

ANTIOXIDANT CAPACITY OF FRESH *PRUNUS SPINOSA* EXTRACTS OBTAINED BY SUPERCRITICAL CO₂ EXTRACTION TECHNIQUE

Vanda Băbălău Fuss^{1,2*}, Anca Becze¹, Ana Moldovan¹, Maria Tofană²

¹INCDO-INOE2000, Research Institute for Analytical Instrumentation, ICIA Cluj-Napoca Subsidiary, 400293 Cluj-Napoca, Romania

²University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca, 400372 Cluj-Napoca, Romania

*Corresponding author: vanda.fuss@icia.ro, tel. (+4)0264-420590

Introduction

Prunus spinosa is a perennial plant growing as a shrub on slopes of wide uncultivated areas, making a thick thorny mass, but it can also be found beside roads, along the channels and in shelterbelts against the wind. It grows in moderate continental climate in northern hemisphere. *P. spinosa* is used in phytotherapy for the treatment of many diseases. Samples of *Prunus spinosa* (blackthorn) were collected, in October 2018, October and November 2019 from Chinteni, Floresti, Faget, Borhanci and Pata, area from Cluj County (figure 1). The samples were collected from two different zones in each area.

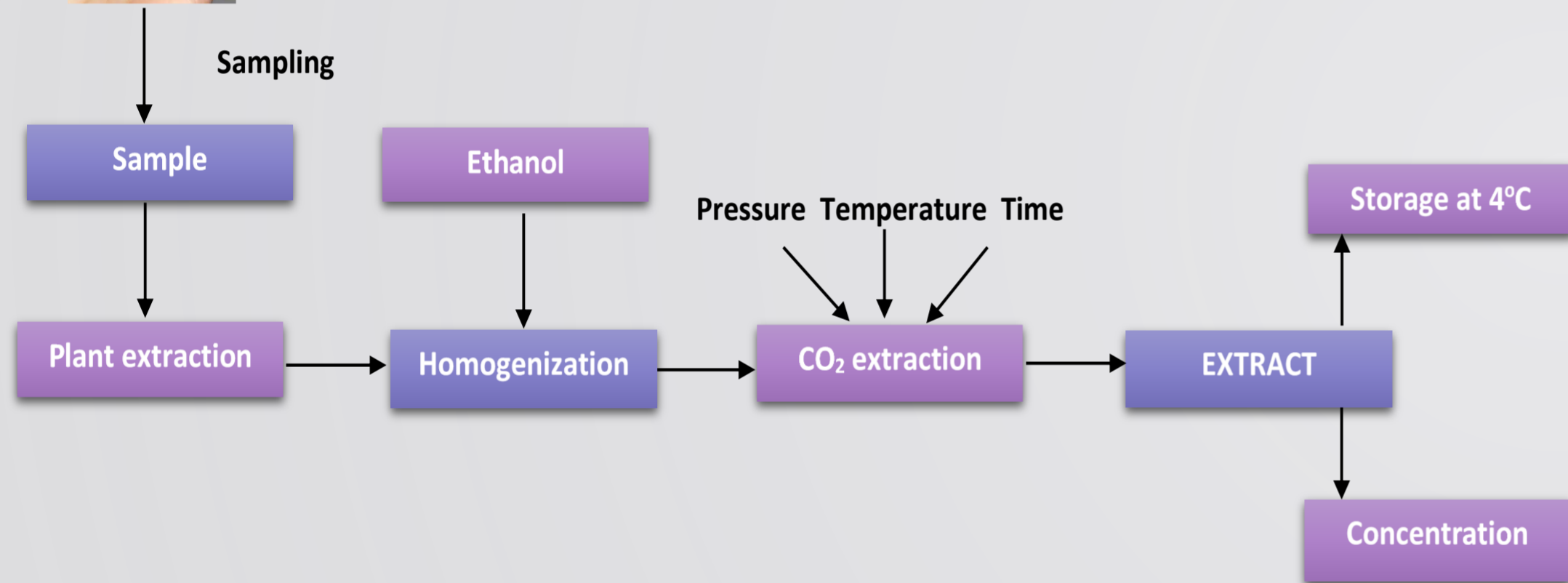
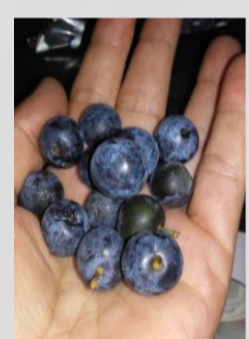


Figure 2. Scheme for obtaining extracts by CO₂ extraction.



