



WATER HYACINTH AS A SUITABLE TEXTURIZER IN SOLID CULTURES FOR THE PRODUCTION OF CONIDIA OF *Isaria fumosorosea*

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Introduction. Entomopathogenic fungi are used as biological control agents, being a viable alternative to regulate pest populations through the spread of conidia. Solid cultures (SC) are widely used to produce aerial conidia, which are more resistant than mycelium and blastospores obtained in liquid culture (1). Furthermore, texturizers are materials used to improve SC achievements, avoiding compaction and improve air flow (2); an interesting proposal for texturizers is the water hyacinth (WH), which represents an environmental problem in Mexico.

The objective of this study was to determine the effect of WH, as a texturizer on the production and quality of conidia of *Isaria fumosorosea* CNRCB1, Rice was used as the main substrate.

Methods. *Isaria fumosorosea* CNRCB1 was the strain used. Ten grams of initial solid substrates, either rice or rice-WH mixtures, in different proportions (10, 20 and 30%), were inoculated with 1×10^6 conidia per gram of initial solid substrate (con/gssi). The initial moisture was 40%. Cultures were kept at $28^\circ\text{C} \pm 1^\circ\text{C}$ for 8 days (3). Growth was monitored through respirometric analysis for 9 days, as previously described (4). The production of conidia (C) was determined in a Neubauer chamber. Infectivity tests (quality) were done with larvae of *Galleria mellonella* (5).

Results. Water hyacinth as a texturizer had a positive effect at 10%, allowing higher production of CO_2 ($204 \text{ mgCO}_2/\text{gssi}$) (Fig 1). In addition, a 15% increase in C was achieved, with no effect on the infectivity parameters lethal time 50 (TL_{50}) and final survival (S_f) (Table 1). The incorporation of WH at larger proportions (20 or 30%) had a negative impact on both the production of CO_2 and C.

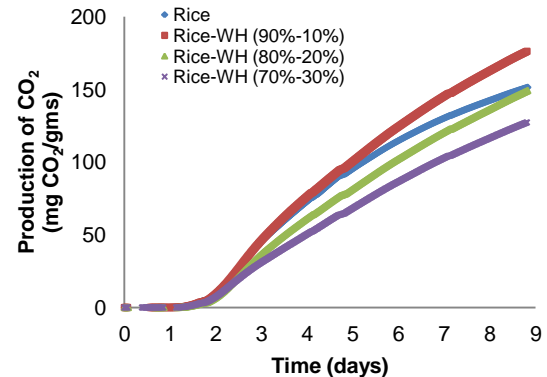


Fig. 1. Production of CO_2 by *I. fumosorosea* CNRCB1.

Table 1. Infectivity and production of conidia obtained by *I. fumosorosea* CNRCB1 in different culture media.

Solid Substrate	C (conidia/gssi) 1×10^9	Infectivity parameters	
		TL_{50} (d)	S_f (%)
Rice	1.2 ± 0.04 B	8.28 ± 0.47 A	12 ± 4.47 B
Rice-WH (90%-10%)	1.4 ± 0.09 A	8.59 ± 0.48 A	14 ± 5.48 B,C
Rice-WH (80%-20%)	1.2 ± 0.09 A,B	8.09 ± 0.69 A	22 ± 4.47 C
Rice-WH (70%-30%)	9.2 ± 0.07 C	7.89 ± 0.24 A	22 ± 4.47 C

Different letters indicate significant difference ($p < 0.05$).

Conclusions. Water hyacinth at 10% mixed with rice allowed a better growth of *I. fumosorosea* CNRCB1, increasing the production conidia without altering the infectivity in larvae of *G. mellonella*.

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