

# Investigating the biocontrol potentiality of *Wickerhamomyces anomalus* against postharvest gray mold decay in cherry tomatoes

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## Abstract

Gray mold decay caused by *Botrytis cinerea* is one of the primary postharvest diseases of cherry tomatoes globally, leading to considerable economic losses. This study aimed to assess the biocontrol efficacy of *Wickerhamomyces anomalus* against postharvest gray mold decay in cherry tomatoes. The results indicated that *W. anomalus* significantly reduced the gray mold decay in cherry tomatoes in a concentration-dependent manner without affecting cherry tomatoes' quality. *W. anomalus* developed rapidly in wounds and on surfaces of cherry tomatoes at both  $20 \pm 2$  °C and  $4 \pm 2$  °C, and reduced the spore germination and germ tube length of *B. cinerea* *in vitro*. *W. anomalus* could adapt to the environment and compete for the nutrients and space against the pathogens. Besides, *W. anomalus* significantly enhanced the activities of defense-related enzymes in cherry tomatoes, including polyphenoloxidase (PPO), peroxidase (POD), catalase (CAT), and phenylalanine ammonialyase (PAL). Ultimately, the application of *W. anomalus* induced the disease resistance ability of cherry tomatoes. These findings suggested that *W. anomalus* could be a promising biocontrol agent to manage the postharvest gray mold decay in cherry tomatoes.