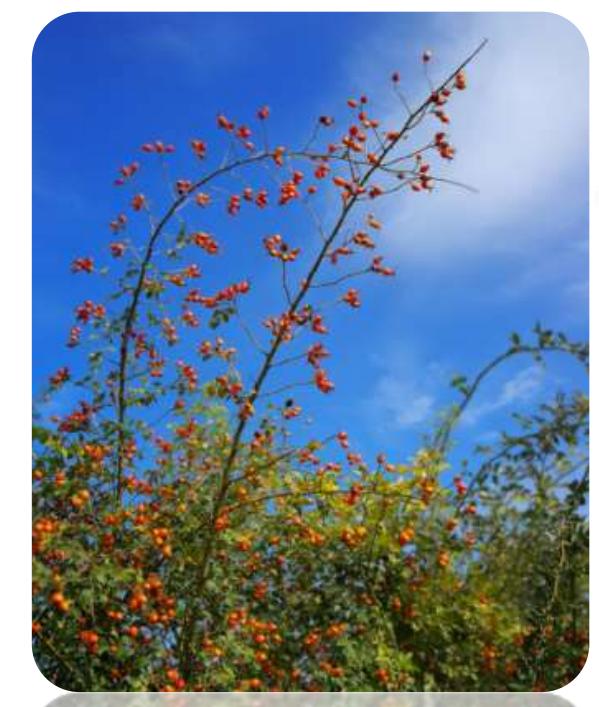


Assessment of morphological characteristics and bioactive compounds content of *Rosa canina* fruits from the spontaneous flora of Eastern Romania and Republic of Moldova

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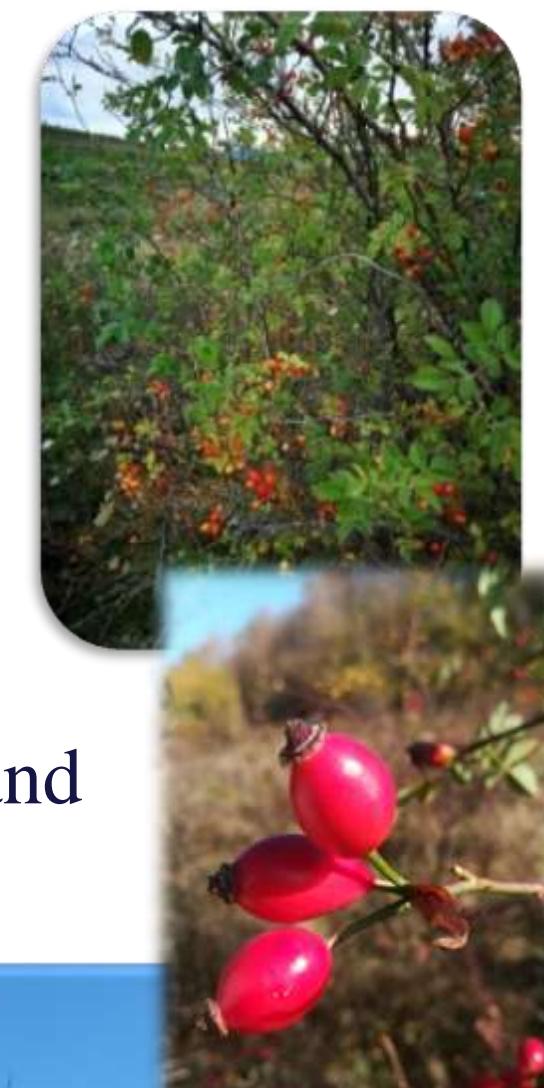


INTRODUCTION

❖ *Rosa canina* L. (dog rose, "măcesă"), Rosaceae family, is a spontaneous species with dietary and therapeutic importance, due to its phytochemical profile and pharmacological properties. It is mostly known for its high content in vitamin C [1-3].

❖ According to the European Pharmacopoeia, the officinal product is *Rosae pseudo-fructus* represented by Rose hips made up by the receptacle and the remains of the dried sepals of *Rosa canina* L., *R. pendulina* L. and other *Rosa* species, with the achenes removed. Eur. Ph. requires for *Rosae pseudo-fructus* minimum 0.3% ascorbic acid (dried drug) [4].

❖ The aim of the study is to assess the morphological characteristics and bioactive compounds content of several *R. canina* wild populations from Romania and R. Moldova, in order to identify the highly productive genotypes for propagation purposes and prospective use in nutraceuticals.



MATERIALS AND METHODS

□ **Plant material:** fruit samples (Rose hips) were harvested in 2019 from Suceava, Botosani, Neamt (North-East region), Tulcea and Constanta (South-East region) Counties of Romania and from different regions of R. Moldova.

□ **Morphological characterization.** The following parameters were determined: *fruit length* (mm), *maximal diameter* (mm), *length to diameter ratio* (L/D), *fresh and dry weight per fruit* and *per 100 fruits* (g), and *drying ratio* [5].

