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Extended Abstract

Aronia melanocarpa Fruit and Leaves Hot-Assisted Ethanolic Extracts Antioxidant Activity †

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1. Introduction

Aronia melanocarpa L. fruit (common black chokeberry) is one of the most abundant sources of antioxidant compounds in the plant world, superior to all edible fruits; chokeberry fruits contain up to 100 g total phenols per kg fresh material, predominantly (−)epicatechin, cyanidin-3-glycosides and procyanidins (60%), added to quercetin and caffeoyl quinic acid derivates. Alongside this, chokeberry leaves contain up to 15 g total phenols per kg fresh material, predominantly hyperoside, isoquercitrin, rutin and caffeic acid and chlorogenic acid [1,2]. Among potential human health benefits, *Aronia melanocarpa*-derived products were proved with antioxidant and anti-inflammatory effects, anti-diabetic, anti-lipidemic, cardio-protective, anti-hypertensive and platelet anti-aggregating effects, hepato-protective and gastro-protective effects, cognitive-enhancing and behavioral effects, and antibacterial, antiviral, immunomodulatory and radioprotective effects [1,2]. The present work aims to study antioxidant activity of two hot-assisted etanolic extracts from chokeberry fruit and chokeberry leaf plant parts, respectively; antioxidant activity was compared with two reference compounds (ref.) and several plant extracts obtained under similar study conditions [3].

2. Materials and Methods

Aronia melanocarpa L. fruit and leaves plant parts were collected in 2019 from a plantation situated in Prahova region, Romania. Antioxidant activity screening has been done using chemiluminescence method (CL), luminol—H_2O_2 system, pH = 8.9 [3].

3. Results

The hot-assisted (70%, *v*/*v*) ethanolic extraction of chokeberry fruits leads to extracts with low antioxidant activity (IC_{50} = 25 μg GAE/mL extract, Figure 1), most likely due to the polymerization of the anthocyanins contained, resulting in high molecular compounds which are less effective as reactive oxygen species scavenging activity. Conversely, the hot-assisted (70%, *v*/*v*) ethanolic extraction of chokeberry leaf plant part leads to extracts with very high antioxidant activity

(IC_{50} = 0.625 μg GAE/mL, Figure 2); by comparison, gallic acid and rutin (ref.) shown IC_{50} = 0.85 μg GAE/mL and IC_{50} = 2.54 μg GAE/mL.

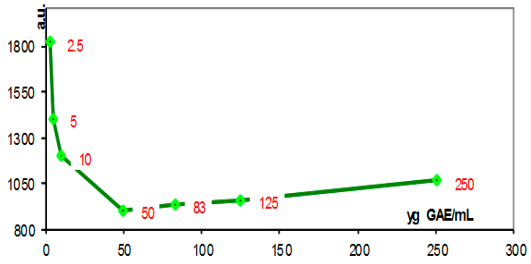

Figure 1. IC_{50} assay on chokeberry fruit. Hot-assisted ethanolic extract.

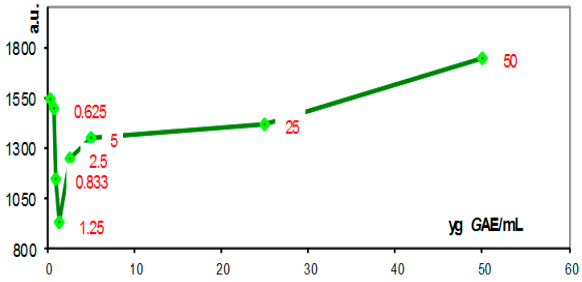

Figure 2. IC_{50} assay on chokeberry leaves. Hot-assisted ethanolic extract.

4. Conclusions

Compared to other vegetal extracts [3], Aronia leaves' ethanolic extract ranks as one of the most efficient antioxidant products, suggesting high utility as a medicinal and cosmetic ingredient.

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