

Title Effect of chemical treatments on shelf life and quality of fresh mushrooms
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Abstract

We examined the effect of different chemical washing solutions to prolong the shelf life and improve the quality of fresh mushroom (*Agaricus Bisporus*). Fresh mushroom were picked from a local farm, wrapped in plastic bags and transferred to the postharvest lab within one hour and held for 3 hours at 18°C before treatments. Thereafter, they were immersed in different solutions for 4 minutes (1 or 4 min for salicylic acid) at 19 ± 0.5 °C and air-dried for 30 minutes at 20 ± 1 °C prior placed in plastic container and covered with solefon and stored at 3 ± 1 °C. Treatments were salicylic acid (1, 2 or 4 mMol/l), ethanol (0.25, 0.5 or 1 % w/v), calcium sulfate (0.25,0.5 or 1 %), calcium chloride (0.25,0.5 or 1 %) and calcium nitrate (0.25, 0.5 or 1 %). Shelf life and quality parameters were assessed during 3 weeks. In general, treated mushrooms with calcium salts or ethanol had lower microbial signs and greater shelf life compared to the control. However, calcium nitrate, calcium sulfate and ethanol were more effective in shelflife extension and quality improvement of fresh mushrooms compared to other treatments. Ethanol treatment decreased weight loss and increased TSS significantly compared to the control. Calcium nitrate decreased bacterial infection of mushroom significantly compared to the control. Mushrooms that were treated with salicylic acid for 4 minutes had caps with low quality in color and appearance and results in unmarketable mushrooms. The results suggesting that a combination of calcium salts and other chemicals like ethanol may have greater impact in shelflife and quality improvement of fresh mushroom, although application of these chemicals alone were useful.