CONTROL OF STEM-GALL OF CORIANDER BY FUNGICIDES 1)

by

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Coriander is an important spice crop grown in several countries, such as India, Morocco, Russia and Turkey (1). In the U.S.A. it is used for flavouring wines such as gin (6). A disease of coriander called stem-gall caused by Protomyces macrosporus Ung. is widespread in India. The causal fungus produces hypertrophy in stem, leaves, inflorescence and fruits. According to GUPTA (2,3), the fungus survives in the soil and on seed, and causes a mean loss of 15% in the yield of fruits when the mean disease intensity is 23%. In case of severe incidence, no fruits may be produced (4).

Efficacy of fungicides, certain sulpha drugs, and antibiotics in inhibiting germination of chlamydospores has been tested by some workers (2,3,5), but no work has been published on field control of this disease. The results, which are reported herein, clearly indicate the possibility of controlling the disease with fungicidal seed and soil treatment.

MATERIALS AND METHODS

The seed was obtained from the local market. It was treated twenty-four hours before sowing with different fungicides at doses mentioned under 'results'.

In order to get uniform infection, crushed diseased fruits saved from previous seasons were mixed with seed, prior to fungicidal treatment, at the rate one gram of crushed diseased fruits to 4 g of seed to be sown. Similarly, crushed diseased fruits were scattered uniformly in the soil at the rate of 3 kg per acre and mixed with the soil.

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The data were taken from plants in all the rows 20 x 4-foot four row replicated plots. A plant was called diseased even when a single gall appeared anywhere on it.

**RESULTS**

In the first year of study, the seed was treated with four fungicides: viz., 'Agrosan' GN (ethyl mercury chloride 0.1% + phenyl mercury acetate 0.9%), Captan-75 (75% captan), sulphur dust, and Thiram (thiram-80%), each at doses of 0.125, 0.25, 0.50, and 1.00 kg per 100 kg of seed. The results are given in Table I.

<table>
<thead>
<tr>
<th>Fungicide</th>
<th>Dosage in kg of the fungicides per 100 kg of seed</th>
<th>Average percentage of diseased plants</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.00</td>
<td>0.500</td>
</tr>
<tr>
<td>'Agrosan' GN</td>
<td>72.3±12.1</td>
<td>82.9±6.6</td>
</tr>
<tr>
<td>Captan-75</td>
<td>57.8±4.4</td>
<td>71.7±10.6</td>
</tr>
<tr>
<td>Sulphur dust</td>
<td>79.3±7.8</td>
<td>91.6±1.8</td>
</tr>
<tr>
<td>Thiram</td>
<td>66.4±12.8</td>
<td>66.8±10.0</td>
</tr>
</tbody>
</table>

Check — AVG. percentage of infection 89.7±6.8

No adverse effect on germination at any of the doses was observed.

It is clear from Table I that thiram at three doses viz., 0.25, 0.50 and 1.00 kg, and captan at 1 kg significantly reduced the disease incidence. In the following year, therefore, various seed and soil treatments with fungicides were carried out to explore the possibility of obtaining better control and also to confirm the results of the first year. The data are presented in Table II.

The results in Table II confirm the findings of the previous year, that seed treatment with thiram at 0.25 kg dose is effective in significantly reducing the incidence. The results were however better than in the previous year. Soil treatment was also effective and a combination of the two reduced the disease incidence to a very significant extent. TCNA, an experimental fungicide, also gave some control through seed treatment at the dose of 0.50 kg.

**DISCUSSION**

It is clear from the results obtained that seed treatment with thiram is effective in controlling the disease to some extent. There is a strong indication that better control of the disease is possible by combining the seed and the soil treatments. Seed treatment with TCNA alone may give better results at higher doses. Attempts