

# Biocontrol potential of a broad-spectrum antifungal strain *Bacillus amyloliquefaciens* B4 for postharvest loquat fruit storage

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Postharvest Biology and Technology, Volume 174, April 2021, 111439

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## Abstract

Loquat fruit is a subtropical fruit with high commercial values in the international market, but it actually has a short postharvest life due to mechanical damage and microbial decay. Until now, there exist few appropriate storage methods or biocontrol agents to control postharvest diseases and prolong storage period of postharvest loquat fruit. Recently, by comparing twelve *Bacillus* strains with biocontrol activity, a potential *Bacillus amyloliquefaciens* B4 was found to be effective in controlling various pathogens of loquat fruit. The *in vivo* results displayed that the active constituent in B4 exerting antifungal activity was bacterium itself, rather than metabolites. Scanning electron microscope was applied to observe the interaction between B4 and pathogens, and bacterial colonization and site occupancy on postharvest loquat fruit appeared to be one of the reasons why B4 could inhibit growth of fungal pathogens. In brief, *Bacillus amyloliquefaciens* B4 tends to be the most broad-spectrum antifungal biological agent available so far against postharvest pathogens of loquat fruit. Furthermore, oral toxicity test results suggested *Bacillus* B4 is actually non-toxic, making it a really suitable biocontrol agent for postharvest loquat fruit. The treatment for loquat fruit with B4 resulted in a lower disease incidence, with only 62.5 % compared to all decayed in the untreated group 20 d after inoculation at 25 °C. This study provides a promising biological agent to control diseases of postharvest loquat fruit and improves our understanding of the possible biocontrol mechanisms of the *Bacillus* strain.