The pollen tube growth of *Corchorus siliquosus* L. as affected by MH and 2,4-D.

By R. M. Datta and B. S. Panda

Department of Agriculture, Calcutta University, Calcutta-19


**Material and methods**

Im 1960 pollen tube growth of *C. siliquosus* was recorded following treatments with MH and 2,4-D in different concentrations along with culture media as detailed below. The range of room temperature was observed during the experimental periods as 28.0 to 30.5°C.

On December 5, 10 and 11, 1960 one drop of 8% Lactose gelatin-agar (hereinafter referred to as L.g.a.) and one drop of different concentrations of MH (.001, .01, 1.0 and 10.0 ppm.) were placed on clean micro-cover glasses, mixed properly and then uniformly smearsed.

On December 3, 5 and 16, 1960 one drop of 8% L.g.a. and one drop of different concentrations of 2,4-D (1.0, 3.0, 5.0, 7.0 and 10.0 ppm.) were placed on clean micro-cover glasses, mixed properly and then uniformly smearsed.

On December 5, 10 and 11, 1960 one drop of 4% sucrose gelatin agar (hereinafter referred to as S.g.a.) and one drop of MH (0.1 ppm. concentration) were placed on a clean micro-cover glass, mixed properly and uniformly smeared. Pollen in all these cases were dusted uniformly on micro-cover glasses coated with culture medium and desired concentrations of these chemicals.

In order to prepare a humid chamber of high intesity, a thick paper was cut to the size of the micro-cover glass taken and the middle portion was grooved and taken out leaving a narrow strip of paper measuring 1.5 — 2.0 m.m. in width. Then it was pasted over a glass slide and allowed to dry. A few small drops of distilled water were smeared on the hollow space of slide and the micro-cover glass dusted with pollen was inverted just over the thick paper frame and pressed down gently to make it air tight. A few minutes later water droplets in the form of dew appeared on the lower side of micro-cover glass, indicating high amount of humidity inside. Adoption of this technique gave bet-

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ter pollen tube growth than keeping such slides on glass rods under bigger petri-dishes with a few drops of water.

The growth of the pollen tube was measured on the basis of 3 days' observations in all cases.

**Results**

Pollen grown on 8% L.g.a. medium had a mean pollen tube length of 533 microns (Table 1). Pollen dusted on 8% L.g.a. + 0.001 and 0.01 ppm. MH respectively did not germinate at all, while pollen dusted on 8% L.g.a. + 10.0 ppm. MH burst out in majority, thus preventing further observation. Pollen grown on 4% S.g.a. had a mean pollen tube length of 225 microns. Pollen grown of 4% S.g.a. + 0.1 ppm. MH had a mean length of 609 microns.

Pollen grown of 8% L.g.a. + 1.0 ppm. 2.4-D grew but as they were a few in number, measurements could not be taken fully. Pollen grown on 8% L.g.a. + 3.0 ppm. 2.4-D had a mean pollen tube length of 474 microns. Pollen grown on 8% L.g.a. + 5.0 ppm. 2.4-D had a mean pollen tube length of 511 microns. Pollen grown on 8% L.g.a. + 7.0 ppm. 2.4-D had a mean pollen tube length of 537 microns. Pollen grown on 8% L.g.a. + 10.0 ppm. 2.4-D had a mean pollen tube length of 257 microns.

Bursting of pollen was lower in control in comparison to those with different concentrations of these chemicals. In case of pollen grown on 8% L.g.a. + 10.0 ppm. 2.4-D in particular, there was an abnormal bursting as well as pollen tubes of varying lengths. Hence a record was kept in regard to the number of pollen burst, number of pollen tubes burst and number of pollen tubes unburst and their percentages were calculated individually and tabulated as follows: −% of pollen burst = 45.42; % of pollen tubes burst = 37.46 and % of pollen tubes unburst = 16.51.

While nothing conspicuous had been marked in the shape and size of pollen tubes grown on 8% L.g.a. or 4% S.g.a. in combination with MH or 2.4-D concentrations, unusual slenderness and concentration of varying degrees in pollen tubes were noted in all cases.

**Discussion**

MH is regarded as a growth inhibitor but this increased pollen-tube growth on s.g.a. but seemed to decrease growth on l.g.a. 2.4-D is a growth regulator but five ppm. and less 2.4-D did not affect length of pollen tube. Seven ppm. of this chemical increased a little but in ten ppm. decreased length resulted. Pollen tube length on 8% l.g.a. was double that on 4% s.g.a. Auxins, anti-auxins, different chemicals and sugars etc. affect differently with different plant species in their pollen tube growth (Rietsema)\(^7\). So, anti-auxin, it appears, acts differently. As MH has increased the pollen tube measurement in this plant, its different concentrations should be tried to observe their effects along with other anti-auxins in different doses though this chemical has been found to show retarding effects in the pollen tube growth of Crotalaria juncea (Datta and Biswas, in press).

In the end, we wish to thank our esteemed friend Dr. S. C. Datta of Botany Department, Calcutta University for kindly going through the manuscript and suggesting improvements.

<table>
<thead>
<tr>
<th>Treatments</th>
<th>Growth in microns</th>
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<tbody>
<tr>
<td>1. 4 S.g.a. (Control).</td>
<td>224 ± 47</td>
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<tr>
<td>2. 4 S.g.a. + 0.1 ppm. MH</td>
<td>609 ± 106</td>
</tr>
<tr>
<td>3. 8 L.g.a. (Control).</td>
<td>533 ± 120</td>
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<tr>
<td>4. 8 L.g.a. + 0.1 ppm. MH</td>
<td>383 ± 113</td>
</tr>
<tr>
<td>5. 8 L.g.a. + 1.0 ppm. MH</td>
<td>308 ± 119</td>
</tr>
<tr>
<td>6. 8 L.g.a. + 3.0 ppm. 2.4-D</td>
<td>474 ± 116</td>
</tr>
<tr>
<td>7. 8 L.g.a. + 5.0 ppm. 2.4-D</td>
<td>511 ± 117</td>
</tr>
<tr>
<td>8. 8 L.g.a. + 7.0 ppm. 2.4-D</td>
<td>537 ± 128</td>
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<tr>
<td>9. 8 L.g.a. + 10.0 ppm. 2.4-D</td>
<td>257 ± 69</td>
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</tbody>
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Table 1. Relation between pollen tube growth and various treatments of MH and 2.4-D (4 hours in all cases).