

Title Effect of nitric oxide on pericarp browning of harvested longan fruit in relation to phenolic metabolism

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Abstract

The effects of nitric oxide (NO) on enzymatic browning of harvested longan fruit in relation to phenolic metabolisms were investigated. Fruits were dipped for 5 min in 1 mM sodium nitroprusside (SNP), a nitric oxide donor, then packed in 0.03 mm thick polyethylene bags, and finally stored for 6 days at 28 °C. Changes in pericarp browning and pulp breakdown were evaluated, while total phenol content, activities of phenolic-associated enzymes, polyphenol oxidase (PPO), peroxidase (POD) and phenylalanine ammonia lyase (PAL), and concentrations of total soluble solids, titratable acidity and ascorbic acid were measured. SNP treatment delayed pericarp browning, inhibited activities of PPO, POD and PAL and maintained a high total phenol content of longan fruit during storage. Furthermore, NO showed a significant inhibition of the *in vitro* activities of PPO and POD, indicating that the beneficial effect of NO was direct. Moreover, application of NO resulted in a lower pulp breakdown and maintained relatively high levels of total soluble solids and ascorbic acid.