

# Effect of composite coating treatment and low-temperature storage on the quality and antioxidant capacity of Chinese jujube (*Zizyphus jujuba* cv. Junzao)

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## Abstract

The purpose of this study was to explore the effects of coating treatment using a composite of 1-methylcyclopropene (1-MCP), chitosan and natamycin (NATA) on the quality and antioxidant capacity of Chinese jujube (*Zizyphus jujuba* cv. Junzao) stored at different temperatures (Room temperature and  $0 \pm 1$  °C). Respiration, ethylene release, and decay rates; Malondialdehyde (MDA); total phenol, flavonoid, and Ascorbic Acid (AsA) contents; Peroxidase (POD), Polyphenol Oxidase (PPO), Superoxide Dismutase (SOD), and Ascorbate Peroxidase (APX) activities; and free-radical scavenging ability were considered. The results showed that the low-temperature composite coating treatment of Chinese jujube effectively inhibits its decay and MDA accumulation; delays its respiration and ethylene release peaks; increases the activities of the antioxidant enzymes POD, SOD, and APX; and inhibits its PPO activity. Furthermore, the jujube retains its high concentrations of total phenols, flavonoids, and AsA as well as its free-radical-scavenging rate into the later storage period. Thus, the low-temperature composite coating treatment is an effective method for improving the postharvest quality of Chinese jujube and extending its preservation period.