

Concentration of organic acids in sweet cherry (*Prunus avium* L. cv. Regina) fruit treated with growth regulators

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Abstract

The effect of 10 ppm 3,5,6-TPA (3,5,6-trichloro-2-pyridyloxyocetic acid), 10 ppm NAA te 20 ppm GA₃, and their combination on concentration of citric, fumaric, sikimic and trartaric acid in sweet cherry fruits (*Prunus avium* L. cv. Regina) were studied in two seasons (2008 and 2009). 3,5,6-TPA and NAA was applied 25 days after full bloom and GA₃ during stage of fruit color change from green to straw-yellow. Fruit from 3,5,6-TPA - treated trees did not show significant difference in comparison to control. However, compared to control, fruit from GA₃ - treated trees had significantly lower concentration of citric acid in 2008 season and higher concentration of fumaric acid in season 2009. Fruit from trees treated with combination of 3,5,6-TPA and GA₃, as well as those treated with NAA and GA₃ showed no significant difference in any of organic acids studied in this work. Significant correlations existed among studied organic acids depending of treatments. Since some organic acids are important metabolites for biosynthesis of other important compounds such as phenolic coumpounds, there is a possibility that fruit treated with growth regulators might have significant changes in composition of individual phenols.

Key words: *Prunus avium* L., fruit quality, plant growth regulators, 3,5,6-TPA,NAA,GA₃

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Koncentracija organskih kiselina u plodovima trešnje (*Prunus avium* L. cv. Regina) tretiranih sa regulatorima rasta

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Sažetak

Efekti primjene 10 ppm 3,5,6-TPA (3,5,6-trichloro-2-pyridyloxyocetic acid) ,10 ppm NAA (naftiloctena kiselina) te 20 ppm GA₃ (giberelinska kiselina) te njihove kombinacije na limunsku, fumarnu, šikiminsku i vinsku kiselinu u plodovima trešnje (*Prunus avium* L. cv. Regina) proučavani su tijekom dvije sezone (2008 i 2009 godina). 3,5,6-TPA i NAA aplicirani su 25 dana nakon pune cvatnje, a GA₃ u vrijeme promjene osnovne boje iz zelene u slamnato žutu boju kože ploda.

Plodovi tretirani sa 3,5,6-TPA nisu pokazivali značajne razlike u usporedbi sa kontrolom . Kod plodova koji su tretirani sa GA₃ zapaža se niska koncentracija limunske kiseline u sezoni 2008 i viša koncentracija fumarne kiseline u sezoni 2009, u usporedbi sa kontrolom.

Plodovi tretirani sa kombinacijom 3,5,6-TPA i GA₃, jednako kao i oni tretirani sa NAA i GA₃ ne pokazuju značajne razlike ni u kojoj sezoni za kiseline proučavane u ovom radu.

Značajna korelacija postoji među proučavanim organskim kiselinama ovisno o tretmanu. Kako su neke organske kiseline važani metaboliti za biosintezu drugih važnih spojeva kao što su fenolni spojevi, postoji mogućnost da voće tretirano regulatorima rasta ima značajne promjene u udjelu pojedinih fenola.

Ključne riječi: *Prunus avium* L. cv. Regina, kvaliteta ploda ,biljni regulatori rasta, 3,5,6-TPA, NAA, GA₃

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