

# VII Simpósio de Microbiologia Agrícola

Inovação e Sustentabilidade para transformar o campo

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## Evaluation of Triticale and Insect Feed as Alternative Substrates for the Production of *Metarhizium anisopliae*

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The advancement of technologies in the agricultural sector has expanded strategies for pest and disease management, driving the search for more sustainable alternatives. In this context, microbial-based bioinputs have emerged as promising tools, particularly entomopathogenic fungi such as *Metarhizium anisopliae*. Traditionally, the cultivation of this microorganism under solid-state fermentation is carried out using parboiled rice as a substrate, which may limit input diversification and increase production costs. In this regard, the present study aimed to evaluate alternative substrates to parboiled rice for the production of *M. anisopliae* (IBCB 425), using grains and agro-industrial residues, namely triticale and insect feed. Propagule production was determined by colony counting on potato dextrose agar (PDA) and expressed as colony-forming units per gram of dry substrate (CFU g<sup>-1</sup>). The results indicated that propagule production in triticale and insect feed was significantly lower than that observed in parboiled rice, according to Tukey's test ( $p < 0.05$ ). The values obtained were  $5.2 \times 10^9$  CFU g<sup>-1</sup> for rice,  $1.8 \times 10^9$  CFU g<sup>-1</sup> for triticale, and  $9.4 \times 10^8$  CFU g<sup>-1</sup> for insect feed. These findings indicate that the entomopathogenic fungus exhibits limitations in growth and sporulation when cultivated on triticale compared to parboiled rice. Furthermore, although the cost of alternative inputs is lower, the cost per colony-forming unit did not result in a reduction in overall production costs.

**KEYWORDS:** solid-state fermentation, design of experiments, bioinputs, *Metarhizium anisopliae*.