produced by *Apis dorsata* while Acacia honey (AH) was produced by *Apis mellifera*. It was reported that Malaysia's honey industry faces challenges in detecting adulterated honey, potentially accounting for 90% of total sales. The lack of information on the quality of Malaysian honey has affected consumer trust in honey despite its global popularity. Therefore, the objectives of this research are to evaluate and compare the taste, scent, texture and colour of Malaysian Tualang and Acacia honey using organoleptic analysis, to determine the honey colour standard and to analyse total amount of sugar and moisture content as well as identify the type of sugar in both honeys via refractometric method and qualitative carbohydrates tests.

Methods: The organoleptic analysis was conducted via a blind taste test while the colour was conducted using a combination of spectrophotometric analysis with a Pfund colour grader. The refractometric method was used to analyse the total amount of sugar and moisture content. Several carbohydrate tests such as Benedict's, Barfoed's, Seliwanoff's and Bial's tests were conducted to identify the type of sugar present in both honeys.

Results: This study revealed the distinct characteristics of both honeys, in terms of taste, smell, texture and colour. The colour of honey was assessed both qualitatively and quantitatively. TH showed more colour variation than AH despite both being from the *Apis* species. The analysis of the amount of sugar and moisture content in the honey reveals that AH has the highest sugar and lowest moisture content. TH possessed typical sugar composition as it contained reducing sugars, monosaccharides and ketose sugars. Each type of sugar in honey contributed to its biochemical activity.

Conclusion: This study aimed to characterise the unique organoleptic characteristics and sugar profiles of Malaysian Tualang and Acacia honey. These findings were essential to ensure honey quality and providing basic honey authenticity checks to protect the consumers from adulterated honey in the market.

Keywords: Organoleptic Analysis, Sugar Profiles, Tualang Honey, Acacia Honey

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