

0008 - Bilberry for Anthocyanidins by HPLC

Botanical Name: *Vaccinium myrtillus*

Common Names: Bilberry, Whortleberry

Plant Description:

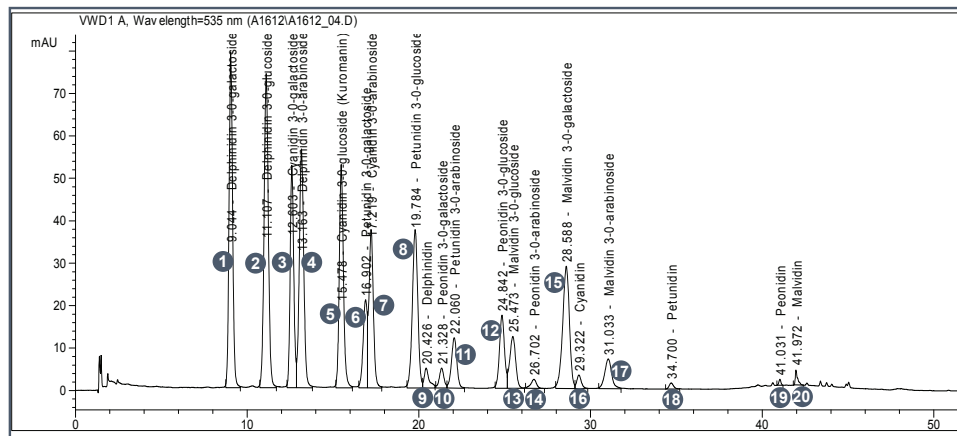
Vaccinium myrtillus is a slender-branched shrub that reaches heights of 10-18cm. Plants typically form open colonies with large, fibrous rhizomes. Stems are often red or orange when exposed to full sunlight, with large leaves and flowers protruding at regular intervals. The flowers are produced in a variety of colors including: pink, cream, green, or blends of green and white. The fruit of the bilberry tree is a small, spherical berry that is dark red to bluish or black. The berries contain small nutlets that are approximately 1mm in length.



Therapeutic Use Overview:

Used for over a thousand years in traditional European medicine, herbal extracts of *Vaccinium myrtillus* fruits and leaves exhibit effects on the circulatory system, eyes and intestinal tract. These extracts contain a large amount of antioxidants in the form of anthocyanidins. These anthocyanidins promote good circulation as well as fighting free radicals in the capillaries. This increase in circulation helps treat macular degeneration, a condition in which the capillaries in the retina are damaged and lead to blindness. Bilberry also keeps blood vessels free from calcium or fat deposits that lead to blockages, as well as preventing blood clots from forming.

Representative HPLC Analysis: Example Bilberry Extract Sample



Analytes:

- 1 Delphinidin 3-O-Galactoside Chloride,
- 2 Delphinidin 3-O-Glucoside Chloride,
- 3 Cyanidin 3-O-Glactoside Chloride,
- 4 Delphinidin 3-O-Arabinoside Chloride,
- 5 Cyanidin 3-O-Glucoside Chloride,
- 6 Pentunidin 3-O-Glactoside Chloride,
- 7 Cyanidin 3-O-Arabinoside Chloride,
- 8 Pentunidin 3-O-Glucoside Chloride,
- 9 Delphinidin Chloride,
- 10 Peonidin 3-O-Galactoside Chloride,
- 11 Pentunidin 3-O-Arabinoside Chloride,
- 12 Peonidin 3-O-Glucoside Chloride,
- 13 Malvidin 3-O-Glucoside Chloride,
- 14 Peonidin 3-O-Arabinoside,
- 15 Malvidin 3-O-Galactoside Chloride,
- 16 Cyanidin Chloride,
- 17 Malvidin 3-O-Arabinoside Chloride,
- 18 Pentunidin Chloride,
- 19 Peonidin Chloride,
- 20 Malvidin Chloride

Instrument Parameters

Column: Agilent Extend C18, 150 x 4.6 mm, 3.5 µm

Detection: UV-Vis @535 nm

Flow Rate: 1.0 mL/min

Injection Volume: 10 µL

Temperature: 30°C

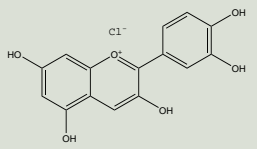
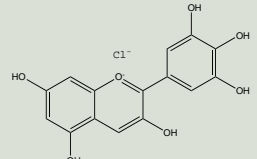
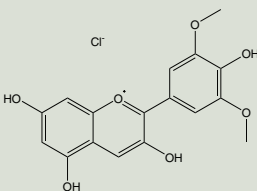
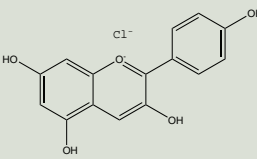
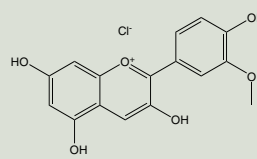
Mobile Phase A: 10 % Formic Acid (aq)

