Evaluation of conidial viability of entomopathogenic fungi as influenced by temperature and additive

ABSTRACT

The study was conducted to evaluate the conidial viability of entomopathogenic fungi as influenced by temperature and additives. Initially five fungal isolates i.e. Metarhizium anisopliae (isolates- MPs, MaBg and MaCc1a), Beauveria bassiana (isolate- BbGc) and Paecilomyces fumosoroseus (isolate- PfPx) were screened by exposing conidia of each isolate to wet heat and oven heat stress through a series of temperature. Isolate MPs showed the best tolerance to the heat stress. The conidial germination of this isolate was 100%, when conidia were exposed at 30 to 35°C temperature for all exposure intervals. Thereafter, the effect of additive was investigated on conidial viability of the isolate MPs. A total of four commonly used components and their recommended percentage used for water-dispersible granules (WG) have passed the test. Tersperse®2700 (a dispersant), 1-naphthalene sulfonic acid, sodium salt (a wetter), lignosulfonic acid, sodium salt (a dispersant-cum-binder), sodium acetate (a disintegrant), sodium alginate and sodium glutamate (as nutritive sources as well as protectant) were selected as basic components for WG-conidia formulation as they were not harmful to MPs with germination beyond 80%, when conidia were exposed to these additives. Terwet®1004 and alginic acid failed to obtain more than 80% conidial germination, hence were excluded as ingredients of WG for causing adverse effects on conidial viability. The results indicate that the conidia of this isolate might be useful as active ingredient to produce commercial WG-conidia formulation.

Keyword: Biocontrol; Formulation; Germination; Mycoinsecticide; Thermotolerance tress