

Effect of vermiwash on growth of entomopathogenic fungi *Lecanicillium lecanii*

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An entomopathogenic fungi *Lecanicillium lecanii* is found effective against various sucking insect pest like thrips, whiteflies, mealybugs etc. on various crops. In mango it is reported pathogenic to mango hopper by Kumar *et al.*, 1983, Srivastava and Tandon, 1985; Valvi *et al.*, 2018 and Raghunandan *et al.*, 2020. In organic farming, mango farmers spray vermiwash to boost up the plant growth as it contains Nitrogen, Phosphorus, Potassium and Calcium (Gorakh Nath *et al.*, 2009) and *L. lecanii* for the management of sucking pest. Therefore, to reduce the time and application cost, compatibility of *L. lecanii* with vermiwash is always questioned by the farmers. As no information on compatibility of *L. lecanii* with vermiwash is available, the present experiment was carried out as preliminary study in the laboratory to understand the effect of vermiwash on the growth of *L. lecanii*.

The present investigation was carried out at the Bio-control Laboratory, Regional Fruit Research Station, Vengurle (15.8514° N, 73.6389° E) during 2016-17 in Completely Randomised Design with seven treatments and three replications. Vermiwash was obtained from local commercial vermicompost unit. Vermiwash and distilled water were autoclaved at 121.9 °C temperature for 15 minutes.

Different concentration of vermiwash viz., 5%, 10 %, 20%, 40%, 80%, and 100% were prepared with autoclaved distilled water. A little inoculum of entomopathogenic fungi *L. lecanii* was taken from the mother culture and was inoculated on Potato Dextrose Agar (PDA) plate for seven days. After seven days a circular disc of *L. lecanii* culture (0.5 cm diameter) grown on PDA plate was bored out with the help of cork borer and placed in the middle of each PDA plate in aseptic condition. One ml of each concentration of vermiwash was transferred with a micropipette and released in each PDA plates whereas in control one ml distilled water was added. The plates were incubated for 5 days at room temperature. Radial growth of centrally placed *V. lecanii* disc were measured with measuring scale at 3, 4 and 5 days after inoculation (DAI) and average growth in three replications is presented in table 1.

Data presented in the table clearly shows that radial growth of *L. lecanii* disc on a PDA plate in each vermiwash concentration and at each time interval is significantly more than the control. It also reveals that as the concentration of vermiwash increases, the radial growth of *L. lecanii* disc also increases. Thus the result of preliminary study indicates that, there is some growth promoting factors in the vermiwash which promotes the growth of

entomopathogenic fungi *L. lecanii*. The literature on compatibility of vermiwash and entomopathogenic fungi is not available. However, many scientists like Samadhiya *et al.*,

2013; Subha Mary Varghese and Lakshmi Prabha, 2014 and Kaur *et al.*, 2015 proved the efficacy of vermiwash on the vegetative growth of different plant species.

Table 1: Effect of different concentrations of vermiwash on the radial growth of *Verticillium lecanii*

Sr. No.	Treatment	Radial growth of <i>L. lecanii</i> at (cm)		
		3 DAI	4 DAI	5 DAI
T1	Vermiwash 5%	2.77	5.33	7.30
T2	Vermiwash 10%	4.00	5.57	7.47
T3	Vermiwash20%	4.40	5.37	7.47
T4	Vermiwash 40%	4.90	5.67	7.63
T5	Vermiwash 80%	5.33	6.03	8.43
T6	Vermiwash 100%	5.60	6.40	8.63
T7	Control (Distilled water)	2.73	5.27	7.33
	S.Em.	0.25	0.22	0.09
	CD	0.77	0.68	0.28

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