Figure 3. CO₂ extracts and raw material

Results and conclusions

The results show a very high difference between the values obtained in different areas (figure 4). The highest concentration of antioxidants was found in *Prunus spinosa* fruits from Borhanci, 11.26 µg/mg AAE in November 2019, the lowest was found in samples from Chinteni area, 2.03 µg/mg AAE in October 2018. All the samples present a high antioxidant capacity, but Borhanci area have a higher antioxidant capacity compared to the others areas.

Acknowledgment

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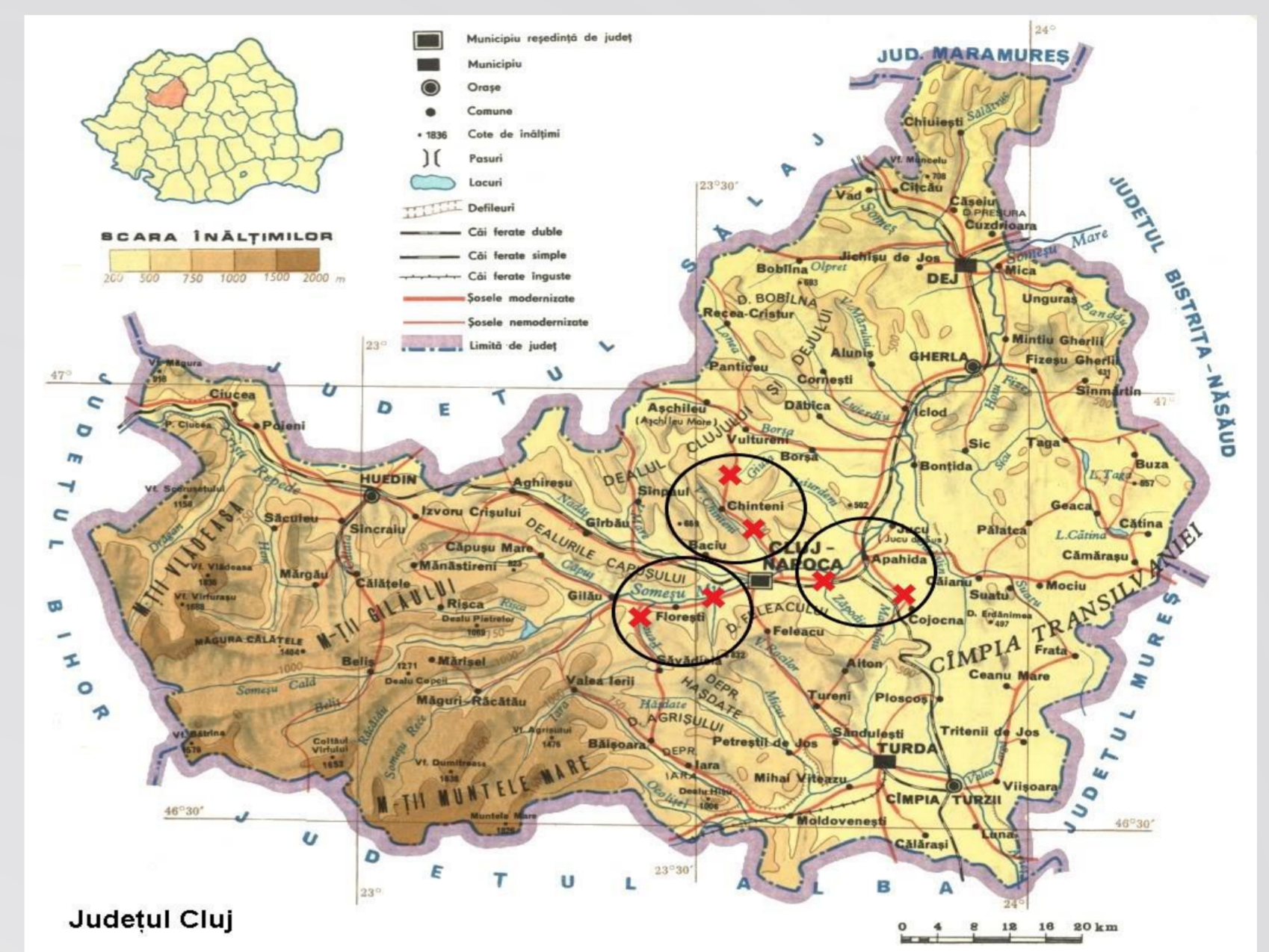


Figure 1. Sampling location

Methodology

CO₂ extraction method uses ethanol as cosolvent, high pressure (56 bar) and an average temperature of 40°C (figure 2).

