Effect of chitosan and guar gum based composite edible coating on quality of mushroom (*Lentinus edodes*) during postharvest storage

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Abstract

The effect of chitosan (CH) (1%) along with guar gum (GG) (5, 15, and 25%) on the quality of shiitake mushroom (*Lentinus edodes*) stored at 4 ± 1 °C for 16 days was investigated. The results indicated that shiitake mushroom coated with CH 1% + GG 15% maintained higher tissue firmness, and slowed the rate of declines in soluble protein and ascorbic acid, as well as increases in total soluble solids, reducing sugar, malondialdehyde (MDA), and electrolyte leakage. Similarly, the effect of CH 1% + GG 15% coating in improving the overall quality of shiitake mushroom was identified through sensory evaluation. Moreover, the result of transmission electron microscopy (TEM) showed that subcellular elements could be scarcely observed in uncoated mushrooms at the end of storage, and destructive symptoms in shiitake mushroom were significantly mitigated by the CH 1% + GG 15% coating. Thus, it was suggested that the CH 1% + GG 15% coating might be used commercially for maintaining the quality of shiitake mushroom during long-term storage.