

ABSTRACT

Post-processing treatments for Multiflora and Randu honey to improve the stability of honey-based functional products. The research evaluated the effects of thermal processing (40°C and 70°C) and acidification (citric acid) on Diastase Number (DN), Hydroxymethylfurfural (HMF), and microbial safety over 2 months. The results identified the 40°C Production treatment (30 minutes) as the optimal industrial standard, maintaining Diastase activity from 33.72 from 0 months to 13.05 in 2 months. In contrast, 70°C pasteurization and acidification significantly accelerated HMF formation, from 14.58 to 7.85 in 2 months, reducing chemical freshness. Microbiological analysis confirmed that high sugar concentrations obtained from Randu honey (78–80% Brix) and low pH (3.5) effectively suppressed bacterial, yeast, and mold growth through plasmolysis. Randu honey demonstrated higher natural stability than Multiflora due to its lower pH and higher sugar density, despite lower baseline enzymes. These findings provide evidence-based parameters for variety-specific processing, allowing manufacturers to maximize shelf-life and safety without compromising the honey's bioactive integrity or violating SNI standards.

Keywords: Honey Optimization, HMF, Diastase Number, Hurdle Technology, Randu Honey, Multiflora Honey, Food Stability.