

Biological Sciences Section

Pakistan J. Sci. Ind. Res., Vol. 31, No. 9, September 1988

REACTION OF THE TWO COMMERCIAL VARIETIES OF BANANA (*MUSA SAPIENTUM*) TO ROOT-KNOT NEMATODE *MELOIDOGYNE INCOGNITA*

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(Received May 30, 1988; revised September 26, 1988)

Two commercial varieties of banana viz. Cavendish Dwarf and William Hybrid were tested for their reaction to root-knot nematode *Meloidogyne incognita*. A test conducted in earthen pots indicates that both varieties are equally quite susceptible to *M. incognita* as they showed galling indices of 3.5 and 3.7 respectively without any statistically significant difference.

Key words: *Meloidogyne incognita*, Banana, Host reaction.

INTRODUCTION

Saeed *et al.* [1] conducted a detailed study of root-knot nematodes (*Meloidogyne* spp.) associated with banana (*Musa sapientum*) in Pakistan. Two species viz. *M. incognita* and *M. Javanica* were reported by them from different banana growing areas of Pakistan. On a world basis, *M. incognita* is considered to be the most dominant of the 52 species of the genus with respect to both geographical distribution and host range [2]. Its occurrence in Pakistan has been reported by various workers including recently by Gul and Saeed [3] who completed an extensive survey of the root-knot nematodes of the North West Frontier Province (NWFP) of Pakistan. No similar type of survey of the agricultural areas of the province of Sind has been conducted but the several fragmentary reports point to the widespread occurrence and broad host range of *M. incognita*.

In Pakistan banana is grown on only 20,000 hectares in the six districts of lower Sind. Almost the whole of this area is covered by the Cavendish Dwarf variety. However, in recent years, another commercial variety, namely William Hybrid, has been introduced which is likely to become popular among the banana growers of the area. An experiment was conducted to study the reaction of the two commercial varieties, that is, Cavendish Dwarf, and William Hybrid, to *M. incognita*. The present paper reports the results of this experiment.

MATERIALS AND METHODS

Thirty cm tall rhizomes of the two varieties Cavendish Dwarf and William Hybrid were collected from the fields. After thorough washing, roots were trimmed away and upper layers peeled off. Then the rhizomes were immersed in 1% mercuric chloride ($HgCl_2$) solution for 15 min and planted in 22 cm earthen pots filled with farmyard manure-amended sterilised soil. Inoculation was done after ten days

with *M. incognita* larvae at a rate of 10,000 individuals per pot obtained from pure cultures maintained on tomato. A depression was made around the rhizome in to which water suspension containing the required number of nematodes was poured. The depression was filled with soil of the same pot. For each variety, six pots were inoculated in this manner. They were cared for by watering and hoeing for 12 weeks when the experiment terminated. After this period, the plants were uprooted, washed with running water and the galling index of each was determined on 1-5 scale after Taylor and Sasser [4]. Galls were teased under a dissecting microscope and females of *Meloidogyne* obtained to determine the species by observing their perineal patterns after Eisenback *et al* [5]. To confirm that the pots were not contaminated with other parasitic nematodes, 50 cc soil from each pot was subjected to extraction by modified Baermann funnel for 48 hr. Nematodes recovered were examined under a stereoscopic binocular microscope. Perineal patterns of females collected from galled roots of each experimental plant were also observed.

RESULTS AND DISCUSSION

Both the varieties Cavendish Dwarf and William Hybrid reacted similarly to *M. incognita*, as the average galling indices were 3.5 and 3.7 respectively without any statistically significant difference. Galling indices of this magnitude indicate that both varieties are quite susceptible to *M. incognita*. In both cases, several galls had coalesced to make compact galls (Fig. 1). Perineal patterns of all the females studied were typical of *M. incognita*. Numerous root-knot nematode larvae were recovered from the soil of each pot. Several free-living nematodes were also present but no parasitic forms other than root-knot nematodes were seen.

Results indicate that both varieties viz. Cavendish Dwarf and William Hybrid have similar reaction to *M. incognita* and neither is immune or resistant to this

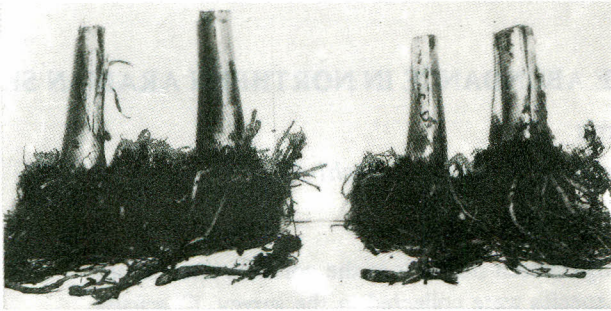


Fig. 1. Reaction of two varieties of banana to *Meloidogyne incognita*. Left pair: Cavendish dwarf; right pair: William hybrid

nematode species. *M. incognita* is already quite prevalent in the Cavendish Dwarf variety of banana as shown by Saeed *et al* [1] when out of 308 they found 172 samples infected with *M. incognita*. Since William Hybrid variety has some other advantages over Cavendish Dwarf variety, its susceptibility to *M. incognita* may not form a basis to discourage its promotion in the area.

Acknowledgements. The authors thank the Director, Sind Horticultural Research Institute, Mirpur Khas Sind, for providing rhizomes of the William Hybrid variety of banana. They are also thankful to Dr. M. Anwarullah of PCSIR Laboratories, Karachi, for helpful discussion.

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