

Title Two selection strategies of epiphytic native yeasts with potential biocontrol capacity against postharvest pear pathogens in patagonia

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Abstract

To reduce the use of fungicides, biological control with yeasts has been proposed worldwide in recent years. In order to find antagonistic yeasts adapted to pear storage conditions (-1/0°C for 7 months), two isolation strategies were explored. In 2007 (strategy A), the yeasts were isolated from the surface of healthy fruits. Aliquots of the obtained suspensions were seeded on GPY agar and incubated at 26°C. In 2008 (strategy B), washes from healthy wounds after 150 days at 0°C were used to inoculate fresh pear wounds with *Penicillium expansum*. Yeasts were isolated from healthy wounds after 50 days of incubation in cold. From both A and B isolation strategies, one isolate from each yeast species was tested for antagonistic activity against *P. expansum* and *Botrytis cinerea* by in vivo (pear wounds at 0°C) and in vitro (dual cultures at 20°C) assays. By means of strategy A, six yeast species were identified. Among them, the best antagonists were *A. pullulans* and *R. mucilaginosa*, which reduced only *P. expansum* disease incidence (33%). From strategy B, five of six species obtained, *Cryptococcus weringae*, *C. victoriae*, *Cystofilobasidium infirmominiatum*, *Rhodotorula larynges* and *A. pullulans*, showed the highest antagonistic activity against *P. expansum*; they completely controlled disease incidence at 100 days. Only *Cryptococcus weringae* and *C. victoriae* reduced incidence of *B. cinerea* (80%) at 100 days. Differences between in vivo and in vitro biocontrol assays were observed. In in vitro assays, all yeasts produced a greater growth inhibition of *P. expansum* than of *B. cinerea*. Strategy B was the most effective strategy for the selection of antagonistic yeasts for postharvest disease control.