has not been resolved entirely. Certain aspects of the role of heterocysts have been discussed in detail by Fogg et al.\textsuperscript{1} Using cytochemical methods Drawert and Tischer\textsuperscript{2} tested several heterocystous algae (Anabaena, Cylindrospermum, Nostoc, Calothrix, Scytonema) and noticed that heterocysts reduced triphenyltetrazolium chloride (TTC) more quickly than the vegetative cells (10 min in contrast to 30–35 min in vegetative cells). High reducing ability or a high respiratory activity of heterocysts as compared to vegetative cells has also been ably demonstrated by Talpasesy\textsuperscript{3} and Fay and Kulesooori\textsuperscript{4}. A direct relationship between TTC reduction and nitrogenase activity in heterocysts has been suggested by Stewart et al.\textsuperscript{6}. The present study was undertaken with a view to obtaining more information on the reducing activity of heterocysts.

**Materials and Methods**

*Anabaena* sp. was isolated from Dharmavaran water reservoir of Warangal, Andhra Pradesh and was cultured in Allen and Arnon's medium under laboratory conditions. TTC reduction in the algal filaments was tested by the method of Srikantan and Krishnamurti\textsuperscript{7}. The reaction mixture contained algal mass (5–15 days old) suspended in 5 ml of growth medium, 1 ml of 1% sodium succinate and 1 ml of 2% 2,3,5-triphenyl tetrazolium chloride and was dark incubated at 37° C for 30 min to 2 h in a water bath. At the end of incubation, TTC treated filaments were examined under light microscope.

**Results and Discussion**

Microscopic studies of algal filaments exposed to TTC have shown the deposition of formazan crystals due to tetrazolium reduction in all the vegetative cells except in heterocysts either intercalary or terminal (Figs. 1, 2). This suggests that in this alga the heterocysts have low or no reducing activity which is in contrast to the observations made earlier\textsuperscript{2–4}, in many other algae where they have shown high reducing ability. Although the claim that heterocysts possess a high metabolic activity need not be disputed, it is not necessary that heterocysts alone should reduce tetrazolium salts, since vegetative cells may as well have reductase enzyme accumulated in them. However, the exact reason why the heterocysts failed to reduce tetrazolium salt in this species is not clear.

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**ETHRED-INDUCED INHIBITION OF PISTIL IN SOLANUM INDICUM L.**

**Ethrel**, an ethylene releasing growth regulator, is known to bring about male sterility\textsuperscript{1–3}, favour female-ness\textsuperscript{4–6}, and cause abnormalities in flower development\textsuperscript{7–9}. The ethylene induced floral anomalies are manifested in the alteration of number of tepals and stamens, and production of open buds\textsuperscript{8}, suppression of stamen\textsuperscript{9}, blasting of the flowers' and splitting of bracts\textsuperscript{8}. We have studied the morphogenetic effects of ethrel on the alkaloid yielding Solanums. One of the interesting observations made with *S. indicum L.* is reported here.
Letters to the Editor

TABLE I

Ethrel-induced floral abnormalities

<table>
<thead>
<tr>
<th></th>
<th>Control</th>
<th>500 ppm</th>
<th>1000 ppm</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>a</td>
<td>b</td>
<td>c</td>
</tr>
<tr>
<td>Normal flowers</td>
<td>191</td>
<td>171</td>
<td>162</td>
</tr>
<tr>
<td>Flowers with reduced</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>number of stamens</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flowers with reduced</td>
<td>..</td>
<td>..</td>
<td>..</td>
</tr>
<tr>
<td>number of stamen and</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>inhibited pistil</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>193</td>
<td>174</td>
<td>166</td>
</tr>
</tbody>
</table>

\[ a = s \quad b = s + 2 \quad c = s + 2 + 4. \]

Selamum indicum L. produces bisexual flowers borne in clusters. Each flower has 5 sepals, 5 petals and 5 stamens, with a bicornellary and syncarpous pistil in the center of the flower (Figs. 1, 3).

![Diagram 1](image1.png)

![Diagram 2](image2.png)

Figs. 1–4. Fig. 1. Normal flower. Fig. 2. Ethrel treated flower showing reduction in the number of stamens and inhibition of pistil. Fig. 3. L.S. part of flower showing ovary surrounded by stamens. Ovules are seen on the right. \( \times 214 \). Fig. 4. L.S. treated flower showing rudimentary pistil surrounded by stamens. \( \times 214 \). \( s = \text{stamen}, \ g = \text{pistil}, \ p = \text{petal} \).

Ethrel (500 and 1000 ppm) treatments were given in three ways: (a) seed treatment(s), soaking of seeds for 4 hr, (b) seed treatment + foliar treatment at 2-leaf stage \((s + 2)\), and seed treatment + foliar treatments at 2- and 4-leaf stages \((s + 2 + 4)\). In foliar treatments plants were drenched by spraying ethrel
solution. The controls were treated with distilled water.

During the course of investigation, the plants treated with ethrel revealed reduction in the number of stamens and absence of pistil in certain flowers (Table I, Fig. 2). Anatomical studies revealed rudimentary pistil in such flowers (Fig. 4), suggesting inhibition at an early stage of flower development. Inhibition of pistil was not witnessed in the control flowers (Table I).

Though there are many reports dealing with the effects of ethylene on flower development and suppression of stamens, to our knowledge, there is no report on the inhibition of pistil in hermaphrodite flowers as a response to ethylene treatments.

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Shillong 793 014 (India), April 30, 1979.


**PSEUDOCERCOSPORA CELASTRI SP. NOV. FROM INDIA**

While working on some aspect of plant parasitic fungi, the author came across an interesting species of *Pseudocercospora* which differed markedly from all known species of the genus. This species was collected in February, 1976, from Telkonia Range of Gorakhpur forest Division. The new taxon appears to be well adapted to its host.

*Pseudocercospora celastri* S. Singh sp. nov. (Fig. 1)

Coloniae phleumque hyperphylloides circulares vel ovalis 2-6 mm diam. scepae effusae brunnea vel atrofuscae; hyphae mycelia cinnamomeae hyalinae septatae leaves; stroma bene evolutum atrofuscum subglobosum vel angulari 20-50 μ lata; conidiophora laxa cespitosa subhyalina vel pallide brunnea clyndrica erecta saepc flexuosa septata laevia eramosa, in apicem subinflatum turgescentia, geniculata denticulata 100-250 × 3-5 8-5 μ; cellulae conidiogenae integrales terminales, saepc in conidiophoribus juvenalis monoblasticae et percurrentia, deinde polyblastica symposium e denticulis brevibus latiss praeditae, cicatricibus conidiciis carentibus; conidia solitaria simplicia aecie pseudum oblavata, ad basim conico-truncata, ad apicem subacuta vel obtusa, brunnea vel olivaceo-brunnea rugulosa transverse 2-9 septata, ad septa subconstricta, 30-120 × 3-0-10 μ, saepc ad conidiphora etiam affixa germinantia.