

Supplementary online tables

Supplementary online Table 1 Average content of polyphenols in berries (mg/100 g fresh weight)*

Common name	Scientific name	Total phenolics (Folin assay)	Estimated total ACNs	Major ACN
American cranberry	<i>Vaccinium macrocarpon</i> Aiton	315	32 ^a /50 ^b	peonidin-3-galactoside
Bilberry or whortleberry*	<i>Vaccinium myrtillus</i>	525	299 ^a /38 ^b	delphinidin-3-glucose; delphinidin-3-galactoside ^a
Black chokeberry	<i>Aronia melanocarpa</i>	1752	444 ^a /878 ^b	cyanidin-3-galactoside
Black elderberry	<i>Sambucus nigra</i>	1950	1317 ^b	cyanidin-3-glucoside
Blackberry	<i>Rubus sp.</i>	569	147 ^a /173 ^b	cyanidin-3-glucoside
Blackcurrant	<i>Ribes nigrum</i>	821	225 ^a /592 ^b	delphinidin-3-rutinoside
Gooseberry	<i>Ribes uva-crispa</i>	470	14 ^a /9 ^b	cyanidin-3-glucoside
Grapes (black)	<i>Vitis vinifera</i>	185	72 ^b	malvidin-3-glucoside
Highbush blueberry	<i>Vaccinium corymbosum</i>	223	164 ^a /134 ^b	delphinidin-3-galactoside; malvidin-3-galactoside
Lingonberry	<i>Vaccinium vitis-idaea</i>	652	45 ^a /60 ^b	cyanidin-3-galactoside
Red raspberry	<i>Rubus idaeus</i>	155	44 ^a /73 ^b	cyanidin-3-sophoroside
Redcurrant	<i>Ribes rubrum</i>	448	26 ^a /35 ^b	cyanidin-3-xylosyl-rutinoside
Strawberry	<i>Fragaria sp.</i>	289	73 ^b	pelargonidin-3-glucoside

ACNs, anthocyanins, ^atotal estimate from pH differential method by spectrophotometry; ^bsum of individual anthocyanin concentrations estimated by chromatography (may underestimate due to missing compounds). Values will vary widely depending on cultivar, environmental factors, method of analysis, particularly underestimation due to unidentified/unquantified compounds. All values are averages based on the Phenol-explorer⁽⁸⁻¹⁰⁾ database www.phenol-explorer.eu, excepting bilberry*⁽¹²³⁾

Reference

123. Chu W, Cheung SCM, Lau RAW *et al.* (2011) Chapter 4 Bilberry (*Vaccinium myrtillus* L.). In Herbal Medicine Biomolecular and Clinical Aspects, 2nd ed. [IFF Benzie and S Sissi Wachtel-Galor, editors]. Boca Raton, FL: CRC Press/Taylor & Francis. Available at:<http://www.ncbi.nlm.nih.gov/books/NBK92770/>.

Supplementary online Table 2 *In vitro* evidence for anthocyanin inhibition at digestion enzymes

Reference	Enzyme source	Extract/ACN	Dose	IC ₅₀	Enzyme	Effect
Adisakwattana et al., 2009 ⁽⁷⁹⁾	RIAP	C3Gal	1 mM	sucrase: 0.5 mM	sucrase maltase	- inhibition of α -glucosidase and synergism with acarbose - mixed type inhibition
Adisakwattana et al., 2011 ⁽⁸⁰⁾	RIAP	C3R	0.1, 0.5 and 1.0 mM	sucrase: 250.2 μ M maltase: 2.3 mM	sucrase maltase	- bigger inhibition on sucrase than maltase
Akkarachiyayasit et al., 2010 ⁽⁸¹⁾	RIAP PP α -amylase	cyanidin; C3Gal; C3G; C3,5-dG.	NS	sucrase: 1.42 mM (cyanidin); 0.97mM (C3G); 0.50 mM (C3G) α -amylase: 0.38 mM (cyanidin); 0.30 mM (C3G)	sucrase maltase α -amylase	- α -amylase and sucrose inhibited by cyanidin glucosides - C3,5-dG shows no inhibition - synergistic effects of acarbose with C3G, C-3,5-dG and C3Gal
Akkarachiyayasit et al., 2011 ⁽⁸²⁾	PP α -amylase	C3R	0.1-1.0 mM	α -amylase: 24.4 μ M	α -amylase	- dose-dependent inhibition of α -amylase - synergism with acarbose - dose-dependent inhibition
Boath et al., 2012 ⁽⁸³⁾	RIAP	PA-rich BC and RWB extract	10-40 μ g/mL	BC: 20 μ g/mL GAE RWB: 30 μ g/mL GAE	α -glucosidase	- dose-dependent inhibition of α -glucosidase, up to 70%
Da Silva Pinto et al., 2008 ⁽⁷⁷⁾	PP α -amylase RI α -glucosidase	Brazilian SB extracts	10, 25 and 50 mg/mL	NS	α -glucosidase α -amylase	- lower inhibition of α -amylase
Grussu et al, 2011 ⁽⁸⁴⁾	PP α -amylase	- fractionated RWB extract - yellow RB extract - red RB extract	NS	whole extract: epicatechin-containing PA: 5 μ g/mL or 8.4 μ M - 16.5 μ g/mL GAE - 13.5 μ g/mL GAE	α -amylase	- whole extract and epicatechin-containing PA inhibited α -amylase
McDougall et al., 2005 ⁽⁸⁵⁾	RIAP; PP α -amylase	extracts of SB, RB, BB and BC	50-500 μ g of phenols	NS	α -amylase; α -glucosidase	- α -amylase inhibited by non-ACN fraction; SB + RB most efficient - α -glucosidase inhibited by ACN; BC + BB dose-dependent inhibition

ACN, anthocyanin; RIAP, rat intestinal acetone powder; C3Gal, NS, non-specified; cyanidin-3-galactoside; C3R, cyanidin-3- rutinoside; PP, porcine pancreatic; C3G, cyanidin-3-glucoside; C-3,5-dG, cyanidin-3, 5-diglucoside; PA, proanthocyanidin containing fraction; BC, blackcurrant; RWB, rowanberry; SB, strawberry; RI, rat intestinal; RB, raspberry; GAE, gallic acid equivalent; BB, blueberry.