For the determination of the antioxidant capacity the PHOTOCHEM instrument from Analytic Jena was used along with the ACW kit which is designed for the determination of antioxidative capacity of the water-soluble compounds.

The measured results are compared to ascorbic acid calibration curve and the results are expressed as ascorbic acid equivalent (µg/mg AAE).

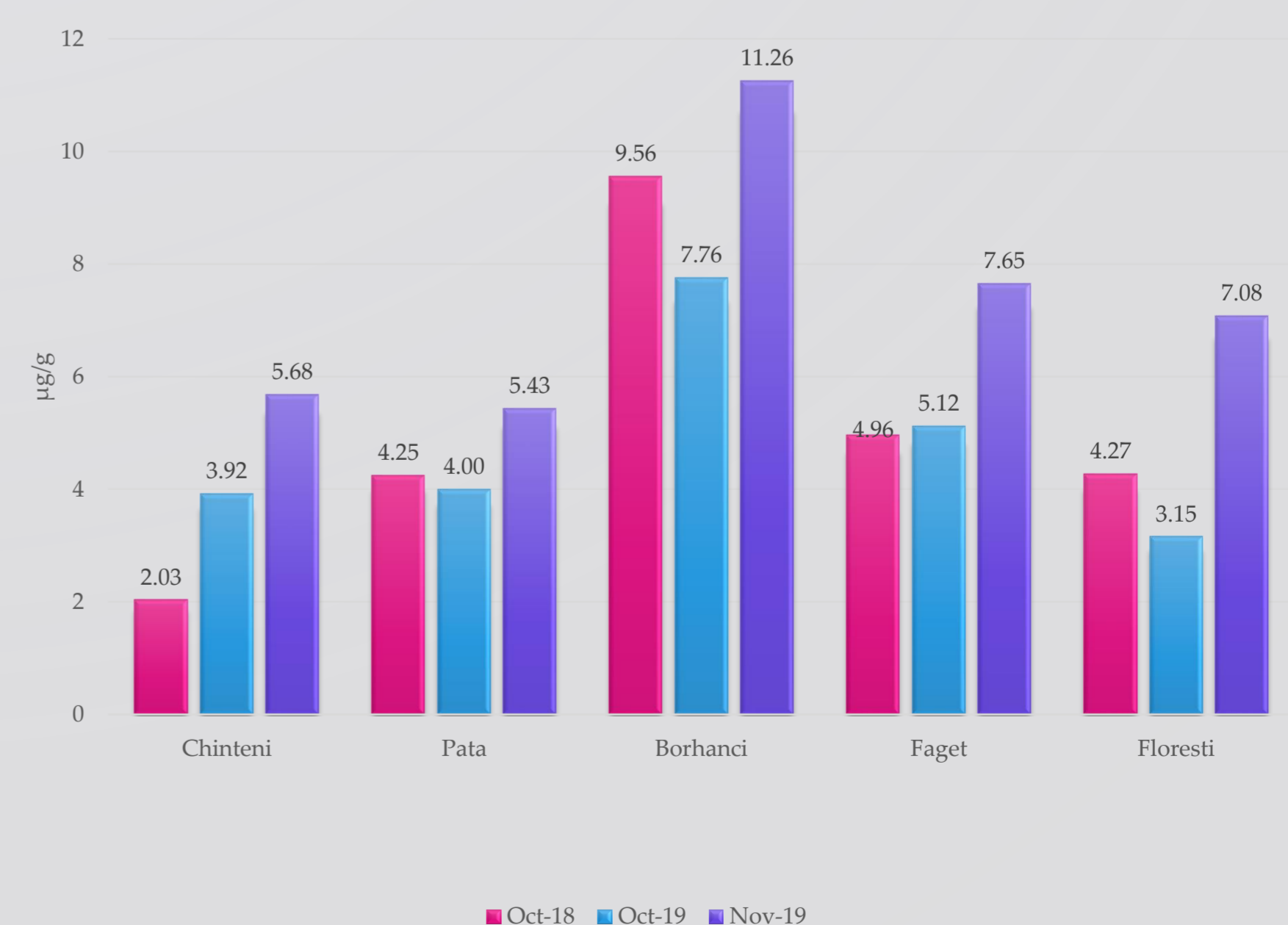


Figure 4. Antioxidant capacity of extracts