NEW RECORDS OF PARASITOIDS ATTACKING RICE LEAF FOLDER, CNAPHALOCROCIS MEDINALIS GUENEE, IN INDIA

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The rice leaf folder, C. medinalis Gueene, is increasingly becoming a serious pest in several states, particularly in waterlogged situations and in other Asian countries. Fortunately a large natural enemy complex acting against this pest is available in India. Three new larval and two pupal parasitoids were reared for the first time, which are reported in this paper. Two new hyperparasitoids were also reared during the studies (table 1).

During March to May, C. medinalis was attacked by a number of parasitoids of which T. philippinensis was the dominant parasite. Its peak period of activity (21.7% parasitism) occurred towards last week of April to middle of May (table 2). It was hyperparasitised by a chalcid, B. excarinata. Apanteles spp were also active and the peak activity period (6% parasitism) was in April. From one case a new hyperparasitoid, Aphanogmus fijiensis emerged. Kriechbaumerella sp. and Xanthopimpla flavolineata were reared in the last week of April to 1st week of May.

TABLE 1
New parasitoids reared from C. medinalis at Cuttack, Orissa

<table>
<thead>
<tr>
<th>Host stage</th>
<th>HYMENOPTERA</th>
<th>A. Primary parasitoids</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Braconidae:</td>
<td></td>
</tr>
<tr>
<td>Larva</td>
<td>1. Apanteles sp. ater group</td>
<td></td>
</tr>
<tr>
<td>Larva</td>
<td>2. A. angustibasis Gahan</td>
<td></td>
</tr>
<tr>
<td>Larva</td>
<td>3. Habrobracon sp.</td>
<td></td>
</tr>
<tr>
<td>Ichneumonidae:</td>
<td>4. Xanthopimpla flavolineata Cameron</td>
<td></td>
</tr>
<tr>
<td>Pupa</td>
<td>5. Kriechbaumerella sp. Dellator</td>
<td></td>
</tr>
</tbody>
</table>

B. Hyperparasitoids

HYMENOPTERA

Chalcidae:

1. Brachymera excarinata Gahan Pupa of Temelucha philippinensis (Ashmead)

Ceraphronidae:

2. Aphanogmus fijiensis Ferriere Pupa of Apanteles sp.

<table>
<thead>
<tr>
<th>Parasitism by</th>
<th>Hyperparasitised by</th>
</tr>
</thead>
<tbody>
<tr>
<td>T. philippinensis (%)</td>
<td>Apanteles spp. (%)</td>
</tr>
<tr>
<td>March 8</td>
<td>3</td>
</tr>
<tr>
<td>April 13</td>
<td>6</td>
</tr>
<tr>
<td>May 21.7</td>
<td>4</td>
</tr>
</tbody>
</table>

TABLE 2
Percentage of parasitism of leaf folder by Temelucha philippinensis and Apanteles spp., along with their hyperparasitoids
Authors are grateful to the Director and Head of Entomology Division for providing necessary facilities. Thanks are also due to Dr. J. D. Gauld, Commonwealth Institute of Entomology, London and Dr. K. J. Joseph and Dr. T. C. Narendran of University of Calicut, for identification of the insect specimens. The financial assistance provided by the CSIR to the first author is gratefully acknowledged.

14 May 1982

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A NEW EAR-ROT OF BARLEY
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ALTHOUGH Curvularia pallescens Boedijn has been reported to cause black point disease of wheat1-3 the present study is however the first sign of this disease on barley (Hordeum vulgare L.) from India.

When spore suspension from 10-day old culture was sprayed on pin-pricked barley grains, small brown lesions appeared on the inoculated grains which increased gradually to form bigger lesions and finally covered the whole surface of the grain (figures 1-3).

The authors are thankful to the Head, Botany Department, University of Allahabad for providing necessary laboratory facilities.

17 May 1982


POLYSTELLY IN THE TUBERS OF ORCHIDACEAE AND THEIR FORMATION

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POLYSTELE is a rare phenomenon in orchid roots. It has been reported in certain orchids by some earlier workers4-6. However, the author while investigating the anatomy of terrestrial orchids came across polystelic condition in Habenaria arietina Hook. f., H. griffithii Hook f., H. pectinata Lindl., Herminium angustifolium Benth. and Satyrium nepalense Don.

Of the few roots given out of the stem base, one or two turn out to be fleshy and tuberous. Cross-section of such tubers show polystelic condition. The steles are scattered in the parenchymatous ground tissue with numerous aerenchyma and starch containing cells (figures D and E). In the older tubers of Habenaria and Herminium some of the cells of the ground tissue anastomose in radial and tangential plane and form many compartments. Each compartment surrounds one or occasionally two steles (figure F). Each stele is di to tetrachor whereas the tuberous roots are polychor surrounded by a single layer of thin walled pericycle and barrel shaped endodermis possessing prominent caspian strips (figures G, K-M). The tubers and tuberous roots both have thin walled exodermis, multilayered velamen, and epidermis with abundant root hairs except for Satyrium where velamen is absent in the tuberous roots.

Figures 1-3. 1. Diseased ears. 2. Infected grains. 3. Healthy ear of barley.