

**Discussion on the application method of modified atmosphere packaging of
*Agaricus bisporus***

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Outline

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Abstract

Mushrooms are one of the common food of large fungal fruiting bodies in people's diet. They have unique flavor and nutritional value. Due to the high respiration rate after harvesting, the shelf life is short, which increases the difficulty of transportation and sales. MAP (modified Atmosphere packaging) has been widely used to extend the shelf life of fruits and vegetables. This report mainly discusses whether the use of modified atmosphere packaging with antibacterial gas or anaerobic treatment can also effectively delay spoilage. The mixture of eugenol, bergamot essential oil and grapefruit essential oil with antibacterial effect is vaporized and filled into the package. The study found that the concentration of essential oil at 100ppb can reduce the quality loss after picking, reduce polyphenol oxidase and phenylalanine The activity of ammonia lyase and the growth of *Pseudomonas*, in the sensory evaluation, the smell of the essential oil does not have any impact and the problem of changing the color, and can effectively extend the shelf life to 12 days. The short-term anaerobic treatment of different times in perforated modified atmosphere packaging was evaluated to prolong the shelf life of mushrooms. The results of the study showed that short-term anaerobic treatment of 6 hours was the most effective for maintaining the quality of mushrooms, compared with the control samples without anaerobic treatment. The respiration rate decreased by 47.5%, and the weight loss was 1.6% on the 15th day of storage. The texture, umami amino acid and taste had better performance, but the 24-hour treatment accelerated the deterioration of the quality of mushrooms, so it can be known that the long-term depletion Oxygen treatment caused irreversible damage to mushroom cells. In addition, after short-term anaerobic treatment, trace oxygen is continuously supplied through the micropores of the air-adjusting packaging to minimize microbial safety issues and risks, but more research is needed in the future to ensure that this method has microbial safety to discuss.

References

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2. Sun, B., Ren, H., Chen, X., Ma, F., Yu, G., Chen, M., & Jiang, F. (2021). Short-term anaerobic treatment combined with perforation mediated MAP on the quality of *Agaricus bisporus* mushroom. *Postharvest Biology and Technology*, *176*, 111518.