**1. ABOUT THE DATASET**

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Title: Dataset supporting paper ‘Acute effects of an anthocyanin-rich blackcurrant beverage on markers of cardiovascular disease risk in healthy adults: a randomized, double-blind, placebo-controlled, crossover trial’

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Organisation: University of Reading, Reading, United Kingdom

Rights-holders: University of Reading

Publication Year: 2024

Description: This dataset includes all summaries of raw data supporting the results presented in the paper "Acute effects of an anthocyanin-rich blackcurrant beverage on markers of cardiovascular disease risk in healthy adults: a randomized, double-blind, placebo-controlled, crossover trial". The objective of this paper is to investigate the postprandial effects of an anthocyanin-rich blackcurrant beverage (200 mL containing 711 mg anthocyanins) on a range of CVD risk markers in a healthy, middle-aged population. Data about CVD risk markers include: i. flow-mediated dilation (FMD) measured by Phillips CX50 integrated ultrasound system; ii. digital volume pulse (DVP) measured by PulseTrace PCA 2 device with finger photoplethysmography; iii. Blood pressure (BP) measured by by an automated sphygmomanometer; iv. platelet aggregation induced with two agonists: collagen (0.5 and 1 µg/mL final concentration) and ADP (10 and 100 µM final concentration) measured by chronolog optical platelet aggregometer; v. interleukin-8 (IL-8) concentrations measured by enhanced sensitivity cytometric bead array kit; vi. platelet-derived extracellular vesicles (PDEVs) and endothelium-derived extracellular vesicles (EDEVs) concentrations measured by flow cytometer. Data about plasma and urine anthocyanin and phenolic metabolites concentrations were measured by UPLC-MS/MS.

Cite as: Zhou, Ruihan (2024): Dataset supporting paper ‘Acute effects of an anthocyanin-rich blackcurrant beverage on markers of cardiovascular disease risk in healthy adults: a randomized, double-blind, placebo-controlled, crossover trial’. University of Reading. Dataset. <https://doi.org/10.17864/1947.001321>

Related publication: Amini, A. M., Zhou, R., Austermann, K., Králová, D., Serra, G., Ibrahim, I. S., Corona, G., Bergillos-Meca, T., Aboufarrag, H., Kroon, P. A., Spencer, J. P. E. and Yaqoob, P. (2025) Acute effects of an anthocyanin-rich blackcurrant beverage on markers of cardiovascular disease risk in healthy adults: a randomized, double-blind, placebo-controlled, crossover trial*.* The Journal of Nutrition, 155 (7). pp. 2275-2289. ISSN 1541-6100 doi: [10.1016/j.tjnut.2025.05.017](https://doi.org/10.1016/j.tjnut.2025.05.017)

**2. TERMS OF USE**

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**3. PROJECT AND FUNDING INFORMATION**

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Title: Acute effects of an anthocyanin-rich blackcurrant beverage on markers of cardiovascular disease risk in healthy adults: a randomized, double-blind, placebo-controlled, crossover trial.

Dates: June to November 2015

Funding organisation: BBSRC CASE studentship with GlaxoSmithKline as industrial sponsor

**4. CONTENTS**

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**1. BP\_data.csv (file)**

All of raw data about BP analysed by an automated sphygmomanometer before (Basline 0h) and after intervention (either blackcurrant drink or placebo drink) at 1h,2h, 4h and 6h (n=23).

Abbreviation: *BP, blood pressure;* *DBP, diastolic blood pressure;* *SBP, systolic blood pressure.*

**2. DVP\_data.csv (file)**

All of raw data about DVP analysed by PulseTrace PCA 2 device with finger photoplethysmography before (Basline 0h) and after intervention (either blackcurrant drink or placebo drink) at 2h, 4h and 6h (n=23).

Abbreviation: *DVP, digital volume pulse; DVP-RI, digital volume pulse reflection index; DVP-SI, digital volume pulse stiffness index.*

**3. EVs\_data.csv (file)**

All of raw data about PDEVs and EDEVs concentrations analysed by flow cytometer before (Basline 0h) and after intervention (either blackcurrant drink or placebo drink) at 2h and 4h (n=23).

Abbreviation: *EDEVs, endothelium-derived extracellular vesicles; EVs, extracellular vesicles; PDEVs, platelet-derived extracellular vesicles.*

**4. FMD\_data.csv (file)**

All of raw data about FMD analysed by Phillips CX50 integrated ultrasound system before (Basline 0h) and after intervention (either blackcurrant drink or placebo drink) at 1h,2h, 4h and 6h (n=22).

\*Missing results for BC61 after both placbo and blackcurrant drink at 2h and BC66 due to the failure of data collection.

Abbreviation: *FMD, flow-mediated dilation.*

**5. IL-8\_data.csv (file)**

All of raw data about IL-8 concentrations analysed by enhanced sensitivity cytometric bead array kit before (Basline 0h) and after intervention (either blackcurrant drink or placebo drink) at 1h,2h, 4h and 6h (n=23).

\*Missing results for BC29 after both placbo and blackcurrant drink at 6h due to the failure of blood collection.

Abbreviation: *IL-8, interleukin-8.*

**6. Plasma\_metabolites\_data.csv (file)**

All of raw data about the concentrations of 15 anthocyanin and phenolic metabolites compounds in the plasma analysed by UPLC-MS/MS before (Basline 0h) and after intervention (either blackcurrant drink or placebo drink) at 1h,2h, 4h, 6h and 24h (n=21).

\*Results 0 refers to its concentration is under detection limit and is undetectable.

\*Missing results for BC29 and BC70 due to the failure of sample and/or data collection; missing results of 3- and 4- hydroxybenzoic acid concentrations for BC01 due to the outlier values.

**7. Platelet\_aggregation\_data.csv (file)**

All of raw data about platelet aggregation induced with two agonists: collagen (0.5 and 1 µg/mL final concentration) and ADP (10 and 100 µM final concentration) analysed by chronolog optical platelet aggregometer before (Basline 0h) and after intervention (either blackcurrant drink or placebo drink) at 2h and 4h (n=21).

\*Missing results for 10 µM ADP after placbo drink at 4h and BC02 and BC57 due to non-response to agonist stimulation.

**8. Urine\_metabolites\_data.csv (file)**

All of raw data about the concentrations of 30 anthocyanin and phenolic metabolites compounds in the urine analysed by UPLC-MS/MS before (Basline 0h) and after intervention (either blackcurrant drink or placebo drink) at at baseline and at 0-1, 1-2, 2-4, 4-6 and 6-24 h post-treatment (n=11).

\*Results 0 refers to its concentration is under detection limit and is undetectable.

\*Missing results for BC29, BC43, BC50, BC57, BC060, BC61, BC66, BC67, BC68, BC70 and BC72 due to the failure of sample and/or data collection.

**5. METHODS**

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Detailed information about methods could be found in the paper ‘Acute effects of an anthocyanin-rich blackcurrant beverage on markers of cardiovascular disease risk in healthy adults: a randomized, double-blind, placebo-controlled, crossover trial’.