

Expression of flagellin at yeast surface increases biocontrol efficiency of yeast cells against postharvest disease of tomato caused by *Botrytis cinerea*

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Abstract

In this study, bacterial flagellin was expressed at the cell surface of *Saccharomyces cerevisiae* EBY100 via yeast surface display system. The effect of the yeast on controlling the postharvest decay of tomato fruit caused by *Botrytis cinerea* and the possible mechanisms were investigated. The results showed that the yeast expressing flagellin at cell surface could significantly induce disease resistance against *B. cinerea* in tomato wounds. The genes involved in biosynthesis of salicylic acid and jasmonic acid, and plant defense were markedly up-regulated in tomato wounds by the yeast strain expressing flagellin. In addition, application of the yeast strain significantly induced the superoxide radical generation in tobacco leaves and tomato fruit. These findings suggest that expressing flagellin at yeast cell surface may be an effective strategy to increase the biocontrol efficiency of antagonist yeast against disease in postharvest fruit.