Physicochemical properties of honey from contract beekeepers, street vendors and branded honey in Sabah, Malaysia

ABSTRACT

The chemical properties of honey depend on the source of collection to packaging, but little is known about honey in Sabah. The aim of this study was to distinguish between the physicochemical properties and mineral content of 76 honey samples from local sources and supermarkets in Sabah, which were from contract beekeepers, unknown sources and branded honey. Raw honey was collected from contract beekeepers, while honey from unknown source was obtained from street vendors and wet markets, while branded honey was purchased from local supermarkets. The chemical parameters of the honey were assessed using established methods, while the mineral content of the honey was determined using inductively coupled plasma optical emission spectroscopy (ICP-OES). Significant differences were found in several parameters measured in honey from different sources, with principal component analysis (PCA) showing clear separation between the measured parameters, yielding five factors that accounted for up to 72.25 % of the total explained variance. Honey from contract beekeepers showed significant differences and higher mineral content (Ca, Cu, Fe, K, Mg, Na and Zn) compared to honey from unknown source and branded honey. Potassium was the most important element in the study with an average of 2.65 g/kg and 629.4 mg/kg for sources from contract beekeepers and branded honey, respectively. The honey from the contract beekeepers was of better quality due to its high mineral content. The results suggest that honey from contract beekeepers could be a good choice when it comes to high mineral content.