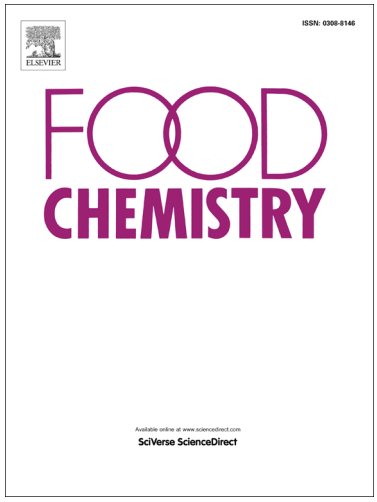

Comparison of the *in vitro* gastrointestinal bioavailability of acylated and non-acylated anthocyanins: Purple-Fleshed Sweet Potato vs Red Wine

Hélder Oliveira, Rosa Perez-Gregório, Victor de Freitas, Nuno Mateus, Iva Fernandes

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Comparison of the *in vitro* gastrointestinal bioavailability of acylated and non-acylated anthocyanins: Purple-Fleshed Sweet Potato vs Red Wine.

Running title: *In vitro* gastrointestinal bioavailability of anthocyanins from PFSP

Hélder Oliveira[1], Rosa Perez-Gregório[1], Victor de Freitas[1], Nuno Mateus[1], Iva Fernandes[1,*]

[1]REQUIMTE/LAQV, Department of Chemistry and Biochemistry, Faculty of Sciences, University of Porto, 4169-007 Porto; Portugal

Corresponding author. Iva Fernandes, *e-mail: iva.fernandes@fc.up.pt, telephone: +351.220402562

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Abstract

Acylated anthocyanins from Purple-Fleshed Sweet Potato (PFSP) have been reported to have multiple benefits to human health. Although, the bioavailability of these anthocyanins remains unknown. In the present study, a characterization of the gastrointestinal bioavailability of PFSP anthocyanins was assayed and compared with the bioavailability of Red Wine anthocyanins. Acylated anthocyanins showed higher resistance to overall simulated digestions when compared to less complex anthocyanins from Red wine, with degradation at the intestinal level of about 30% and 45%, respectively. Transport rates of absorption of acylated anthocyanins were not dependent on the cell type. However, a higher transport efficiency was observed in gastric cells (8%) when compared to the intestinal cells (5%). Glucose and proteins, but not starch, decreased the transport efficiency of anthocyanins in about 3-7% in gastric cells and 2-3% in intestinal cells. These results bring new insights and lay the groundwork for further research on acylated anthocyanins bioavailability.