affected by the infection of root-knot nematode and was indirectly proportional to the inoculum level. There was less absorption of water in the plants inoculated with 5000 larvae of root-knot nematode. The amount of water absorbed by plants, inoculated with 50, 500 and 5000 larvae, was 4.97, 3.54 and 1.64 g respectively as against 6.02 g in uninoculated plants.

Subramanian & Saraswathi-Devi (1959) pointed out that poor absorption of water by diseased plants may be due to injury to roots as a result of infection with bacteria and viruses or due to the deformation, choking and disturbance in the arrangement of tracheary elements. These possibilities cannot be ruled out in nematode infected plants. Endo (1971) reported various abnormalities in tissues due to hyperplastic and hypertrophic development of cells in root-knot infected roots. Moreover, Swami and Krishnamurthy (1971) and Siddiqi et al. (1974) have observed mechanical damage of cells, disruption in the arrangement of tracheary elements, deformation and blockage of vessels. These deformed tracheary elements might be resulting into poor absorption of water by roots.

REFERENCES


EFFECT OF RHIZOCTONIA SOLANI ON THE REPRODUCTION OF MELOIDOGYNE INCognITA ON EGG PLANT

BY

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Meloidogyne incognita is the most prevalent root-knot nematode in Assam (Roy, 1972) and frequently its attack has been found to be associated with Rhizoctonia solani Kühn (= Corti­cium solani) (Prill. & Delacr.) Bourd. & Ganz. = Thanatephorus cucumeris (Frank) Donk which is also a very commonly occurring fungus pathogen in this locality. An investigation was conducted to
find out the interrelationships between these two pathogens on egg plant (Solanum melongena L. cv. Large Round Purple) the results of which are presented here.

Seeds of egg plant after surface sterilization with mercuric chloride were sown in sterilized soil (8 lbs pressure for 1.5 hr). Four weeks later these were pricked out and each was transplanted in a 15 cm diameter clay pot containing 1.5 kg sterilized soil and inoculated on the same day with the nematode and fungus. The rate of fungus inoculum was 150 g of maize meal sand medium with 10 day old fungus and that of nematode 9500 larvae per pot. There were four treatments — (i) inoculation with the fungus alone, (2) inoculation with the nematode alone, (3) inoculation with fungus + nematode and (4) uninoculated control, with four replications in each.

The results showed that although growths of the plants (height, weight of shoot and root) were decreased to some extent in the different inoculations of the fungus and nematode than the control but the differences among the treatments were not significant. However, Table I shows that the number of galls on the roots as well as the egg masses are significantly greater in the nematode + fungus inoculated than the only nematode inoculated plants. Fig. 1 gives a com-

TABLE I

<table>
<thead>
<tr>
<th>Inoculation</th>
<th>No. of galls</th>
<th>No. of egg masses</th>
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<tbody>
<tr>
<td><em>M. incognita</em> alone</td>
<td>36.99</td>
<td>163.25</td>
</tr>
<tr>
<td><em>M. incognita</em> + <em>R. solani</em></td>
<td>127.59</td>
<td>425.75</td>
</tr>
<tr>
<td><em>F</em> ratio</td>
<td>9.290*</td>
<td>6.989*</td>
</tr>
</tbody>
</table>

Fig. 1: Roots of egg plants showing the development of galls inoculated with *M. incognita* alone (1) and *M. incognita* + *R. solani* (2).
parison of the galls developed on the roots inoculated with the nematode alone and nematode and fungus together. Therefore, the present studies indicate that although the growths of egg plants are not affected significantly by the attack of *M. incognita* or *R. solani* alone or by their combination but the combined effect of the nematode and the fungus acts synergistically to increase reproduction of the nematode which is in accord with McKeen & Mountain (1960) who observed an increase in the multiplication of *Pratylenchus penetrans* (Cobb 1917) Chitwood & Oteifa 1952 on the same host infected with *Verticillium albo-atrum* Reinke & Berth.

**REFERENCES**


**EFFECT OF ROOT-KNOT NEMATODE, MELOIDOGYNE JAVANICA ON GRAM CROP**

**BY**

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Gram (*Cicer aretinum*) is one of the most important leguminous crop and widely grown in Uttar Pradesh. Root-knot nematode (*Meloidogyne javanica*) in gram roots was recorded for the first time from the State of Uttar Pradesh. Chandwani & Reddy (1967) from Andhra Pradesh and Mathur et al. (1969) from Rajasthan have reported gram as a host plant of *M. Javanica*. Host parasite relationship of *M. Javanica*, in relation to gram, is reported hereunder.

Infested roots of gram were brought to the laboratory and the nematode was identified as *Meloidogyne javanica*. The culture of the species was maintained on variety T2 by single egg mass technique in autoclaved soil. The autoclaved soil was filled in 10 cm plastic pots and in the centre of each pot two seeds of variety T2 were sown. After 7 days of their germination only one seedling was allowed to grow. When the seedlings were 10 days old, these were inoculated with the required number of larvae vide Table 1. For inoculating the larvae the roots were exposed by removing the upper layer of soil with the help of spatula and 20 ml water containing required number of larvae was poured into the exposed roots, while in the case of uninoculated pots only water was given. After pouring of the water the roots were covered with a layer of soil followed by light irrigation. The pots were arranged in random fashion on the bench in the glass house. After 100 days of inoculation the data on the plant growth (length and weight of shoot and root and number of pots) were recorded.