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PATHOGENICITY OF *PRATYLENCHUS COFFEA* ON JUTE

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The lesion nematode *Pratylenchus coffeae* (Zimmerman) Filipjev *et* S. Stekhoven was found in 18% of soil samples during a survey of jute *Corchorus olitorius* L. fields (Laha *et al.*, 1981). Its pathogenicity on jute has not been established and therefore an experiment was conducted to establish the lowest inoculum density that causes damage.

Jute plants (variety JRO-632) were grown in sterile sandy loam soil in 12×2.5 cm open end glass tubes placed in 30 cm diam flat clay pots. Adult and juvenile stages of *P. coffeae* were collected from banana rhizomes incubated at 30°C in a moist chamber and surface sterilized by immersion in 0.03% mercurochrome solution for 24 hours. Four days after germination of the seedlings the pots were inoculated with a logarithmic series of nematodes, 0, 2, 4... 256 with each treatment replicated 4 times. After 2 months the plants were removed from the tubes and soil was washed from the roots. Plant height and shoot weight were recorded.

Adult, juvenile and egg stages of the nematode were detected in cortical lesions of inoculated roots. As a result root systems were severely reduced. Even the lowest nematode inoculum level significantly reduced plant growth (Table I) and damage increased with increase in inoculum. The equation $y = ax^b$, where y = the character studied and x = the size of population inoculated, was fitted to the data. The values of 'a' and 'b' for plant height were 22.4063 and -0.195731 respectively and for shoot weight 1.08387 and -0.461945 respectively. The calculated values of correlation coefficients between logarithm values of the two characters show that the curves are well fitted to the data. The result is almost in agreement with the predictions of Seinhorst (1965) and the tolerance limit is very

small; less than 1 nematode per plant in this case, when 'z' is 0.95 and 'm' is 0.25 for plant height and 0.1 for shoot weight. Hence it is concluded that the lesion nematode is highly pathogenic to jute.

TABLE I - Plant height and shoot weight of jute as affected by *Pratylenchus coffeae*

Population inoculated	Plant height (cm)		Shoot weight (g)	
	Observed	Expected	Observed	Expected
0	29.9	—	1.4	—
2	19.4	19.6	0.7	0.8
4	15.6	17.1	0.5	0.6
8	17.1	14.9	0.6	0.4
16	13.0	13.0	0.3	0.3
32	10.8	11.4	0.2	0.2
64	10.5	9.9	0.1	0.2
128	8.4	8.7	0.1	0.1
256	7.5	7.6	0.1	0.1
CD 5%	9.01	—	0.50	—
r =	-0.98	—	-0.97	—

Literature cited

- LAHA S.K., MISHRA C and SINGH B., 1981 - Survey of plant parasitic nematodes associated with jute with special reference to population of nematodes. Annual Report, JARI, p. 107.
SEINHORST J.W., 1965 - The relationship between nematode density and damage to plants. *Nematologica*, 11: 137-154.