



Nutritional Composition and Medical Properties of Honey from Stingless Bees



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Submission: : June 26, 2018; Published: July 18, 2018

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Abstract

Honey of stingless bees of the genus *Melipona* is a product that may contain numerous medicinal properties. Most honey studies describe the physicochemical and microbiological composition, and report that there is antioxidant capacity related to phenolic compounds, however, the medicinal properties of honey are associated with specific phenolic compounds, which need to be identified to that such properties are described. The identifying these compounds are of extreme importance in describing beneficial health properties and each sample of honey may exhibit different variations and different phenolic compounds because the composition of these phenolics in stingless bee honey depends on the geographical location, type of plant that the bee collected the nectar, storage, climate, temperature, species of bee.

Keyword: Honey; phenols; antioxidants; Stingless bees

Introduction

Honey can be defined as a highly concentrated solution of a complex mixture of sugars, mainly fructose and glucose, which contain smaller components, including enzymatic and non-enzymatic antioxidants such as glucose oxidase, catalase, ascorbic acid, flavonoids, phenolic acids, carotenoid derivatives, organic amino acids, proteins, pollen and pigments [1].

From ancient times to the present, honey is undoubtedly the best-known and widespread product of bees, many ancient civilizations used it as a therapeutic, food and conservation resource [2].

To evaluate the nutritional properties of honey, several studies on the physicochemical composition have been performed for more than one hundred years with bee products and more recently with meliponine. These analyzes aim to assess nutritional values and demonstrate the quality of bee honeys, besides contributing to add value to the product [3-4].

To verify if the honey has adequate nutritional quality for consumption and antioxidant capacity, physicochemical, and microbiological analysis, and the identification of phenol compounds are extremely important, since each type of honey has its own physicochemical characteristic and complex chemistry that needs to be assessed mainly in species of stingless bees where the studies are less frequent [5].

It is reported that honey has medicinal properties beneficial to health, acting as anticarcinogenic agent [6] and

antibacterial [7], and may also have cardioprotective, anti-inflammatory, antihelminthic, neuromodulatory action [8-10]. These properties of honeys are associated with their antioxidant capacity, which is dependent on the existing phenolic compounds, and these antioxidant activities may be variable depending on the floral source of nectar, storage, geography and species of plants bees [11].

Conclusion

Each honey is unique and has a nutritional composition and variable phenolic compounds, and therefore a variable beneficial medicinal activity, due to the honey quality being associated with several factors, among which we can mention, type of stingless bee, geographical location, species of plants that are collected the nectar, type of storage that is carried out of the honey. Research that better clarifies the nutritional composition related to phenolic compounds content and the oxidizing capacity of *melipona* honey may be extremely important, since they reveal whether a particular bee honey can be may contain beneficial health. These researches are still rare in *Melipona* honey in Brazil.

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DOI: [10.19080/NFSIJ.2018.07.555707](https://doi.org/10.19080/NFSIJ.2018.07.555707)

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