

A Comparative Laboratory Evaluation of Efficacy of Two Fungi: *Beauveria bassiana* and *Acremonium perscinum*, on *Dichomeris eridantis* Meyrick (Lepidoptera: Gelechiidae) Larvae, an Important Pest of *Dalbergia sissoo*

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Abstract : *Dalbergia sissoo* Roxb., (Family- Leguminosae; Subfamily- Papilionoideae), is an economically and ecologically important tree species having medicinal value. Of the rich complex of insect fauna, ten have been recognized as potential pests of nurseries and plantations. Present study was conducted to explore an effective ecofriendly control of *Dichomeris eridantis* Meyrick, an important defoliator pest of *D. sissoo*. Health and environmental concerns demanded devising a bio-intensive pest management strategy and employing ecofriendly measures. In the present laboratory bioassay two entomopathogenic fungi *Acremonium perscinum* and *Beauveria bassiana* were tested and compared for evaluating the efficacy of their seven different concentrations (besides control) against the 3rd, 4th and 5th instar larvae of *D. eridantis*, on the basis of mean percent mortality data recorded and tabulated for seven days after treatment application. Analysis showed that both treatments vary significantly among themselves. Also, variations amongst instars and duration with respect to their mortality were highly significant ($p < .001$). All their interactions were found to vary significantly. *B. bassiana* at 0.25×10^7 spores / ml spore concentration caused maximum mean percent mortality (62.38%) followed by mean percent mortality at its 0.25×10^6 spores / ml concentration (56.67%). Mean percent mortality at maximum spore concentration (0.054×10^7 spores / ml) and next highest spore concentration (0.054×10^6 spores / ml) due to *A. perscinum* treatment were far less effective (mean percent mortality of 45.40% and 31.29%, respectively). At 168 hours mean percent mortality of larval instars due to both fungal treatment applications reached its maximum (52.99%) whereas, at 24 hours mean percent mortality remained least (5.70%). In both cases, treatments were most effective against 3rd instar larvae and least effective against 5th instar larvae. A comparative account of efficacy of *B. bassiana* and *A. perscinum* on the 3rd, 4th and 5th instar larvae of *D. eridantis* on 5th, 6th and 7th post treatment observation days after their application, on the basis of their median lethal concentrations (LC50) proved *B. bassiana* to be more potential microbial pathogen of the two fungal microbes, for all the three instars (3rd, 4th and 5th) of *D. eridantis*, on all the three days (5th, 6th and 7th post observation days after application of both treatments). Percent mortality of *D. eridantis* increased in a dose dependent manner. Koch's Postulates tested positive, thus confirming the pathogenicity of *B. bassiana* against the larval instars of *D. eridantis*. LC90 values of 0.280×10^{11} spores/ml, 0.301×10^8 spores/ml and 0.262×10^8 spores/ml concentrations of *B. bassiana* were standardized which can effectively cause mortality of all the larval instars of *D. eridantis* in the field after 5th, 6th and 7th day of their application, respectively. Therefore, these concentrations can be safely used in nurseries as well as plantations of *D. sissoo* for effective control of *D. eridantis* larvae.

Keywords : *Acremonium perscinum*, *Beauveria bassiana*, *Dalbergia sissoo*, *Dichomeris eridantis*

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