

# Ethanol treatment suppresses the yellowing of fresh-cut yam by repressing the phenylpropanoid pathway and bisdemethoxycurcumin biosynthesis

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## Abstract

An ethanol treatment (10 % v/v) inhibited the yellowing of fresh-cut yam during storage. The ethanol treatment also prevented bisdemethoxycurcumin formation, and reduced the contents of metabolites in fresh-cut yam during storage at 25 °C. Ethanol treatment also inhibited the activities of key enzymes in the phenylpropanoid pathway, including phenylalanine ammonia lyase (PAL), cinnamic acid-4-hydroxylase (C4H), and 4-coumarate-CoA ligase (4CL), and decreased the transcription level expressions of PAL, C4H, and 4CL compared to the control. The expressions of diketide-CoA synthase, curcumin synthase 3, and curcumin synthase were also reduced by ethanol treatment compared to the control, in agreement with the absence of bisdemethoxycurcumin in fresh-cut yam treated with ethanol. These findings suggest that ethanol can be used to attenuate the yellowing of fresh-cut yam stored at 25 °C, which may be related to ethanol inhibition of the phenylpropanoid pathway and bisdemethoxycurcumin biosynthesis.