

Comparison of UV-C and thermal pasteurisation for the quality preservation of pineapple-mango juice blend

ABSTRACT

Massive grow in the juice industry promotes the development of the new flavour juice by blending two or more different types of fruits. Application of ultraviolet-irradiation of light spectrum C (UV-C) on single juice already widely explored whereas limited study was done on juice blend. Thus, the effect of ultraviolet-irradiation (UV-C) on physicochemical and antioxidant properties of pineapple-mango juice blend was investigated. Pineapple and mango juice blended together at blending ratio of 70 pineapple: 30 mango (volume/volume). Physicochemical properties of pH, total titratable acidity, total soluble solid and turbidity of pineapple-mango juice blends UV-C (UV-C dosage of 8.38mJ/cm²) and thermally (90°C, 5 mins) treated were significantly changes ($p < 0.05$) during 9 weeks of storage at 4°C. Antioxidant qualities namely ascorbic acid, total phenolic compounds (TPC), and total antioxidant (as DPPH assay scavenging activities) of UV-C treated pineapple-mango juice blend shows higher values throughout the storage period. A Pearson correlation showed that ascorbic acid is the main contributor in antioxidant properties of pineapple-mango juice blend as decreased in ascorbic acid content caused degradation in TPC during storage. Present study proved that UV-C treatment better in nutritional and heat sensitive component retention compared to conventional thermal pasteurisation.

Keyword: Ultraviolet irradiation; Pineapple; Mango; Juice blend; Quality attributes