



RESEARCH ARTICLE

# Effect of pre-harvest spray on the yield and shelf-life of white button mushroom [*Agaricus bisporus* (Lange) Sing.] during storage

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## ABSTRACT

Pre-harvest sprays on white button mushroom (from pinning to harvesting) using different compounds has been found very effective in increasing quality and shelf-life. Pre-harvest spray of ascorbic acid (3%) was found to be the best as there was maximum sporophore yield (373.75 g/2 kg of compost) followed by ascorbic acid (4%) and calcium chloride (0.4%) by giving mushroom yield of 352.50 and 309.25 g/2kg of compost, respectively. Maximum number of fruit bodies (32.00) were recorded in 4 per cent ascorbic acid followed by 3 per cent ascorbic acid (31.75). Pre-harvest spray with 0.4 per cent CaCl<sub>2</sub> was found to increase the shelf-life of button mushroom as there was minimum colour change and reduced veil opening even after 144, 120, 96 hours of storage at 5, 12 and 18°C temperature, respectively.

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## INTRODUCTION

When the supplies of water, organic substances and minerals are cut off at harvest, the fresh mushroom enters a deterioration or perishable phase. Veil opening and stem elongation are the usual symptoms of senescence constituting visible appearance of deterioration. At room temperature, the shelf-life of button mushroom can not be more than 48 hrs. During this period, there are considerable changes in colour, texture and taste. In addition, water is continuously being lost as a result of transpiration and respiration. The effective extension of storage life of fresh mushroom is a very delicate problem and shares higher costs in the post-harvest phase before selling by a growers, minimizing the number of handling, reducing the shocks during transportation and controlling the fast metabolic activity of the fresh mushroom would target to extend the storage life.

Chopra *et al.* (1985) studied the effect of pre-harvest aqueous sprays of honey, citric acid and *Euphorbia royleana* latex in different combinations on the storage life of *A.*

*bisporus*. Veil opening was delayed and shrivelling was negligible even after 21 days of storage. The shelf-life was increased by more than a week over control at 3-5°C and 2-3 days at ambient temperature. Combination treatments of honey + citric acid + latex (0.5%+0.5%+0.5%) was also fairly effective.

Bartley *et al.* (1991) conducted the experiments and found that a combination of calcium chloride (0.25%) and 50 ppm stabilized chlorine dioxide (oxine) added to irrigation had significantly improved shelf-life of off-white button mushroom but had no effect on colour prior to harvest and resulted in a yield reduction. Soloman *et al.* (1991) grew both off-white and white hybrid strain of *A. bisporus* using four irrigation water treatments as : Tap water (control) : 50 ppm of stabilized chlorine dioxide (oxine) : 0.25 per cent of calcium chloride, and a combination of the two agents added together to tap water. With white hybrid mushrooms, none of the treatment had significant effect on yield but post-harvest quality and shelf-life were significantly improved, especially by the combination treatment.

Barwal (1992) observed that pre-harvest spray of