

## Abstract

In this study, a new type of packaging film assembled by caffeic acid-grafted-chitosan/poly(lactic acid) (CA-g-CS/PLA) was prepared, and its characteristics, migration properties and effect on the postharvest quality of *Agaricus bisporus*, including physicochemical characteristics and antioxidant capacity, were analysed and evaluated. The results showed that compared to the traditional polyethylene (PE) film, the CA-g-CS/PLA film had a significantly improved water vapour transmission rate, oxygen transmission rate and migration properties ( $P < 0.05$ ). Meanwhile, CA-g-CS/PLA could effectively delay the browning and respiration rate, and could form an O<sub>2</sub>/CO<sub>2</sub> atmosphere to delay the ageing of *Agaricus bisporus*. Moreover, CA-g-CS/PLA effectively decreased the accumulation of malondialdehyde, superoxide radical and hydrogen peroxide content, and enhanced the activities of superoxide dismutase and catalase activity in mushroom during 15 d storage compared to PE. Therefore, the CA-g-CS/PLA film could be used as a novel active packaging material in the postharvest storage and transportation of *Agaricus bisporus*.