

DETERMINATION OF QUALITY ATTRIBUTES OF SRI LANKAN BEE HONEY BASED ON PHYSICOCHEMICAL PROPERTIES

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The quality and uniqueness of bee honey are highly diversified based on environmental, seasonal, geographical and floral origin. The aim of this study was to evaluate the quality attributes of Sri Lankan raw bee honey based on physicochemical parameters which are crucial to ensure its authenticity. Initially, raw bee honey samples (n=38) were collected from major bee honey-producing areas in Sri Lanka namely the Dry, Rubber and Redgum. Physicochemical parameters such as, moisture content (MC), pH, ash content, total soluble solid content (TSS), free acidity (FA), chroma, hue angle (HA), L*a*b* values, electrical conductivity (EC), density, pollen density (PD), color using Pfund scale, sucrose and fructose contents were determined and compared the results against international (CODEX and EU) and national (SLS) standards of bee honey. The values for MC, pH, ash content, TSS, FA, EC, density, chroma, HA, PD, Pfund scale, fructose and sucrose content were found to range from 17.80 to 26.05%, 2.50 to 4.60, 0.04 to 0.66%, 71.6 to 79.6%, 0.005 to 0.043% (as formic acid, percent by mass), 0.21 to 0.81 mS cm⁻¹, 1.34 to 1.43 g mL⁻¹, 2.56 to 22.90, 15.22° to 37.33°, 407 to 592,2839 g⁻¹, -6.38 to 169.28 mm, 28.61 to 83.09%, and 0.03 to 13.15%, respectively. According to the results, ten samples exceeded the recommended ash content (max. 0.5%). While, twenty-nine samples exceeded the recommended moisture content (max. 20%) and all honey samples met recommended EC levels (max. 0.8 mS/cm). Although MC, ash, TSS, FA, chroma, EC, density, pollen density, fructose content and color in the Pfund scale of honey samples varied significantly ($p < 0.05$), sucrose content, pH and hue angle of bee honey samples were not significantly varied ($p > 0.05$) among the zones. The outcome of the study is useful in bee honey profiling and future upgrading and categorization of local honey production based on different agro-ecological zones.

Keywords: Honey profiling, Pfund scale, Pollen density, Quality standards