

**TITLE:** BIOMASS AND SPORE PRODUCTION OF ENTOMOPATHOGENIC FUNGI IN SEMI-SOLID CULTURES

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**ABSTRACT:**

Entomopathogenic fungi can be used as biological control agent in integrated pest management, due to their high specificity and low toxicity. However, commercial use relies on high-scale and low cost production. Medium selection is the first factor evaluated during biomass and spore production optimization, and varies according to the isolate tested. Hence, the aim of this work was to evaluate entomopathogenic fungal growth and sporulation in different semi-solid cultures. Fungi tested are *Beauveria bassiana* isolated from a hemipteran insect, *Beauveria caledonica*, *Metarhizium anisopliae* and *Isaria javanica* isolated from soil. All of them showed potential in control of *Duponchelia fovealis*, a pest that causes damages in strawberry fields in Brazil. Discs of 7 mm from a culture of the fungus with initial concentration of  $10^6$  spores.mL<sup>-1</sup> were inoculated in the center of a Petri dish containing one of the following media: rice medium (25 g of rice cooked during 45 minutes in distilled water and 18 g of agar), oat medium (25 g of powder oat cooked during 45 minutes in distilled water and 18 g of agar), niger medium (100 g of niger seed cooked during 10 minutes in distilled water, 1 g of dextrose and 18 g of agar), Sabouraud Maltose Yeast Extract Agar (SMAY) and Sabouraud Dextrose Agar (SDA). Dishes were incubated in triplicate for 15 days in BOD at  $\pm 28^\circ\text{C}$  and 12-hour photophase, when radial growth was measured and spore production calculated. The experiment was entirely randomized. *Metarhizium* showed higher growth in SMAY, rice and oat media, while *Beauveria* and *Isaria* in SMAY and niger medium. All isolates had higher spore production in SMAY, oat and niger media. When appropriate nutritional conditions are determined, we are one step ahead to develop a viable process to produce a commercial biological control agent.

Keywords: sporulation, optimization, *Beauveria*, *Metarhizium*, *Isaria*.

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