

Title: POTENTIAL OF *Candida stellimalicola* STRAINS FOR *Penicillium italicum* BIOCONTROL

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Abstract

Penicillium italicum is the causal agent of blue mold in citrus, one major disease that occur in postharvest. An alternative control is through the use of yeasts. Therefore, this work aimed to test different yeast strains relating its antagonism against *P. italicum*. For the *in vitro* assays were used six *Saccharomyces cerevisiae* strains isolated from fermentation processes for fuel ethanol production, characterized by electrophoresis karyotyping. Ninety five yeasts strains were isolated and included in the *in vitro* evaluation. For the yeasts isolation it was used the decimal dilution technique with plating in YEPD, YM and WL medium. The cultures were incubated at 25°C for 7 days in BOD chamber and the colonies with distinct morphology were purified and maintained in YEPD medium. Altogether 95 yeasts strains were obtained from samples of the soils, flowers, leaves and citrus fruits from 14 areas in the State of São Paulo, with different morphologies colonies and different vegetative cells. The *in vitro* evaluation was done with pour plate methodology in Petri dish. A *P. italicum* suspension (100 mL containing 1×10^5 conidia/mL) was added to 900 mL of PDA medium at 40°C. After the medium solidification, it was made the wells perforation (diameter 5 mm) in the middle of the plate and, aliquot of 100uL of a suspension containing each yeast strain (1×10^7 cells/mL) were applied into the wells. The essay was performed in randomized design with 5 repetitions and evaluation considered the average diameter of the inhibition halo. In *in vitro* assays, 101 yeasts strains were evaluated and, eight strains showed values of mycelial growth inhibition above 80%, whereas the strain ACBL-04 provided 100% control. These eight yeasts strains were identified by sequence of ITS region (Internal Transcribed Spacers) from rDNA using the primers ITS1 and TS2, including the 5.8S region. Seven yeasts strains (ACBL-04, ACBL-05, ACBL-06, ACBL-07, ACBL-08, ACBL-10 and ACBL-11) were identified as *Candida stellimalicola* and, one yeast strain (ACBL-14) was identified as *Cryptococcus* sp.. The results of this study suggest that these yeasts strains have potential for use in biocontrol blue mold, mainly *C. stellimalicola* ACBL-04 strain, which completely inhibited growth of the pathogen *in vitro*.

Key-words: Yeasts, Blue mod, Biological control, Postharvest, *Citrus* sp.

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