

THE ANTAGONISTIC ACTIVITY OF *AUREOBASIDIUM PULLULANS* TO REDUCE BLUE MOLD IN 'ROCHA' PEAR

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Abstract:

Postharvest decay of 'Rocha' pear caused by *Penicillium expansum* (Link) is an important economic limitation to the marketing of these fruits. Several disease control strategies have been developed but they do not always offer satisfactory results comparable to that provided by synthetic fungicides. Alternative biocontrol agents have been investigated with success and the yeast-like fungus *Aureobasidium pullulans* (de Bary) Arnaud was reported to effectively inhibit postharvest decay of pear. In our previous studies, an isolate of *A. pullulans*, obtained from leaves and fruits of 'Rocha' pear trees in Alcobaça, showed antagonistic properties against *P. expansum* during cold storage of pear fruits. The addition of inorganic salts is reported to improve the activity of the antagonist against the postharvest decay. The effects of three concentrations of calcium chloride (CC) (1, 2 and 3%), sodium bicarbonate (SBC) (1, 2 and 3%) and Imazalil (IMZ) fungicide (0.025, 0.05 and 0.1%) on *A. pullulans* and *P. expansum* populations were evaluated in both solid and liquid media (nutrient yeast dextrose). Supplementation of inoculum suspensions of *A. pullulans* with 2% CC and SBC and a low dose of IMZ (0.05%) was assayed on pear fruits at harvest date and after 5 months of cold storage. Results obtained revealed that in vitro growth of *A. pullulans* and *P. expansum* with addition of inorganic salts and fungicide were significantly different. In vivo tests showed that after harvest and during cold storage the supplementation of *A. pullulans* suspensions with 2% CC satisfactory improved the beneficial effect of the antagonist activity expressed as a reduction of 36% in lesion diameter compared to the application of *A. pullulans* alone. However, the best result was obtained with the addition of a low dose of IMZ, providing almost total control of the disease. Supplementation with SBC revealed a negative effect on lesion diameter of inoculated fruits at harvest and after 5 months of cold storage.