March, 1991

**Anthracnose Resistance**

*Colletotrichum trifolii* Bain & Essary

Nichole O’Neill

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**PLANT CULTURE**

**Growth Chamber**

- Container: 10-cm plastic pots or flats
- Medium: Potting soil mix
- Temp/Light: 23°C; 16+ hour daylength
- No. of Plants: 50 per replication
- No. of Reps: 4 minimum
- Other: Control insects and fertilize as necessary

**INOCULUM CULTURE**

- Source: Infected stem tissue
- Storage: Soil or silica gel (7)
- Temperature: 4°C
- Storage Life: Up to several years

**INOCULATION PROCEDURE**

- Age of Plant: 7-14 days (take stand counts at 7 days)
- Type of Inoc: Spore suspension with 2 drops Tween per L distilled water, taken from 7 day old cultures incubated at 23°C on half strength oatmeal agar
- Concentration: $2 \times 10^6$ spores per mL
- Method: Spray to runoff, approx. 3 mL per pot or 5 to 10 mL per flat; place in mist chamber to maintain 100% R.H. for 48 hours 23°C

**INCUBATION**

- Location: Growth room or greenhouse at 23°C
- Age at Rating: 10 to 14 days after inoculation

**RATING**

Resistance is assessed as a percent of the stand surviving 10 to 14 days after inoculation.

**CHECK CULTIVARS (Race 1)**

<table>
<thead>
<tr>
<th>Resistant</th>
<th>Approximate Expected Resistance (%)</th>
<th>Acceptable Range of Reaction (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arc**</td>
<td>65-70</td>
<td>45-80</td>
</tr>
<tr>
<td>Saranac AR**</td>
<td>45</td>
<td>40-60</td>
</tr>
<tr>
<td>Susceptible</td>
<td>1</td>
<td>0-5</td>
</tr>
</tbody>
</table>

Values for resistant standards are percent survivors.

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**SOURCE OF INOCULUM**

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**SCIENTISTS WITH EXPERTISE**

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**Cultivars occasionally appear more resistant in the field than indicated by seedling tests, but generally, good correlations are observed between greenhouse and field tests.**
RACES

Race 2 of Colletotrichum trifolii was discovered in a limited area in 1978 but is not considered serious. Saranac AR is resistant to both races, Arc is resistant to race 1 and susceptible to race 2, and Saranac is susceptible to both. Saranac AR is approximately 45% resistant to race 2.

CULTURE OPTIONS AND RANGE OF CONDITIONS

Stock cultures should be maintained because cultures can lose virulence after several transfers.

HELPFUL INFORMATION

Using mixtures of isolates will minimize error due to differences in virulence among isolates.

ALTERNATIVE METHODS

Succulent stems of mature plants can be tested for susceptibility by needle inoculation (5). Individual seedlings can be evaluated by cotyledon assay (1). A very young seedling test also gives good results very quickly if only percent resistance is required (3).

REFERENCES


