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RESEARCH ARTICLE

Effect of different stipe length, pre-cooling and perforation in polypacks on keeping quality of *Agaricus bisporus* (Lange) Sing. at different storage temperatures

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ABSTRACT

Button mushroom, *Agaricus bisporus* (Lange) Sing. has very short shelf-life at ambient temperature after harvest. It was found that shelf-life of button mushroom can be increased by keeping at 5°C temperature. Further, at 5°C temperature whiteness remained excellent up to 144 hrs of storage duration without veil opening followed by 12 and 18°C temperature with smallest stipe length (0.5cm) without veil opening and good whiteness up to 96 hrs of storage duration. Shelf-life of white button mushroom in 100 gauge polythene bags without perforation is found best at 5°C and excellent whiteness was observed up to 120 hours of storage duration with no veil opening and with good whiteness up to 144 hrs of storage at 5°C. Whereas, it remain excellent white up to 72 hours and 48 hours of storage at 12 and 18°C temperature with no veil opening, respectively. Pre-cooling of sporophores of *A. bisporus* improved its keeping quality considerably. However, pre-cooling for 10 hours at 0°C was found to be the best pre-cooling duration for post-harvest preservation of button mushroom as fruit bodies retains good whiteness with no veil opening up to 120 hours of storage duration at 5 and 12°C temperature. Whereas, good whiteness and no veil opening was found only up to 96 hours of storage at 18°C.

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INTRODUCTION

Mushrooms are highly perishable and get spoiled due to wilting, veil-opening, browning, liquefaction, loss of texture, aroma, flavour, etc. making them unsaleable (Azad *et al.,* 1987). Earlier it was believed that the primary cause of spoilage of fresh button mushroom is enzymatic reactions in the living tissue. Later it was suggested that mushroom spoilage might be caused by the action of bacteria on the mushroom tissue and browning of mushroom was due to a combination of autoenzymatic and microbial action on the tissue.

Ajlouni *et al.* (1992) reported that stipe trimming at harvest increases the shelf-life of the fresh mushroom (*Agaricus bisporus*). During post-harvest development, dry matter is transferred from stipe to pileus. The stipe appears to be a major source for the pileus since when it is trimmed prior to storage; pileus opening and mushroom senescence are delayed. This relationship between pileus and stipe stiffness probably reflects the depletion of resources from the stipe to support the continual hyphal growth in the pileus.

The temperature of the button mushroom after picking varies between 15 to 18°C and it rises steadily during the storage due to respiration and atmospheric temperature. This heat causes deterioration in quality. Hence, the heat should be removed immediately after the harvest and the temperature of mushroom should be brought down to 4 to 5°C as quickly