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Preharvest application of seaweed based biostimulant reduced cherry (*Prunus avium* L.) cracking

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Abstract

Nowadays, consumers are increasingly demanding in relation to cherry, expecting fruits with good size, firmness and flavour, while the producer aims to achieve higher and regular yields, searching to reduce fruit losses, mainly caused by fruit cracking, which is related to several factors, including genotype, soil type and volume and intensity of rainfall (1-4). The climate change predictions point to an increase in the duration of excess rainfall before harvest that may cause higher cherry cracking. Several strategies to reduce this physiological disorder are described, mainly the application of minerals or other chemicals, that delay or reduces the water uptake to fruit, increase the transpiration of free water from the fruit surface or improve the fruit skin properties (5-7). Therefore, this work aimed to study the effect of a biostimulant application in production, size, cracking index, cracking size, fruit waxes content, pH, titratable acidity, soluble solids and nutritional characteristics of the fruits from two cherry cultivars, *Sweetheart* and *Skeena*, grafted on Gisela 6. This study was carried out in an orchard installed in Carrazedo de Montenegro, northeast of Portugal. The treatment consisted in the application of a biostimulant composed mainly of seaweed extract (*Ascophyllum nodosum*) in three applications during 2014. For both cultivars, the application of the biostimulant promoted a significant reduction ($p < 0.05$) of cracking index and a significant increase ($p < 0.05$) of weight, width, diameter, pH and fruit waxes content. Furthermore, negative correlations were found between cracking size and fruit dimensions (weight, $r = -0.575$ and diameter, $r = -0.517$; $p < 0.05$). Regarding nutritional characteristics, the quality of the fruits was unaffected by the treatment with biostimulant, while yield remained constant. This study showed that the application of biostimulant reduced the production losses caused by cracking without compromising either the quality or the yield in the studied cultivars.

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