


LEAF BLIGHT OF TAPIOCA CAUSED BY PERICONIA MANHOTICOLA

A severe leaf blight of tapioca (Manihot esculenta Crantz.), caused by Periconia manniolicola (Vincens) Vidigas, was observed in the later part of December 1976 in the experimental farm of the Assam Agricultural University, Jorhat. Symptoms appeared as violet-blue spot (Violet-blue Group 93A & B of R.H.S. Colour Chart), up to 8 mm diameter. Centres of matured spots became buff to light brown with the margins remaining violet-blue—the violet discoloration spread into the green areas through veins to certain distance. Number of spots varied from a few to innumerable and in advanced stage the spots coalesced covering a large area resulting in defoliation.

Fructifications developed from the infected tissues as hairy outgrowths. Conidiophores stout, brown, usually 3 septate (basal and uppermost septa vary close to base and tip, respectively), base bulbous, 236–373 × 23–33 μ; conidia olive brown to brown, round, verrucose, 23–41 μ in diameter Colony on PDA, effuse, light grey with white edge; mycelium hyaline changing to light brown, sparsely separate, may or may not be constricted at septa and points of origin, 3–3.5–5.8 (8–8.3) μ broad (terminal branches may be 1.6 μ). Spores in water-germinated by producing 2 to 3 hyaline germ tubes, slightly thicker at base and constricted at the point of origin, and all the tubes originated side by side. About 40% of the spores germinated after 20 hours at room temperature (10–20°C) when the tubes (branched twice or thrice) measured 342–880 × 5.9–10 μ.

Pathogenicity test was conducted with a sporae-cun-mycelial suspension (from FDA) in the field. Inoculated portions were covered with moist cotton and then the whole leaf was covered with a polythene bag which was opened daily once to moisten the swabs. Symptom first developed after 4 days as violet-blue flecks which turned to typical spots after another day when the average temperature varied from 8.3 to 25.5°C.

All the 9 cultivars, viz., H–97, H–2304 (5), H–3641 (2), H–1687 (1), H–4, H–312, Rani, H–43 and H–226, grown in the farm were found susceptible of which the first one was highly susceptible and the last two were less susceptible. Although this fungus has been recorded as a pathogen in South America Central America and Africa1–3 on tapioca and rubber, this is the first report of its occurrence from the old world.

Our thanks are due to Mr. G. Medhi who referred the problem to us for investigation.

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SENESCENCE IN ISOLATED LEAVES OF CESTRUM NOCTURNUM LINN.

The natural process of senescence of leaves has been greatly affected by exogenous treatment with some chemicals like auxins5, cytokinins9, gibberellins1, purines14, imidazoles5, etc. The present investigation aims at studying the effects of some chemicals on isolated leaves of Cestrum nocturnum Linn. (Solanaceae). It is a plant with sweet aromatic flowers and is of importance in floriculture. Leaves were floated on aqueous solutions of different chemicals ranging from 1 to 100 ppm in petri dishes maintained in the dark. One set of leaves was floated on distilled water to serve as control. The salient results are presented in Table I.
TABLE I

<table>
<thead>
<tr>
<th>Chemical</th>
<th>Concentration (ppm)</th>
<th>Retardation in senescence (days)</th>
<th>Chemical</th>
<th>Concentration (ppm)</th>
<th>Retardation in senescence (days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,4-D</td>
<td>10, 20</td>
<td>2</td>
<td>Adenine</td>
<td>10, 20</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>50</td>
<td>4</td>
<td></td>
<td>50, 100</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>100</td>
<td>2</td>
<td>Benimidazole</td>
<td>1, 5</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>20</td>
<td>2</td>
<td></td>
<td>10, 20</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>50</td>
<td>6</td>
<td></td>
<td>50</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>100</td>
<td>2</td>
<td></td>
<td>100</td>
<td>20</td>
</tr>
<tr>
<td>IAA</td>
<td>1.5</td>
<td>6</td>
<td>CCC</td>
<td>1 to 100</td>
<td>Augmented</td>
</tr>
<tr>
<td></td>
<td>10, 20, 50, 100</td>
<td>2</td>
<td>Nickel chloride</td>
<td>5 to 100</td>
<td>Promoted</td>
</tr>
<tr>
<td>IBA</td>
<td>20, 50</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GA₃</td>
<td>5, 10</td>
<td>4</td>
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<td></td>
<td>20</td>
<td>8</td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>50, 100</td>
<td>16</td>
<td></td>
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</tr>
</tbody>
</table>

2,4-D—2,4-dichlorophenoxyacetic acid; 2,3,5-T—2,3,5-trichlorophenoxyacetic acid; IAA—β-Indolyacetic acid; IBA—β-Indolybutyric acid; GA₃—Gibberellic acid; CCC—2-chloroethyltrimethyl ammonium chloride.

The results show that all the chemicals under study, benimidazole is most effective in inducing retardation of senescence. This corroborates the effects of E2I on rice² 6-11, wheat⁵ 10 and Hibiscus⁴. The next in effectiveness is GA₃. The present findings are in agreement with the findings of Brian et al⁵. Third in the grade is adenine. This confirms the results on rice⁴ previously reported. The effects of the two herbicides, 2,4-D and 2,4,5-T, are very mild; this finds corroboration in the work of Osborne⁷. The two auxins, IAA and IBA, also had perceptible effects on retardation of senescence. The effect of the growth retardant, CCC, is entirely contrary to the action of benimidazole and gibberellic acid on this species. CCC, however, brought about slight retardation in senescence in groundnut², Hibiscus⁴ and Ervatamia⁸.

Similar is the effect of nickel chloride which brought about an acceleration of senescence. This is a contrast to the effect of nickel chloride on the retardation in senescence in wheat¹⁰ and rice⁸.

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IN VITRO CLONAL PROPAGATION OF CASSAVA

CASSAVA is a vegetatively propagated crop of considerable importance and provides the cheapest and highest calorie yield per acre in Africa, South America and South India¹. It is also used as a raw material in the manufacture of soap, plywood, paper, acetone, glycerol, glucose and dextrose². It is, therefore, highly desirable to develop methods for its quick, efficient and large scale multiplication. In this regard tissue culture offers³ a unique method for cloning and preservation of pathogen-free stocks of important germplasm.

This communication summarizes an in vitro method for the clonal propagation of plants from stem segments, buds and meristem tips grown on synthetic media.

The shoots of Cassava (Tapioca), Manihot utilissima Pohl. CV.M-4 were cut into 10 cm long pieces and planted into pots (Fig.1). Within a week the dormant lateral buds sprouted and later developed shoots.