

A/OP/06

Determination of Quality Compliance in Commercially Available Sri Lankan Bee Honey

Madhushani TRSS¹, Sirisena UGAI², Thilakarathna HRMGC¹, Sampath UWR³, Abeyrathne BMTH³,
Prabashwara VT³

¹Department of Animal and Food Sciences, Faculty of Agriculture, Rajarata University of Sri Lanka, Anuradhapura, Sri Lanka

²Department of Plant Sciences, Faculty of Agriculture, Rajarata University of Sri Lanka, Anuradhapura, Sri Lanka

³Dilmah Conservation, Dilmah Ceylon Tea Company PLC, 111 Negombo Road, Peliyagoda, Sri Lanka

Background: Bee honey is highly valued by consumers for its purity, taste & overall quality. Assessment of quality compliances and authenticity of commercial bee honey is crucial to ensure the consumer safety and rights.

Objective: This study aims to evaluate the quality compliances of selected commercially available Sri Lankan bee honey against national (SLSI) and international (CODEX & EU) standards.

Methods: Bee honey samples representing different commercially available brands (n=27) and 05 raw bee honey samples (controls) were collected from some major bee honey-producing areas (Dry, Red gum, Rubber zones) in Sri Lanka. Physicochemical parameters including pH, Electrical Conductivity (EC), Total Soluble Solids (TSS), Density, Refractive Index (RI), Water Content (WC), Colour (intensity & Pfund scale), Viscosity, Free Acidity (FA), Ash, Pollen Density and Sugar Profile were analyzed to evaluate the quality of these samples.

Results: Findings revealed that the values of the samples were in the ranges of 2.55-4.57 for pH; 59.75-772 $\mu\text{S cm}^{-1}$ for EC, 71.35-80.10% for TSS, 1329.76-1428.23 kg m^{-3} for Density, 1.4704-1.4933 for RI, 17.25-26.40% for WC, 0.040-0.943 for Color intensity, -23.75-311.52mm for Color pfund, 500-5100 cP for Viscosity, 10.94-103.46 meq kg^{-1} for FA, 0.0392-1.034% for Ash, 5195.5-74,262,862.50 per g for pollen density, 0-8.931% and 24.978-84.188% for sucrose and fructose content respectively.

While all samples confirmed to the standard norms provided for pH & EC, several control and many commercial samples were not confirmed to the norms such as TSS- max 75-80%, RI- Max 1.4740-1.4840, WC- max. 20-22%, FA- max. 50 meq kg^{-1} , Ash-max. 0.5-0.6%, sucrose- max. 5%, fructose and glucose-min. 60-68%, under the same standard schemes.

Conclusion: As per the Local (SLSI) and International (CODEX & EU) quality standard norms majority of the commercially available bee honey samples exhibited non-compliances with quality parameters except pH and Electrical Conductivity suggesting low quality controls & possible adulterations.

Keywords: Authenticity, Consumer safety, Pollen density.