

Biological Control of Blue Mold Disease of Grapes by *Pichia anomala* Supplemented by Chitosan and Its Possible Control Mechanism

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Abstract : Blue mold decay caused by *Penicillium expansum* is among the recent identified diseases of grapes (*Vitis vinifera*). The increasing concern about use of chemical substance and pesticide in postharvest fruit push the trends of research toward biocontrol strategies which are more sustainable and ecofriendly. In this study, we determined the biocontrol efficacy of *Pichia anomala* alone and supplemented with 1% chitosan in the grapefruit against blue mold disease caused by *P. expansum*. The result showed that 1% chitosan better enhances the biocontrol efficacy *P. anomala*. Chitosan (1% w/v) also improved the number of population of *P. anomala* in grape wounds, surface and on nutrient yeast dextrose broth (NYDB). *P. anomala* supplemented with 1% w/v chitosan significantly reduced the disease incidence, lesion diameter and natural decay of grapefruits without affecting the fruit quality as compared to the control. The scanned electron microscope (SEM) concisely illustrates how the high number of yeast cells on the wounds reduced the growth of *P. expansum*. *P. anomala* alone or *P. anomala* supplemented with 1% w/v chitosan are presented as a potential biocontrol alternative against the postharvest blue mold of grapefruit.

Keywords : biocontrol, *Pichia anomala*, chitosan, *Penicillium expansum*, grape

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