

Bioefficacy of liquid formulation of *Verticillium lecanii* against Aphid (*Aphis gossypii*)

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ABSTRACT

Studies on liquid formulation of *Verticillium lecanii* (Zimmermann)Viegas was carried out at Biocontrol Research Laboratory, Department of Agricultural Entomology, Mahatma Phule KrishiVidyapeeth, Rahuri, Maharashtra State, India during 2002-04. The studies revealed that both the liquid formulation of *V. lecanii* irrespective of dosage tested had showed significantly higher efficacy in controlling aphids. Formulation A registered 68.23 to 89.54 per cent mortality and Formulation B recorded 70.28 to 96.70 per cent kill of the pest. The per cent concentration of the formulation resulted in highest (96.70 %) mortality. However, it was at par with 0.45, 0.60 and 0.75 per cent concentration.

Key words : Aphid, *Aphis gossypii*, Bioefficacy, Liquid formulation, *Verticillium lecanii*.

V*erticillium lecanii* (Zimmermann) Viegas (Moniliales:Moniliaceae) a deuteromycetes is a cosmopolitan fungus found on insects. In India, Sydow and Butler (1911) reported *C. lecanii* infecting coffee scale insect from Karnataka. *Verticillium lecanii* is a well known pathogen of sucking pests including aphids (Wilding, 1972; Nagaich, 1973 and Hall and Papierok, 1982). The fungus infects insects by producing hyphae from germinating spores that penetrate insects integument, the fungus then destroys the internal content and insect dies. The fungus eventually grows out through the cuticle and sporulates on the outside of the body. Infected insect appears as white to yellowish cottony particle. Considering the eco-friendly benefits of biological control, a strain of *V. lecanii* was isolated from spiralling whitefly, *Aleurodicus dispersus* Maskell (Aleurodidae : Hemipetra) at Biocontrol Research Laboratory of Department of Entomology, M.P.K.V., Rahuri. A wettable powder formulation of this strain of *V. lecanii* was developed and branded as Phule Bugicide (Kadam and Jaichakravarthy, 2003). The results of this formulation for bio-efficacy in the laboratory studies as well as on farmers field are highly encouraging. There is need of basic research to develop potential liquid formulation of *V. lecanii*, which possesses better shelf-life. A liquid formulation was developed with the help of some adjuvants. Initially two formulations were developed and bioassay of these formulations proved the effectiveness against some sucking pests including aphids. Therefore, present investigation has been undertaken with a view to test its bio-efficacy against aphid, *Aphis gossypii*.

MATERIALS AND METHODS

Studies on liquid formulation of *Verticillium lecanii* (Zimmermann) Viegas was carried out at Biocontrol Research Laboratory, Department of Agricultural Entomology, Post Graduate Institute, Mahatma Phule Krishi Vidyapeeth, Rahuri, Maharashtra State, India during 2002-04.

Culture of *V. lecanii*:

The pure fungus culture was available in Biocontrol Research Laboratory of Entomology Department, M.P.K.V., Rahuri. It is the Rahuri *deme* of the fungus isolated from spiralling whitefly, *Aleurodicus dispersus* infesting wild guava plant in 1999.

Medium:

The medium used for multiplication and growth of the fungus was Potato dextrose broth medium as suggested by Kadam and Jaichakravarthy (2003). Autoclaved potato-dextrose broth medium adjusted to pH 6.0 was taken in 200 ml capacity conical flasks.

Standardization of concentration of *V. lecanii*:

The Rahuri *deme* of *V. lecanii* isolated from spiralling whitefly, *Aleurodicus dispersus* was used for the experiment. The fungus was cultured on Potato dextrose broth medium as suggested by Kadam and Jaichakravarthy (2003) and incubated at 21±1°C for 10 days. The culture was harvested in a UV light sterilized plastic container and ground with duly sterilized hand blender for 3 minutes. Test concentrations were prepared