PP - 24

PHENOLIC PROFILE AND CONTENT OF AERIAL PARTS OF LINGONBERRY (*VACCINIUM VITIS-IDAEA* L.)

Oana-Crina Bujor[1], Mona Elena Popa[2]

[1]Research Center for Studies of Food and Agricultural Products Quality, University of Agronomic Sciences and Veterinary Medicine of Bucharest, Bucharest, Romania, oana_crin@yahoo.com

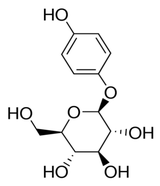
[2]Faculty of Biotechnologies, University of Agronomic Sciences and Veterinary Medicine of Bucharest, Bucharest, Romania

Unitatea Executivă pentru Finanțarea Învățământului Superior, a Cercetării, Dezvoltării și Inovării

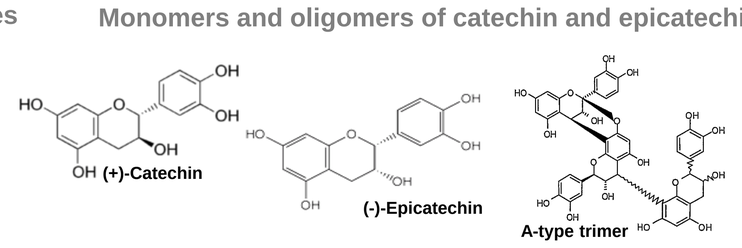
CONTEXT

Lingonberry: natural source of phenolic compounds

Arbutin derivatives



Monomers and oligomers of catechin and epicatechin



Wide variety of distribution depending on the plant part [1].

***Vaccinium vitis-idaea* L.**

Health benefits of lingonberry

Cardiovascular disease

Urinary tract infections protection

Neuroprotective effects

Anti-inflammatory activity

Colon cancer protection

Polyphenols consumption/day ➔ 0,8-1,3 g [2]

METHODOLOGY

Lingonberry (LB) samples

➔ Harvested in early August 2017 from Borca (Neamt, Romania)

➔ Dried at room temperature

➔ Ground to powder for a final particle size < 0.315 mm

Accelerated solvent extraction (ASE)

➔ Solvent: 50% and 70% aq. EtOH

➔ 2 static cycle, 5 and 10 min

➔ Temperature: 40°C

➔ Flush volume: 50%

➔ Pressure: 1500 psi

ASE 350 extractor Thermo Scientific, Dionex

Analysis of phenolic compounds

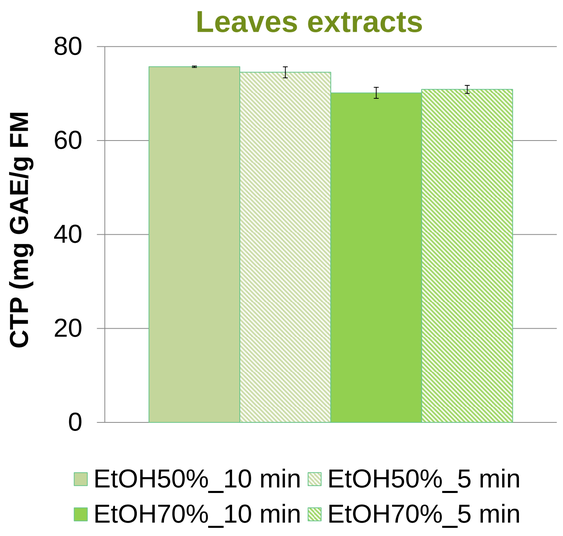
➔ Total Phenolic Content (TPC) by Folin Ciocâlteu test [3]
(Specord 210 Plus UV/VIS spectrophotometer)

➔ UPLC analysis
Identification of phenolic compounds [1]
(Waters ACQUITY UPLC/PDA I Class chromatograph)

