

Title A combination of marine yeast and food additive enhances preventive effects on postharvest decay of jujubes (*Zizyphus jujuba*)

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Abstract

We investigated the effects of marine yeast *Rhodosporidium paludigenum* in combination with a food additive, carboxymethylcellulose sodium (CMC-Na), on prevention of postharvest decay and food quality of Chinese winter jujubes. *R. paludigenum* (1×10^8 cells/ml) combined with CMC-Na (0.3%) significantly increased the inhibition of black rot on jujubes at 25 °C when compared with *R. paludigenum*-alone treatment (5.8% vs. 20%, $p < 0.05$). The combination also reduced natural rot from 86% (control) to 56%. The combination caused transient changes in enzyme activities or contents of some oxidation reactive markers such as peroxidase (POD), superoxide dismutase (SOD), and malondialdehyde (MDA) of jujubes. The combination had no significant effect on the food qualities such as colour (chroma and hue angle), total soluble solid (TSS) and titratable acidity (TA) of the fruit. While enhancing these effects, CMC-Na did not affect the survival of *R. paludigenum* in nutrient yeast dextrose agar (NYDA) culture. Thus, we conclude that the combination of *R. paludigenum* and CMC-Na is a promising formulation to control postharvest decay of Chinese winter jujubes.