Effect of Polyamines Application on Reducing Chilling Injury Incidence in Okra Pod (*Abelmoschus esculentus*) Stored at Low Storage Temperature

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Abstract

Generally, immature okra pod is perishable and sensitive to chilling when exposed to temperature below 10 °C. Polyamines application has been claimed to be able to cope with low temperature stress due to their polycationic and antioxidant properties. In the present study, the effects of putrescine, spermidine and spermine on maintaining quality of stored okra pod were investigated. Immature okra pods were treated with putrescine, spermidine and spermine at two different concentrations (0.5 and 1.0 mM) with four replications per treatment. On the other hand, the control okra pods were only dipped in distilled water. All the pods were stored at 4 °C with 85 ± 5% relative humidity for 12 days. Results showed that the okra pods treated with putrescine at both concentrations were significantly lower in chilling injury (CI) incidence (46 to 56%) and weight loss (51 to 68%) than the control. While spermidine and spermine showed no differences with control after 8 storage days. Exogenous putrescine application resulted in a higher DPPH scavenging activity as well as antioxidant enzymes activity of catalase and peroxidase with respect to control after 12 days of storage. These responses could possibly be involved in chilling tolerance in okra pod during cold storage.

Keywords: Catalase, Chilling injury, Okra, Peroxidase, Putrescine, Weight loss

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