

Research Paper :

## Suitability of different natural substrates for mass production of entomopathogenic fungus *Acromonium zeylanicum*



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### SUMMARY

**Evaluation of food grains for suitability as substrates for mass production of the fungus revealed that the spore count increased with increase in duration of incubation period after inoculation till harvesting. Rice and sorghums grains served as potential substrates for conidial production of *Acromonium zeylanicum* which yielded  $9.15 \times 10^8$  and  $8.33 \times 10^8$  conidia/g of substrate, respectively, 15 days after inoculation. Maize and bajra were next best alternatives. However, the other materials like ragi, chickpea and wheat did not serve as efficient food source for mass production of the fungus.**

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### Key words :

*Acromonium zeylanicum*,  
Entomopathogenic  
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Interest in entomopathogenic fungus dates back to over a hundred years. They cause regular and tremendous mortality of several pests in many parts of the world and constitute an efficient and extremely important natural control factor (Steinhaus, 1949). During the last 25 years, there has been a resurgence of interest in the use of entomopathogenic fungus as biocontrol agents of insect pests, as part of a general movement towards integrated pest management (IPM) and away from dependence on chemical pesticides. The safety of entomopathogenic fungus towards humans, the environment and non-target organisms is an important criterion and offers a safer alternative for use in IPM over chemical insecticides (Goettel and Hajek, 2000).

The key factor which decides adaptability and success of a bioagent is its easy availability *Acromonium zeylanicum* is a fungal parasite, which can grow and develop on natural host like sugarcane woolly aphid as a pathogen. The fungus readily sporulates on synthetic media like PDA (Kulkarni *et al.*, 2006), but the diet will be expensive. Hence, results of the present studies on mass

production of the fungus using naturally and easily available substrates like grain media can provide economically feasible solution for large scale mass multiplication. Maltose released by the action of starch hydrolyzing enzymes present in the fungus induces sporulation (Coudron *et al.*, 1985). Since chitinase and exochitinase activities are low in conidia of *N. rileyi*, crushing of grains is necessary to increase the surface area of substrate available for hydrolyzing enzyme amylase.

### MATERIALS AND METHODS

Broken grains of sorghum, bajra, ragi, maize, rice, wheat and chickpea which are commonly used as dietary ingredients were assessed for their suitability as substrates to support the growth and development of the fungus in order to select the best substrate for mass production of the pathogen. Fifty grams of each of these grains were taken in saline bottle (500 ml capacity) containing 50 ml of 1 per cent yeast extract prepared by using distilled water. Three such bottles were maintained as replications for each substrate. Contents were

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