

Exogenous putrescine treatment delays chilling injury in okra pod (*Abelmoschus esculentus*) stored at low storage temperature

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Abstract

Okra as tropical crop is susceptible to chilling injury (CI), which limit the usage of low storage temperature. Polyamine, particularly putrescine (Put) has been proposed to play important role in plant to cope with cold stress. Thus, the aim of this study was to determine the effect of polyamines treatment specifically Put on alleviating the CI in okra when exposed to low storage temperature. Okra pods were dipped into Put at 0, 0.5 mM, 1 mM and 2 mM and stored at 4 °C. The results showed that 2 mM Put effectively reduced CI symptoms of okra. Interestingly, seed browning increased with severity of CI. Meanwhile, Put treatment significantly reduced seed browning by retarding the activity polyphenol oxidase (PPO) and peroxidase (POD) enzymes. Additionally, Put treatment elevated total phenolics, total antioxidant activity (DPPH radical scavenging activity and FRAP), antioxidant enzymes (CAT and SOD) activity and contributed to low hydrogen peroxide and malondialdehyde content.