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Total phenol content and antioxidant activity of fruit smoothies during storage.

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Introduction

Polyphenols account for the majority of antioxidant activity of many fruits and juices. However, polyphenols can undergo various reactions in the course of food processing and storage which affect their stability¹. This study aims to determine the total phenols (TP) and antioxidant activity (AA) of fruit smoothies during storage.

Methodology

The fruit smoothies were stored at 4°C for 4 weeks. Some drinks were also stored at room temperature (21 ± 1 °C) for two days. The TP and AA were determined by Folin-Ciocalteu method and FRAP assay respectively. All measurements were carried out at least in three replicates.

Results

The graphs below illustrate the TP content and AA of different smoothies (BACAR, MAP and BRAB) during storage at different conditions. Treatments/Bars of the same colour (smoothie) with different letters (a-e) means significantly different (p < 0.05).

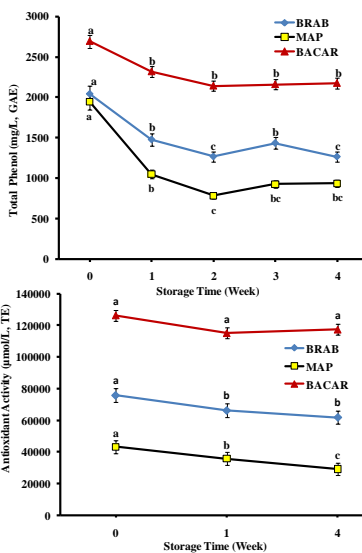


Fig. 1: TP and AA during storage at 4°C unopened.

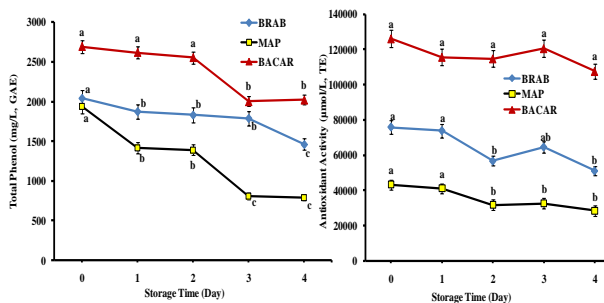


Fig. 2: TP and AA of smoothies when opened and refrigerated (at 4 °C) over four days.

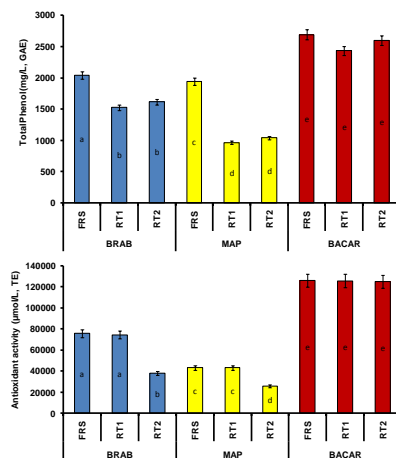


Fig. 3: TP and AA at room temperature (21 ± 1°C). FRS: Fresh; RT1: Day1; RT2: Day 2.

Conclusion

The study revealed that the smoothies experienced variable loss in TP and AA depending on the type, the condition and period of storage. However, both TP and AA values were high even during shelf-life at 4 °C. Correlation between TP and AA was strong and highly significant (r = 0.890, p < 0.0001).

Reference

1. Kaur C. & Kapoor H.C. (2001). Antioxidants in fruits and vegetables – the millenium's health. *Int. J. Food Sci. Technol.* **36**:703-725.