ROOTSTOCK AND CULTURAL CONDITIONS AFFECT SWEET CHERRY FRUITS COMPOSITION

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INTRODUCTION
The demand for sweet cherries (Prunus avium L.) fresh fruits consumption in Romania has been increasing gradually over the last few years, suggesting that production should be more expanded. More and more private investors established their modern cherry orchards to meet market demands. In order to find the most suitable combination between cultivar, rootstock and agroecological conditions which respond with high productivity and better fruits quality, a study has been started in different areas and take into consideration a large number of varieties and rootstocks combinations.

MATERIALS AND METHODS
The trial was carried out as follows: in North part of the Bucharest in the experimental field of UASVM, at the Istriita Fruit Nursery Station, Bucsi and in the Moara Domneasca (Dialectic Farm, Ilfov). The studied sweet cherry varieties were Kordia, Fermoza, Firm Red, Giant Red, Early Red, Van, Stella and Silvia. The rootstocks used for these cultivars were PHC, CAB9, CAB16, Cuh and P. mahaleb. Biochemical analyses have been done in the UASVM laboratory. For the size-rootstock combinations, soluble solids content concentration was determined using a digital refractometer, titratable acidity by titrimetry with KOH/1N, ascorbic acid by extraction in owal acid 1% and HPLC dosage and anthocyan content by spectrophotometric determination after an H25 1% methanol extraction.

RESULTS AND DISCUSSION
Determinations made on ascorbic acid content of sweet cherry fruit analyzed, highlight the variety GiantRed/CAB6P (Fig. 1, 2) which recorded the highest ascorbic acid content (18.71 mg/100g ascorbic acid, 3.73 mg/100g ascorbic acid) in both moments determination (0 and 17 June 2011). The lowest content was observed in Van/PHLC in Istriita (0.83 mg/100g ascorbic acid) on 17 June 2011.

Fig. 1. The ascorbic acid content of the sweet cherry cultivars on different rootstocks in Istriita zone (June 0, 2011)

Fig. 2. The ascorbic acid content of the sweet cherry cultivars on different rootstocks in Moara Domneasca zone (June 0, 2011)

Regarding the content of anthocyan (Fig. 3) it was remarked a very low content with no significant differences between varieties on 6 June 2011. These are going to change later when the content will considerably (Fig. 4). On June 17, 2011, the highest content of anthocyan was obtained by Van/P. mahaleb in Istriita area (7.81 mg/100g). It is revealed a difference between cultural areas of sweet cherry in terms of the anthocyan’s accumulation, regardless of variety or rootstock, values being much lower at Istriita compared to Moara Domneasca. In Istriita, on June 17, 2011, the lowest content was recorded by the combination GiantRed/CAB6P (1.52 mg/100g) and the highest by Silvia/P.HCLC (5.78 mg/100g).

Fig. 3. The anthocyan content of the sweet cherry cultivars on different rootstocks in Istriita zone (June 0, 2011)

Fig. 4. The anthocyan content of the sweet cherry cultivars on different rootstocks in Moara Domneasca zone (June 0, 2011)

Cultivars acidity was a low one, which varied depending on the combination variety/rootstock between 0.44 and 0.62% malic acid for Istriita area and 6 June 2011. At Moara Domneasca, on June 17, 2011, varieties grafted on P. mahaleb L. had somewhat higher values, the variant Van/P mahaleb L. recording the highest titratable acidity (0.67% malic acid).

Fig. 5. The variation of titratable acidity of sweet cherry cultivars on different rootstocks in Moara Domneasca and Istriita zone

CONCLUSIONS
- The biggest fruits were collected from GiantRed/CAB6P (9 g/fruit at Istriita Station) which also registered a higher value of soluble solids content (26% in Bucharest).
- The acidity was much lower at Kordia/PHC (0.44% malic acid) at Istriita and higher at Van/mahaleb (0.87%) which is similar to the highest value of anthocyan (7.51 mg/100g) in the second half of June at Moara Domneasca.
- GiantRed/CAB6P had only 1.52 mg/100g anthocyan in fruits but proves to be a very tasty and attractive sweet cherry very for fresh consumption with a higher content of ascorbic acid.
- Because the performance of all these tested combinations has not been described yet in these growing conditions of the experimental plots, the data presented need to be confirmed by further researches on several years.

REFERENCES

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