

# Postharvest *Pichia guilliermondii* treatment promotes wound healing of apple fruits

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Postharvest Biology and Technology, Volume 167, September 2020, 111228

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## Abstract

*Pichia guilliermondii* is a yeast widely found on soil, leaves and fruit surfaces and is known to have a good biocontrol effect on a variety of postharvest diseases of fruits and vegetables. In this study, artificially wounded apple fruits (cv. Fuji) were treated with *P. guilliermondii*. It was found that *P. guilliermondii* growth increased rapidly at wound sites of fruit in the early stage of healing and later decreased rapidly. The yeast significantly reduced weight loss of wounded fruit and the disease index of inoculated fruit with *Penicillium expansum*. On the 5 d of healing, the weight loss and disease index of treated fruits were 25 % and 44 % lower than the control, respectively. *P. guilliermondii* also promoted the accumulation of  $O_2^{\cdot-}$  and  $H_2O_2$ , increased the activity of superoxide dismutase, catalase, peroxidase and polyphenol oxidase in fruit wounds. Furthermore, *P. guilliermondii* activated phenylalanine ammonia-lyase activity and increased the content of total phenols, flavonoids and lignin in the fruit wounds. It is suggested that postharvest *P. guilliermondii* treatment could promote the wound-healing of apple fruit by activating the reactive oxygen species and phenylpropane metabolism in the fruit wound.