

# Postharvest gibberellic acid, 6-benzylaminopurine and calcium chloride dipping affect quality, antioxidant compounds, radical scavenging capacity and enzymes activities of ‘Grand Nain’ bananas during shelf life

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## Abstract

Effects of GA<sub>3</sub> (150 and 300 mg L<sup>-1</sup>), 6-benzylaminopurine (BAP, 50 and 100 mg L<sup>-1</sup>) or CaCl<sub>2</sub> (2 and 4%) dipping on quality and biochemical changes of ‘Grand Nain’ bananas were studied during 8 days of shelf life (SL) at 20 ± 2 °C and 60–70% RH. Weight loss increased during SL to 9.9% but was not affected by treatments. Firmness and membrane stability index (MSI) decreased during SL and were higher in treated fruit than control. Total soluble solids (TSS)/titratable acidity (TA) ratio increased during SL and was lower in treated fruit than control. GA<sub>3</sub> at 150 mg L<sup>-1</sup> retained more peel green, darker and less yellow color than control and reduced peel browning that was more apparent after 8 days of SL. However, BAP at 50 mg L<sup>-1</sup> retained more peel green color than control only during the first 3 days of SL with little or no effect for CaCl<sub>2</sub>. Total phenol and flavonoid content in both peel and pulp fluctuated during SL and were higher in treated fruit than control. Vitamin C content decreased during SL and was lower in treated fruit than control. Radical scavenging capacity (RSC) of peel decreased during SL and was higher in treatments than control. While, RSC of pulp decreased, in most treatments, during SL and was higher in all treatments only after 3 days of SL. In both peel and pulp, polygalacturonase (PG), xylanase and α-amylase activities increased with fluctuation during SL and were lower in most treatments than control. Polyphenoloxidase (PPO) activity increased during SL and was lower in treated fruit than control. While, peroxidase (POD) activity increased during SL and was higher in most treatments than control especially after 5 and 8 days of SL. In conclusion, postharvest dipping in either 150 mg L<sup>-1</sup> GA<sub>3</sub>, 50 mg L<sup>-1</sup> BAP or 2% CaCl<sub>2</sub> retarded ripening and retained quality of ‘Grand Nain’ bananas during SL. However, GA<sub>3</sub> was more effective in reducing peel browning and retaining green color than other treatments including control.