

Quality Evaluation of *Caryota urens* (Kitul) Palm Treacle

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Though *Kitul* based production is an important venture in Sri Lankan society, it is crucial to get quality products with inherit health benefits. The study was aimed to evaluate the physicochemical and spectroscopic characteristics of *Kitul* treacle obtained from six suppliers in Badulla district. Measurements were taken from six original samples (1-6) and a 7th sample which was processed by mixing original samples. A Friedman sensory test was performed for 1-6 samples and Sample 1 was identified as the highest ranked sample. When considering the physicochemical parameters, all treacle samples were acidic with pH values ranging from 5.38 to 6.52. The analytically obtained total acidity values of the samples were ranging between 13.66 mEq/kg and 33.66 mEq/kg. The highest brix value (74.93 °Brix) was obtained for the sample 7, which is the composite product of 1-6 samples. Potential alcohol as volume percentages were ranged between 50.66 %V/V to 56.90 %V/V (Potential alcohol %V/V = g/L of Sugar / 16.83). Water activities were ranging between 0.76 and 0.82 and moisture percentages of the samples were ranging from 14.36% to 21.86%. The Chroma meter values were within the yellowness range (+b). The values were significant for these parameters except for the brix value where regression p value was 0.245. Fourier Transform Spectrophotometer (FTIR) data were obtained within a 500-4000 cm⁻¹ range. Spectrum of sample 6 was significantly differed from the spectra of other samples. The greatest intensity of the bands was at a level of 3265 cm⁻¹. In conclusion, physicochemical and spectroscopic characteristics of selected samples were changed depending on the supplier. Thus, physicochemical and spectral measurements were effective in differentiating and evaluating the quality of the *Kitul* treacle samples

Keywords: *Caryota urens*; *Kitul*; FTIR Spectroscopy; Physicochemical characteristics; Quality evaluation