Mobile Phase B: MeOH : ACN : H₂O : Formic Acid (25:25:40:10)

Gradient Program

Time (min)	%A	%B
0	93	7
35	75	25
45	35	65
46	0	100
50	0	100
51	93	7
60	93	7

Phytochemical Reference Standards

Product Description And Details	Product ID	Qty
 <p>CYANIDIN CHLORIDE Grade: P CAS#: [528-58-5] Chemical Formula: C₁₅H₁₁O₆ FW: 322.7</p>	ASB-00003955-005 ASB-00003955-010 ASB-00003955-025	5mg 10mg 25mg
 <p>DELPHINIDIN CHLORIDE Grade: P CAS#: [528-53-0] Chemical Formula: C₁₅H₁₁O₇ FW: 338.7</p>	ASB-00004125-001 ASB-00004125-005 ASB-00004125-010 ASB-00004125-025	1mg 5mg 10mg 25mg
 <p>MALVIDIN CHLORIDE Grade: P CAS#: [643-84-5] Chemical Formula: C₁₇H₁₅O₇ FW: 366.75</p>	ASB-00013071-005 ASB-00013071-010 ASB-00013071-025	5mg 10mg 25mg
 <p>PELARGONIDIN CHLORIDE Grade: P CAS#: [134-04-3] Chemical Formula: C₁₅H₁₁O₅ FW: 306.7</p>	ASB-00016111-005 ASB-00016111-010 ASB-00016111-025	5mg 10mg 25mg
 <p>PEONIDIN CHLORIDE Grade: P CAS#: [134-01-0] Chemical Formula: C₁₆H₁₃O₆ FW: 336.72</p>	ASB-00016371-001 ASB-00016371-005 ASB-00016371-010 ASB-00016371-025	1mg 5mg 10mg 25mg

Reference Standard Kits

Product Name	Contents	Product ID	Qty
BILBERRY ANTHOCYANIDINS STANDARDS KIT	CYANIDIN	KIT-00002260-005	5 x 5mg vials
	CHLORIDE(P),DELPHINIDIN	KIT-00002260-010	5 x 10mg vials
	CHLORIDE(P),MALVIDIN	KIT-00002260-025	5 x 25mg vials
	CHLORIDE(P),PELARGONIDIN		
	CHLORIDE(P),PEONIDIN		
	CHLORIDE(P)		

Botanical Reference Materials

Product Description	Grade	Product ID	Qty
BILBERRY (VACCINIUM MYRTILLUS) FRUIT	VBRM	ASB-00030090-005	5g
BILBERRY (VACCINIUM MYRTILLUS) FRUIT	XRM	ASB-00030091-005	5g
BILBERRY (VACCINIUM MYRTILLUS) FRUIT [WHOLE/CUT]	VBRM	ASB-00031207-500	500mg

Monographs

Product Description	Grade	Product ID	Qty
AHP BILBERRY MONOGRAPH	BK	ASB-00040040-00B	1 book

Additional Related Compounds

Product Description And Details	Product ID	Qty
CYANIDIN CHLORIDE Grade: RG CAS#: [528-58-5] Chemical Formula: $C_{15}H_{11}O_6$ FW: 322.7	ASB-00003956-001 ASB-00003956-250	1g 250mg
DELPHINIDIN CHLORIDE Grade: RG CAS#: [528-53-0] Chemical Formula: $C_{15}H_{11}O_7$ FW: 338.7	ASB-00004124-001 ASB-00004124-250	1g 250mg
DELPHINIDIN-3-O-GLUCOSIDE CHLORIDE(MYRTILLIN CHLORIDE) Grade: SH CAS#: [6906-38-3] Chemical Formula: $C_{21}H_{21}O_{12}$ FW: 500.84	ASB-00004127-005 ASB-00004127-010	5mg 10mg
MALVIDIN CHLORIDE Grade: RG CAS#: [643-84-5] Chemical Formula: $C_{17}H_{15}O_7$ FW: 366.75	ASB-00013073-001 ASB-00013073-250	1g 250mg

Product Description And Details	Product ID	Qty
PELARGONIDIN CHLORIDE Grade: P CAS#: [134-04-3] Chemical Formula: $C_{15}H_{11}O_5$ FW: 306.7	ASB-00016111-005 ASB-00016111-010 ASB-00016111-025	5mg 10mg 25mg
PELARGONIDIN CHLORIDE Grade: RG CAS#: [134-04-3] Chemical Formula: $C_{15}H_{11}O_5$ FW: 306.7	ASB-00016113-001 ASB-00016113-250	1g 250mg
PEONIDIN CHLORIDE Grade: RG CAS#: [134-01-0] Chemical Formula: $C_{16}H_{13}O_6$ FW: 336.72	ASB-00016373-001 ASB-00016373-250	1g 250mg
PETUNIDIN-3-GLUCOSIDE CHLORIDE Grade: SH CAS#: [6988-81-4] Chemical Formula: $C_{22}H_{23}O_{12}$ FW: 514.86	ASB-00016416-005	5mg