

# ANTIOXIDANT POTENTIAL OF “VISCIOLA” DRIED TART CHERRY (PRUNUS CERASUS, L.)

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## INTRODUCTION

Several studies have demonstrated that vegetables, fruits and legumes exert a protective effect against several human diseases such as cardiovascular disease, diabetes and cancer [1,2]. It has been hypothesized that the protective role against development of these diseases could be due to micronutrients and phytonutrients such as antioxidants [3]. These molecules are known to be able to exert a protective role against lipid peroxidation triggered by free radical. Phytonutrients and antioxidants are secondary metabolic products derived from complex pathways. Previous studies have shown that environmental factors such as production, handling and storage could affect their synthesis [4]. The evaluation of the total potential antioxidant (PA), using different methodological approaches, has been widely used to investigate healthy properties of different vegetable foods [5,6].

Aim of this study was to investigate the potential antioxidant of two different clones (A and B) of “visciola” dried tart cherries *Prunus cerasus* L. Using ORAC assay and DPPH assay, we compared PA values in fruits harvested at two ripening stages (S1 – early ripen, and S2 – fully ripen).



## METHODS

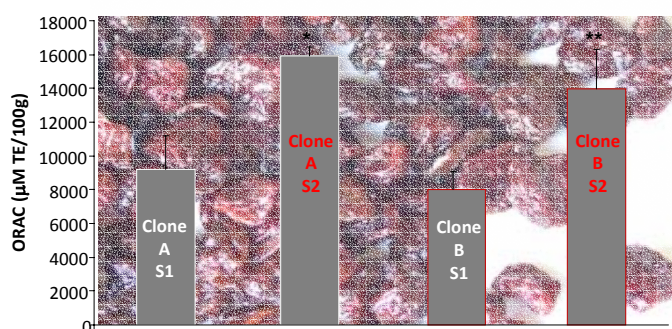
“Visciola” dried tart cherry (*prunus cerasus*, l.) of two native of two different clones (A and B) harvested at two ripening stages (S1 – early ripen, and S2 – fully ripen) were included in the study. Fruits were homogenized for 5 min at 30 Hz in 2 ml ice-cold 50% acetone. Samples were centrifuged (4,500g for 30 min at 4°C) and the supernatants were used for the analysis [6]. Total potential antioxidant of antioxidant was evaluated using oxygen radical absorbance capacity method (ORAC) and by scavenging of the radical 2,2-diphenyl-1-picrylhydrazyl (DPPH). ORAC assay measures the ability of antioxidant compounds to inhibit the decline in fluorescence induced by peroxy radical AAPH free radical oxidation of a fluorescent probe, fluorescein. Results were expressed as  $\mu\text{M}$  Trolox equivalents (TE) in 100g of dried fruit. [6]. Radical scavenging activity of samples was evaluated by monitoring the decrease of absorbance at 517nm of methanolic solution of DPPH (200 $\mu\text{M}$ ) incubated in the absence (Ab) or in the presence (Ac) of samples. Radical scavenging activity was calculated by the following formula: %inhibition =  $[(\text{Ab}-\text{Ac})/\text{Ab}] \times 100$ . Results were expressed as  $\mu\text{M}$  Trolox equivalents (TE) in 100g of dried fruit [6]. Total phenolics in the extracts were determined colorimetrically using Folin-Ciocalteu reagent and the results were expressed as  $\mu\text{M}$  gallic acid equivalents (GA) in 100 g of dried fruit. [7].

## RESULTS AND CONCLUSIONS

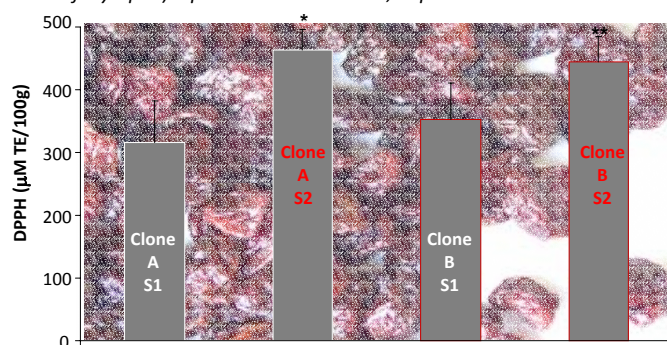
The results showed no statistically differences in the PA values evaluated using ORAC assay and DPPH assay between clone A and clone B of visciola (Figure 1 and 2). ORAC values were lower in S1 samples compared with S2 both in clone A and clone B of visciola (Figure 1). The lower PA in S1 fruits has been confirmed using the DPPH assay ( $p < 0.001$ ) (Figure 2). A significant correlation has been observed between the ORAC values and DPPH scavenging activity ( $r = 0.90$ ,  $n = 16$ ,  $p < 0.001$ ). As shown in figure 3, higher levels of total phenols have been observed in S1 samples compared with S2 both in clone A and clone B of visciola. A statistical significant correlation has been established between the levels of phenolic compounds and the ORAC values ( $r = 0.94$ ,  $n = 16$ ,  $p < 0.001$ ) and DPPH scavenging activity ( $r = 0.93$ ,  $n = 16$ ,  $p < 0.001$ ).

In conclusion, our results demonstrate that dried “visciola” fruits, which can be used as fruit snacks or in fruit cakes, are a good source of natural antioxidants.

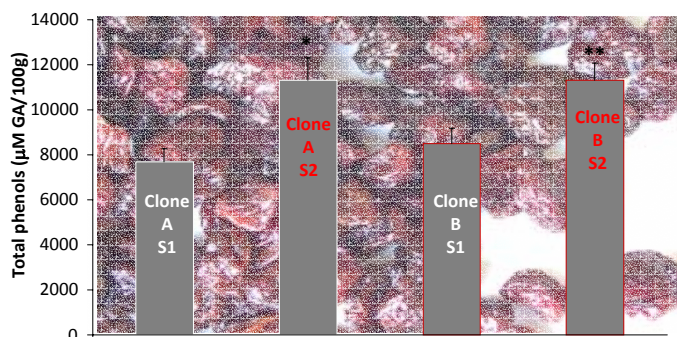
**Figure 1.** ORAC values in clone A and clone B of visciola dried tart cherries *Prunus cerasus* L harvested at two ripening stages (S1 – early ripen, and S2 – fully ripen). \* $p < 0.001$  vs Clone A S1; \*\* $p < 0.001$  vs Clone B S1



**Figure 2.** DPPH scavenging activity in clone A and clone B of visciola dried tart cherries *Prunus cerasus* L harvested at two ripening stages (S1 – early ripen, and S2 – fully ripen). \* $p < 0.001$  vs Clone A S1; \*\* $p < 0.001$  vs Clone B S1



**Figure 3.** Total phenols in clone A and clone B of visciola dried tart cherries *Prunus cerasus* L harvested at two ripening stages (S1 – early ripen, and S2 – fully ripen). \* $p < 0.001$  vs Clone A S1; \*\* $p < 0.001$  vs Clone B S1



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