FORMULATIONS OF POLYPHENOL-RICH BEVERAGES AND ITS STABILITY TESTS

YIP PUI LING

B.Sc. (Hons.) FOOD SCIENCE & NUTRITION
FACULTY OF APPLIED SCIENCES
UCSI UNIVERSITY

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).