

**Title: Use of agro-industrial waste for production of *Trichoderma* spp. conidia and biomass**

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**Abstract:**

*Trichoderma* is one of the most used fungus in agriculture worldwide. It is an effective agent for the biological control of plant diseases and for plant growth promotion. The use of this fungus is continually increasing because of its potential biotechnological applications. Commercial production of *Trichoderma* requires a culture medium that supplies the fungus with its nutritional needs and results in efficient production of propagules in a low cost industrial scale. Therefore, the objective of the present work is to evaluate the use of agro-industrial waste in liquid culture media for production of *Trichoderma* spp. conidia and mycelia, and to determine the ideal sucrose concentration to promote sporulation and biomass production. Assays were done at Phytopathological Biochemistry Laboratory of Biological Institute (Instituto Biológico – IB/SP). Three strains were used: *Trichoderma atroviridae* (IB 18/03), *T. asperelloides* (IB 43/14) and *T. koningiopsis* (IB 48/06). The culture media evaluated were made with inactivated yeast, corn steep liquor, or brewer's yeast at 1% w/v concentration and sucrose at concentrations of 0%, 0.5%, 1%, or 2% w/v in distilled water. The media were autoclaved and inoculated with a plug of PDA (potato dextrose agar) culture of each strain. The cultures (100 mL) were incubated in an orbital shaker at 150 rpm for 7 days at 25 °C. For each medium, number of conidia and mycelium dry mass were measured, with five repetitions. The three strains produced more biomass in the medium with inactivated yeast. The number of conidia per mL produced in this medium by IB 18/03, IB 43/14 and IB 48/06 were, respectively,  $1.2 \times 10^8$ ,  $1.0 \times 10^8$ , and  $7.0 \times 10^7$ . Variation in sucrose concentration did not affect conidia production but an increase of dry mass in medium with 2% sucrose was observed. Mycelial mass average in 99 mL of inactivated yeast culture medium with 2% sucrose for IB 18/03, IB 43/14 and IB 48/06 were, respectively, 0.623 g, 0.978 g, and 0.806 g. In conclusion, inactivated yeast medium was the best for conidial and biomass production and gradual increment of sucrose promoted proportional increase of biomass production for the three *Trichoderma* spp.

**Keywords:** yeast medium, corn steep liquor, saccharose concentration, industrial scale production, low effective cost.