□ **Phytochemical evaluation:** the content of antioxidants was assessed, focusing on phenolic compounds and vitamin C [3,4].

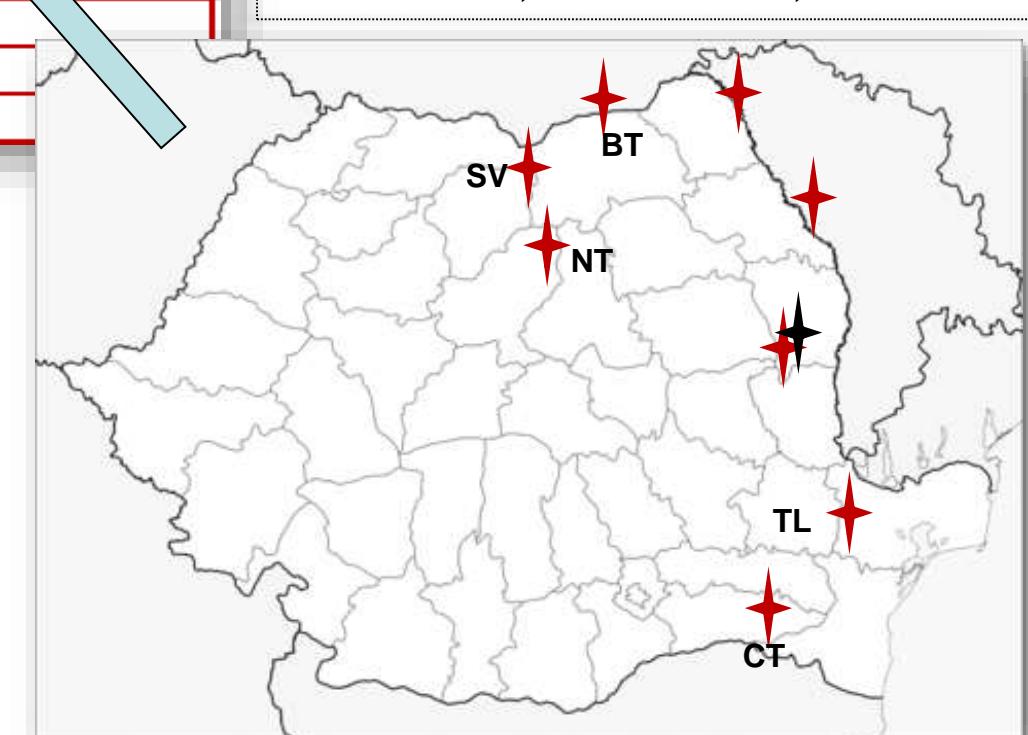
➤ Extract preparation for phenolic compounds: dried and comminuted fruits were extracted with methanol, 3 times for 30 minutes.

➤ Quantitative assessment of total phenolics, total phenolic acids and total flavonoids was performed through spectrophotometric methods [6].

➤ Assessment of total ascorbic acid content: total ascorbic acid content (vitamin C) was determined by iodometric titration [4].

