



University of HUDDERSFIELD

University of Huddersfield Repository

Agbenorhevi, Jacob K. and Lang, L.J.

Total phenol content and antioxidant activity of fruit smoothies during storage

Original Citation

Agbenorhevi, Jacob K. and Lang, L.J. (2010) Total phenol content and antioxidant activity of fruit smoothies during storage. In: 1st UK International Functional Food Conference, 25-26 November 2010, Barceló Oxford Hotel. (Unpublished)

This version is available at <http://eprints.hud.ac.uk/id/eprint/10149/>

The University Repository is a digital collection of the research output of the University, available on Open Access. Copyright and Moral Rights for the items on this site are retained by the individual author and/or other copyright owners. Users may access full items free of charge; copies of full text items generally can be reproduced, displayed or performed and given to third parties in any format or medium for personal research or study, educational or not-for-profit purposes without prior permission or charge, provided:

- The authors, title and full bibliographic details is credited in any copy;
- A hyperlink and/or URL is included for the original metadata page; and
- The content is not changed in any way.

For more information, including our policy and submission procedure, please contact the Repository Team at: E.mailbox@hud.ac.uk.

<http://eprints.hud.ac.uk/>

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

J.K. Agbenorhevi¹ and L.J. Lang²

¹Department of Chemical and Biological Sciences, University of Huddersfield, Queensgate, Huddersfield, HD1 3DH, UK.

²School of Food Science and Nutrition, University of Leeds, Leeds, LS2 9JT, UK.

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).

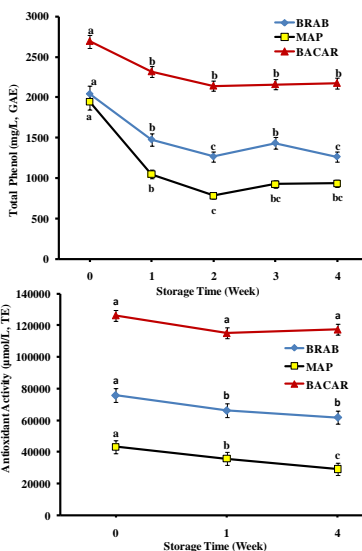


Fig. 1: TP and AA during storage at 4°C unopened.

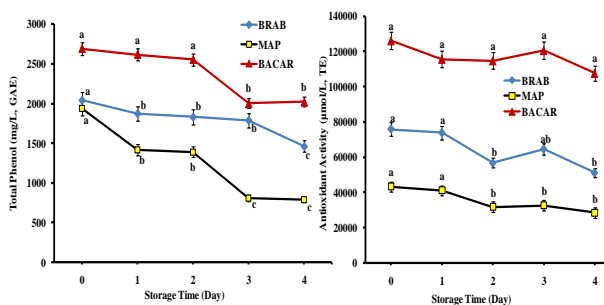


Fig. 2: TP and AA of smoothies when opened and refrigerated (at 4 °C) over four days.

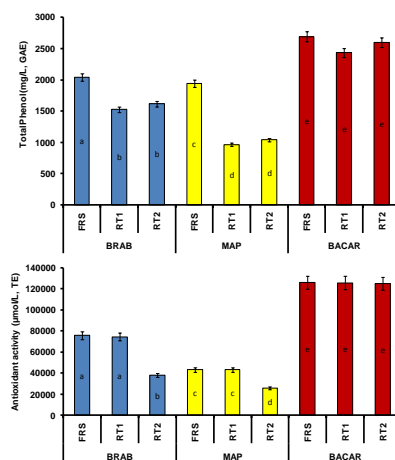


Fig. 3: TP and AA at room temperature (21 ± 1°C). FRS: Fresh; RT1: Day1; RT2: Day 2.

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.