Title Improvement of fruit quality by S-ABA and the fertilizer formulated K, P, Mg, Bo, Mn containing S-ABA as pre-harvest application on peaches and apples

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Abstract

The effect of S-ABA (natural type abscisic acid: 5-(1-Hydroxy-2,6,6-trimethyl-4-oxo-2-cyclohexen-1-yl)-3-methyl-2,4-pentadienoic acid) and MIYOBI (a fertilizer formulated from 8.0, 5.0, 0.90, 0.05, 0.03 and 10.0% a.i. (w/w) of K, P, Mg, Bo, Mn and S-ABA respectively, herein after ABA fertilizer) to improve fruit quality was studied on twelve-year old apple (*Malus pumila* cvs. Tsugaru, Yataka and Fuji) and three-year old peach (*Prunus persica* cv. Akatsuki) grown in University of Tsukuba, in 2006 and 2007 seasons. Two hundred ppm S-ABA, 100 ppm solution of ABA fertilizer+GA_3 combination (with 1% concentration for each), 4 g/L ABA fertilizer and 8 g/L ABA fertilizer were sprayed onto the apple and peach fruits, 30 and 35 days before harvesting respectively. In apple, application of S-ABA and ABA fertilizer increased color of fruit and sugar content irrespective of cultivars. S-ABA and ABA fertilizer 8 g/L application also increased the fruit weight by 5-14% relative to the control. Application of S-ABA, ABA fertilizer+GA_3 and ABA fertilizer significantly increased the yield of apple compared to the control. Moreover, S-ABA, ABA fertilizer+GA_3 and ABA fertilizer remarkably reduced the proportion of sunburned fruits compared to the control in which the incidence of sunburn was enhanced by severe irradiance and high temperature in 2007 growing seasons. In peach, fruits treated with S-ABA had higher level of sugar content than ABA fertilizer+GA_3, ABA fertilizer and the control. S-ABA application also significantly reduced firmness of the peach fruit. These results imply that all the treatments including S-ABA, ABA fertilizer and ABA fertilizer+GA_3 may play a significant role on the physiology and quality attributes of peach and apple fruit.