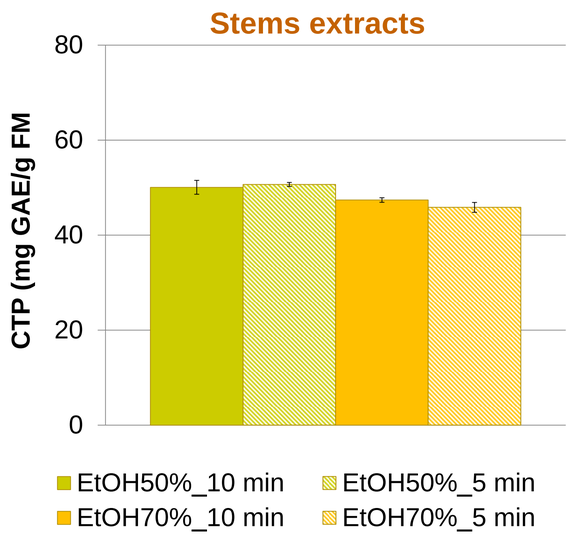
RESULTS AND DISCUSSIONS

Total Phenolic Content of leaf and stem extracts of lingonberry

Leaves extracts



Stems extracts

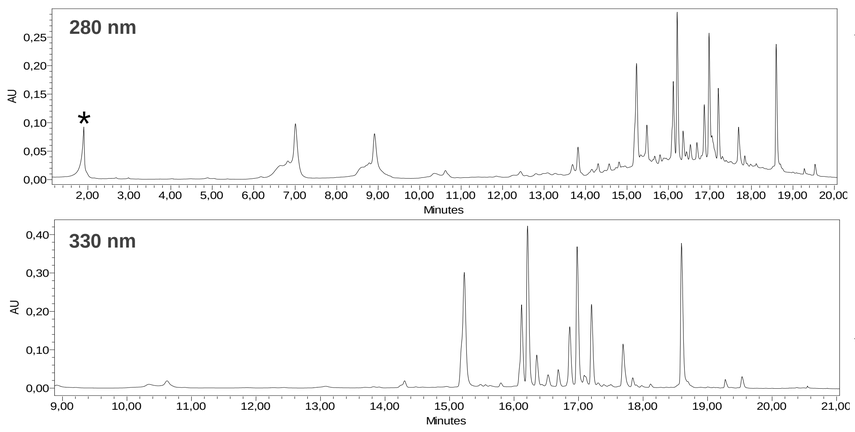


✓ Leaf and stems extracts:
- almost similar TPC for extracts with 50% and 70% aq. EtOH either leaves or stems extracts
- not significant differences in TPC for both 5 and 10 min times of extraction whatever the concentration of ethanol.

✓ Higher content of phenolic compounds in leaves than in stems
- predominant presence of arbutin.

Phenolic profile by UPLC

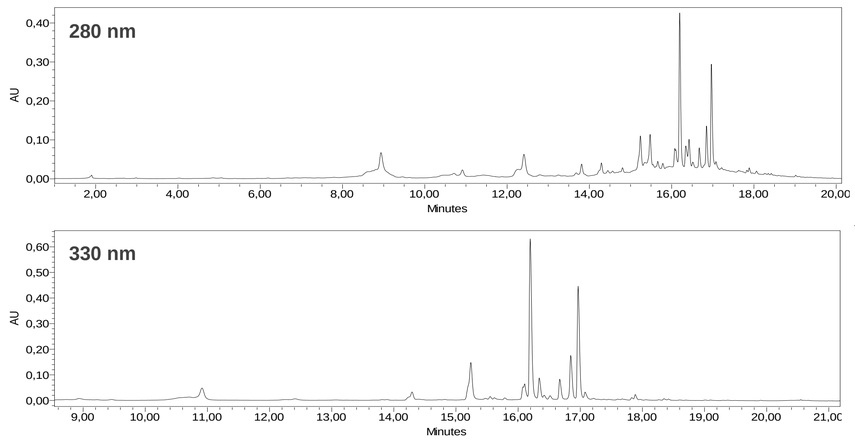
Leaves extracts, phenolic profile at 280 and 330 nm



✓ Qualitative analysis showed the predominant presence of quercetin glycosides and monomers and oligomers of catechin and epicatechin, in both leaves and stems.

✓ In leaf extracts, arbutin (*) appears as the major constituent of phenolic compounds.

Stems extracts, phenolic profile at 280 and 330 nm



✓ Flavanol oligomers and flavonol glycosides were the second representative classes of phenolic compounds in leaves.

✓ Stems were found to contain predominantly flavanol oligomers as the more abundant class of phenolic compounds.

✓ CONCLUSIONS

- **Results from this study indicated that all aerial parts of lingonberry are suitable for valorization as sources of natural phenolic compounds as well as to be valuable feedstocks for the production of herbal supplements.**
- **Regarding the effect of ethanol concentration on TPC, leaves and stems should be better extracted with 50% aq. EtOH.**

References:

1. Bujor O-C et al., Food Chemistry, 2016, 213, 58–68.
2. Pérez-Jiménez J. et al., Am. J. Clin. Nutr., 2011, 93:1220–8.
3. Georgé et al., J Agric Food Chem., 2005, 53, 1370-3.

www.usamv.ro

4th International Conference on Natural Products Utilization: from Plant to Pharmacy Shelf (ICNPU-2019)

29 May - 01 June 2019 , Albena resort, Bulgaria

Acknowledgements:

„This work was supported by a grant of Ministery of Research and Innovation, CNCS - UEFISCDI, project number PN-III-P1-1.1-PD-2016-1060, within PNCDI III".