



# BLACK CHOKEBERRY-FRUIT FOR WINE PRODUCTION

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Black chokeberry (*Aronia melanocarpa* L.) possesses broad range of different compounds which show beneficial health effects on humans. It can be differently processed and one of final products include wine.

The analyzed wine samples were produced by microvinification procedure. The control fermentation of black chokeberry must was conducted using selected yeast cultures. Enzyme and sucrose were added in part of the samples before fermentation, due to the increasing of phenolic compounds content of the final product. Total phenolic content (TPC) was spectrophotometrically determined by Folin-Ciocalteu method, while single polyphenolics were quantified using UPLC TQ-MS/MS. In addition, antioxidant properties were also estimated with Ferric Reducing Antioxidant Power (FRAP) assay and anti-DPPH radical activity.

The applied microvinification procedure significantly affected both polyphenol profiles and antioxidant potentials of the examined samples. Indeed, the wine enriched with phenolic compounds and with highest antioxidant activity was produced with addition of enzyme and sugar before start of fermentation. However, an opposite trend was observed for a control sample, produced without addition of enzyme and sugar. Among quantified phenolic compounds especially stood out following phenolic acids: chlorogenic, protocatechuic and caffeic. The TPC and FRAP values were in ranges 2247.55-2457.23 mg GAE/L and 67.55-78.41 mmol/L Fe<sup>2+</sup>, respectively. On the other hand, anti-DPPH radical activity (expressed as an IC<sub>50</sub> value) ranged from 1.41 to 1.67% .

Microvinification	Type of Wine	Chlorogenic acid	Protocatechuic acid	Caffeic acid
Yeast	Control	655.23	575.77	77.72
	Wine 1	697.45	637.43	92.34
	Wine 2	672.32	591.77	81.23
	Wine 3	717.35	645.27	97.21

Microvinification	Type of Wine	TPC (mg GAE/L)	FRAP (mmol/L Fe <sup>2+</sup> )	DPPH (IC <sub>50</sub> %)
Yeast	Control	2247.55	67.55	1.67
	Wine 1	2385.45	74.21	1.45
	Wine 2	2281.34	68.51	1.63
	Wine 3	2457.23	78.41	1.41

The content of phenolic acids expressed in µg/mL

Control                      Wine 1                      Wine 2                      Wine 3  
– sugar–enzyme            +sugar–enzyme            – sugar+enzyme            +sugar+enzyme

In summary, black chokeberry wine may be considered as a rich natural source of phenolic acid derivatives that are, jointly with other active principles – both phenolic and non-phenolic, responsible for its high antioxidant potential.

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