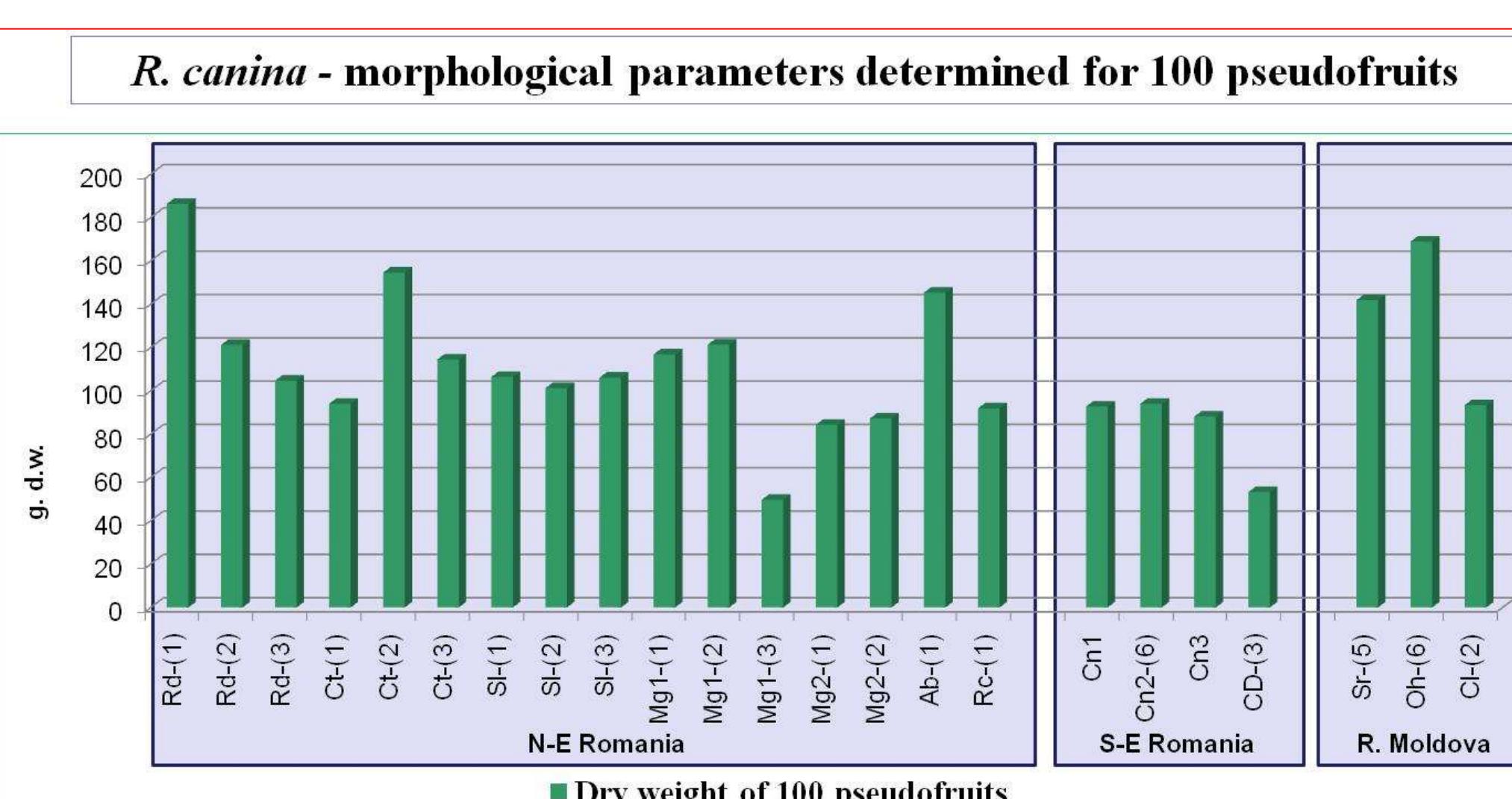
| Region | Harvesting site | Sample code |
|-------------|---|------------------------------|
| N-E Romania | Radaseni (Rd)-(1); Rd-(2); Rd-(3) | |
| | Clt (Clt)-(1); Clt-(2); Clt-(3) | |
| | Solca (Sol)-(1); Sol-(2); Sol-(3) | |
| | Marginea (Mg)-(1); Mg-(1/2); Mg-(1/3); Mg-(2/2); Mg-(2/3) | |
| | Albesti (Ab)-(1); Ab-(2) | |
| S-E Romania | Draslea (Dr)-(BT) | Dr-(1) |
| | Raicesti (Rc)-(1); Raicesti (1)-(NT) | Rc-(1) |
| | Somova (Sm)-(TL) | Sm-(1) |
| | Mihai Viteazu (Mvt)-(TL) | Mvt3-(1); Mvt3-(2); Mvt4-(1) |
| | Izvoarele (Iz)-(TL) | Iz-(1) |
| R. Moldova | Clucurova (Cc)-(TL) | Cc-(2) |
| | Cerna (Cn)-(TL) | Cn1; Cn2-(6); Cn3 |
| | Caugagia (Cg)-(TL) | Cg-(2) |
| | Nicolae Balcescu (Nb)-(TL) | Nb-(1) |
| | Chelile Dobrogei (Cd)-(CT) | Cd-(3) |
| R. Moldova | Cuza Voda (Cv)-(CT) | Cv-(1) |
| | Soroca (Sr)-(North) | Sr-(5) |
| | Orhei (Oh)-(Centre) | Oh-(6) |
| | Coccilia (Cl)-(South) | Cl-(2) |

Counties: 1=Suceava; 2=Botosani; 3=Neamt; 4=Tulcea; 5=Constanta



RESULTS AND DISCUSSIONS

Evaluation of the morphological traits



- Morphological traits → **3 categories of fruits** were identified:
 - (a) big and red with almost round shape ($L/D < 1.5$) and high biomass (4.10 ± 1.17 g);
 - (b) medium and orange-red with oval-round shape ($L/D = 1.5-2.0$) and biomass between 1.89 ± 0.44 and 2.25 ± 0.55 g;
 - (c) small and orange with oval-elongated shape ($L/D > 2$) and low biomass (1.02 ± 0.27 g).
- The high variability of L/D ratio results from the variability of fruits diameter, fruit length being more constant.
- Dry biomass and drying ratio varied significantly both within the same population and between populations.
- The samples harvested from the northern areas had higher dry biomass values compared with the ones harvested from the southern areas, both for Romania and R. Moldova.
- When comparing the studied regions, the highest biomass was observed for the samples from North-East region (Romania), followed by the ones from R. Moldova and from South-East region (Romania).

R. canina - morphological parameters determined for individual pseudofruits

