

Title Effect of gibberellic acid and *N*-(2-chloro-4-pyridyl)-*N'*-phenylurea treatments on fruit quality of pineapple

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Abstract

More than 80% of the pineapple cultivated in mainland China is 'Comte de Paris'. To evaluate the effect of gibberellic acid (GA₃) and *N*-(2-chloro-4-pyridyl)-*N'*-phenylurea (CPPU) on pineapple (Comte de Paris) quality and production, pineapple fruits were sprayed with GA₃ and CPPU at the rates of 20, 50 and 100 mg/L at days 0 and 15 respectively after flowering. The results showed that all the different concentrations of GA₃ increased the fruit weight significantly, in which the best treatment, i.e. 50 mg/L GA₃ increased the fresh weight of pineapple fruits by 20.3% compared with the control. On the contrary, all CPPU treatments had little increase on pineapple fruit fresh weight. On the other hand, 50 mg/L GA₃ treatment slightly influenced on the total soluble solid and fruit juice pH compared to the control. However, Vitamin C significantly increased from 22.37 to 25.18 mg/100g FW and both the content of total soluble sugar and total titratable acidity decreased; however the ration of soluble sugar and titratable acidity was slightly affected. Histological observation showed that GA₃ caused fruit cells enlargement, which resulted in the increase of fruit fresh weight. Flow cytometry analysis showed although CPPU significantly promoted cell division after its application, the cell size did not enlarge thus there was no significant increase in fruit fresh weight compared to the control.