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Study Comparison of Production Performance Conidia of *Metarhizium anisopliae* in Bioreactors Bag and Packed Column

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Abstract: In this study the production of conidia of the entomopathogenic fungus *Metarhizium anisopliae* in two types of bioreactors solid fermentation was compared: Bag bioreactor (traditional culture) and column bioreactor. Both bioreactors were packed with rice grains at 30% initial moisture, inoculated with $2x10^6$ conidia per gram of dry rice (gdm) and kept at 27 ° C for 11 days. The column bioreactor was aerated at 0.1 mL / gdm. They were measured at 7, 9 and 11 days of fermentation conidial production, viability, moisture in the soil and water activity. After 7 days of fermentation on conidia production bioreactor column $14.79x10^8$ conidia / gdm with 60.11% viability and bioreactor bag $4.93x10^8$ conidia / gdm with 49.78% viability was obtained. Soil moisture and water activity presents average values of 32.4% and 0.996 in both bioreactors. At 9 and 11 days of fermentation conidia production and viability were statistically equal. The column bioreactor can be used for high scale conidia production since conidia production yield and viability are higher in this bioreactor than the obtained in plastic bags.

Keywords: Metarhizium anisopliae, biorreactor, solid fermentation, entomopathogenic fungus, conidia production

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