

Title Effect of vacuum cooling on physiological changes in the antioxidant system of mushroom under different storage conditions

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Abstract

The effects of vacuum cooling treatment and storage conditions on the activities of lipid oxidation, superoxide anion generation, superoxide dismutase (SOD), catalase (CAT), peroxidase (POD) and polyphenoloxidase (PPO) were investigated in the mushrooms. Mushrooms cooled to 5 °C by vacuum cooling induced 1.2-, 1.2-, 1.1- and 1.1-fold increase in the activities of SOD, CAT, POD and PPO. In contrast, malondialdehyde (MDA) levels and superoxide anion generation slightly decreased. During the storage, the highest expression of the enzymatic antioxidant system was found in the mushroom stored under modified atmosphere packaging (MAP) with vacuum cooling treatment. Additionally, the effects of vacuum cooling and storage conditions on mushroom firmness and browning were also investigated.