

MINERAL ANALYSIS OF SOUTH BRAZILIAN STINGLESS BEE HONEY

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The stingless bee honeys are unique products. The bees' behavior promotes flavor, aroma and texture differentiated from the *Apis mellifera*. The prospect of a wider market for organic and natural products and the increased production of the stingless bee honey are important for the conservation and maintenance of flora and indigenous bees. The mineral content is a nutritional feature that can be used to promote the positive characteristics of honey. For these reasons, this work aimed evaluates the concentrations of minerals of four different species of honey from the south of Brazil: *Melipona bicolor*, *M. quadrifasciata*, *M. marginata* and *Scaptotrigona bipuncata*. Ash content was determined by incineration and electrical conductivity was by conductivity meter. The ashed samples were solubilized in acid medium. From the ash solution, the content of mineral constituents was determined in the wavelength range of 167.019 to 766.491 nm using an inductively coupled plasma optical emission spectrometer (ICP-OES, Varian 720 ES-axial, USA). Twenty-three minerals (Mo, Ni, Fe, Mg, Mn, Sn, V, Zn, P, Pb, Se, Cu, B, Ca, Ag, Cr, Co, Al, Ba, Cd, Li, K, and Na) were determined in honey samples of known weight (3 replicates/honey type). The honey had ash contents ranging from 0.01 to 0.55%. All samples had conductivity measurements below 0.8 mS cm⁻¹. A strong positive relationship between mean conductivity and total mineral content was observed in this study (0.82, P < 0.0001). Some elements were found in very small concentration as tin, cobalt and cadmium. The absence of pollutant heavy metals as cadmium indicated clean environment in this honeys amounts. The mean total mineral content ranged from 38 to 2724 mg kg⁻¹, both values for *Melipona marginata* bee. In all analyzed samples, potassium was the most abundant element, with values ranging from 6.66 to 2198mg kg⁻¹, followed by calcium, sodium, magnesium, zinc, manganese and iron. The mineral levels for SBH observed in this investigation corroborate with other honey types analyzed elsewhere in the world. According to the amount of minerals found, ingestion of a spoon of stingless bee honey would supply: 4.55 mg of K, 0.64 mg

of Ca, 0.59 mg of Na, 0.31 mg of Mg, 47.29 μg of Zn, 40.24 μg of Mn, 22.69 μg of Fe, 13.44 μg of Cr, 4.21 μg of Cu. So, this honey can be considered a good source of minerals.

Palavras-chave: ICP-OES, melipona, scaptotrigona, conductivity, quality