

Proceedings

# Evaluation of fruit quality, chromatic parameters and anthocyanins content under foliar application of magnesium and potassium on sweet cherry (*Prunus avium* L.) cv. Burlat †

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**Abstract:** Sweet cherries are seasonal fruits, considered one of the most popular spring-summer fruits in temperate regions of Europe due to their attractive appearance, taste, colour and sweetness, having a high economic importance. In the North of Portugal, Resende region is the main responsible by the total cherry production due to their excellent edaphoclimatic conditions. So, potassium (K) and magnesium (Mg) nutrients were applied at foliar level in sweet cherry trees (Cv. Burlat) in an orchard located in Resende region, at high and low doses (50 g/hL<sup>-1</sup> and 100 g/hL<sup>-1</sup> of K; 125 g/hL<sup>-1</sup> and 250 g/hL<sup>-1</sup> of Mg) and control treatment (100 g/hL<sup>-1</sup> of K and 250 g/hL<sup>-1</sup> of Mg), with the aim to increase cherry quality by crop nutrition. Using fruits harvested on May 2020, at their commercial ripening stage, this study intended to analyse parameters related to fruit quality as biometric parameters, total soluble solids (TSS), pH, titratable acidity (TA) and maturity index (TSS/TA) as well as chromatic parameters. The anthocyanins content was also determined by pH differential method. In general, control treatment presented fruits with higher weight and size, while fruits treated with potassium at high dose had lower values. Regarding to TSS, pH, TA and TSS/TA, the values were similar among all treatments. However, TSS was lower and TA was higher in cherries treated with potassium at high dose, which means that this treatment provoked a delay in fruit maturation (the maturity index was lower). The opposite occurred in cherries treated with a lower dose of potassium (higher TSS and lower TA means higher TSS/TA, therefore anticipate fruit harvest). Concerning to chromatic parameters, higher values were obtained in cherries treated with high dose of potassium, which means lighter cherries, while lower values were found in treatment with low dose of magnesium and, consequently, indicate darker and redder cherries. These results can also be correlated with anthocyanins content, once cherries treated with high dose of potassium presented the lowest anthocyanin content and cherries treated with low dose of magnesium had the highest anthocyanin content.

**Keywords:** anthocyanins; chromatic parameters; fruit quality; magnesium; potassium; sweet cherry

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