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**COMPARATIVE SUSCEPTIBILITY OF NYMPHS AND ADULTS OF
NILAPARVATA LUGENS STAL TO *FUSARIUM OXYSPORUM*
SCHLECT AND ITS USE IN MICROBIAL CONTROL**

Studies were made to assess the comparative susceptibility of the different nymphal instars and adults of *N. lugens* to infection by *F. oxysporum*. A small field cage test was also conducted to assess the suitability of the pathogen as a controlling agent under field conditions.

Spore suspension prepared from four day old cultures of *F. oxysporum* at a concentration of 3.1×10^6 conidia/ml formed the inoculum. Small clumps of rice seedlings planted in deep petridishes filled with clay were enclosed in hurricane chimneys. Moist cotton wool spread over the surface of the clay ensured sufficient humidity. Nymphs and adults were released on to the rice plants and sprayed with the spore suspension.

The efficacy of the pathogen under field conditions was tested with three concentrations of spore suspension viz., 1.5×10^6 conidia/ml, 3.1×10^6 conidia/ml and 6.25×10^6 conidia/ml. The hoppers were released on to 50-60 days old rice plants grown in pots (30 cm diameter) and enclosed in cylindrical cages (40 cm \times 60 cm) with polythene sheets supported on iron frames. Application of the spore was done on the second day with 50 ml of the spore suspension using a glass atomizer. Hoppers sprayed with 50 ml sterile water alone served as control. The caged pots were kept exposed to field conditions.

All the nymphal instars and adults were susceptible to infection showing 100 per cent mortality (Table 1.) But the period of lethal infection varied indicating a variation in susceptibility. The first and second instar nymphs were highly susceptible taking two days for complete mortality followed by third instar nymphs and adults which took 3 days to produce the same effect. Fourth and fifth instar nymphs used were comparatively less susceptible as they took 4 days for complete mortality. Samal *et al.* (1978) observed that mortality was higher among the adults than nymphs when brown plant hopper was infected by *Entomophthora fumosa*. The pathogen at 6.25×10^5 conidia/ml caused 100 per cent mortality within 3 days. (Table 2) But with the two lower dosages of 1.5×10^6 and 3.1×10^6 conidia/ml it caused only 39.10 and 75.80 per cent mortality respectively during the same period. It indicates that the pathogen was effective at a higher concentration under field conditions. However large scale field trials have to be conducted to assess its suitability in practical pest management programmes.

Table 1 Cumulative per cent mortality of nymphs and adults of *N. lugens* inoculated with *F. oxysporum*.

Instars	Cumulative per cent mortality at intervals*			
	1	2	3	4
First	81.3	100.00	—	—
Second	80.1	100.00	—	—
Third	70.3	99.58	100.00	—
Fourth	53.4	76.80	90.30	100
Fifth	52.2	75.10	90.30	100
Adults	63.40	92.60	100.00	—

No mortality in control. * Mean of 4 replications of 15 insects each.

Table 2 Cumulative per cent mortality of *N. lugens* under caged conditions sprayed with spores of *F. oxysporum*.

Concentration of spores (Number of conidia/ml)	Cumulative per cent mortality at intervals*						
	(in days)						
1.5 X 10 ⁶	17.40	30.80	39.10	44.10	50.00	54.10	56.60
3.1 X 10 ⁶	48.30	67.60	75.80	80.10	80.10	80.10	80.10
6.25 X 10 ⁶	69.90	93.30	100.00	—	—	—	—

No mortality in control. * Mean of 4 replications of 30 insects each.

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