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Development of a ready-to-drink beverage from mature coconut water

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This study was conducted to develop a ready-to-serve beverage from mature coconut water discarded from various coconut-based industries. The brown skin of de-shelled coconut was removed and the water inside was collected into a can and transported at ambient conditions immediately after collection. Coconut water was brought to the laboratory of the Coconut Research Institute, Lunuwila. Pasteurization was carried out at 65 °C for 20 minutes using a mini-pasteurizer and kept overnight at 4 °C to separate fat and sediment as a pre-treatment. A preliminary experiment was carried out to find the suitable brix level (6, 7 and 8) using coconut sugar and treacle. pH was adjusted to 5.5. NaCl 0.3% was added to one set and NaCl was not added to the other set. Sensory evaluation (5 point hedonic scale) was conducted to find the best brix and salt level. Data from sensory evaluation were analysed with "Friedman test" using a MINITAB software package. The selected beverages were pasteurized using three treatments P₁ (65 °C for 30 minutes), P₂ (75 °C for 15 minutes) and P₃ (95 °C for 10 minutes) and stored at 4 °C ± 2 and ambient condition for shelf life evaluation. During the storage period sedimentation was observed in all treatments. Therefore, selected stabilizing agents were tested and stabilizing ability was evaluated. As stabilizing agents, carboxy methyl cellulose 0.4%, pectin 0.4% and guar gum 0.05% were added to pre-treated (65 °C for 20 minutes) mature coconut water and kept at 4 °C ± 2 for 24 hours. After the settling process, pH, brix, turbidity and sugar profile were evaluated. The treatments were arranged according to the complete randomized design (CRD). SAS software package was used to analyse the data quantitatively. Of the three treatments 7°Bx was the best level with salt. The P₃ treatment gave a longer shelf life of 2 months at ambient conditions while five months at refrigerated conditions. Pectin showed the best stabilizing ability.

Keywords: Coconut sugar, coconut treacle, mature coconut water, ready-to-drink beverage