FORMULATIONS OF POLYPHENOL-RICH BEVERAGES AND ITS STABILITY TESTS

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2010
ABSTRACT

Nowadays, the emphasis on healthy living encourages the interest in the consumption of dietary antioxidants, and therefore has prompted many researches in the field of developing polyphenol-rich beverages. In present study, 5 formulations of plums and guavas: 2 controls (at 100% for both juices) and 3 combined in proportions (at 25%, 50% and 75% for both juices), were examined for their antioxidant properties and stability over a 60 days storage period. The antioxidant properties of juices was measured by total phenolic content (TPC) and 2,2- diphenyl-1- picrylhydrazyl (DPPH) assay; whilst the stability indexes were measured by pH, total soluble solids (TSS), water activity (A_w), and total titratable acidity (TTA). The main objective of this experiment was to formulate new polyphenol-rich beverages with stability properties. Results were reported in their mean values over 60 days’ storage period to give a complete examination of the juices as a whole to determine the best formulation. On the basis of analysis, plums’ dominant formulation (75% of plums juice and 25% of guavas juice) presented the most desired designed beverage. The desired formulation showed 68.84 ± 5.65 mg gallic acid equivalents (GAE) per 100ml of TPC; 152.55 ± 12.15 mg Trolox equivalents (TE) per 100ml of antioxidant capacity and 55.3 % of free radical scavenging capability. Besides, this formulation also showed good stability properties with total soluble solid (TSS) content of 10.5 ± 0.394 °Brix, 0.955 ± 0.006 water activity (A_w), acidity content of 3.67 ± 0.179 for pH and 0.593 ± 0.017 % expressed in citric acid equivalent for total titratable acidity (TTA).