bably low virus concentration in the mite extract. However, the result clearly reveals that the mites collected from infected plants are viruliferous and carry DEMV.

Thus, the above findings prove beyond doubt that the nymphs/adults of the red spider mite (Fig. 3 inset) transmit DEMV. This has since been identified as *Tetranychus laudeni* Zacher. Only one tetranychid mite *T. telarius* (L.) has so far been proved to transmit potato virus Y though some others are suspected.

The results presented are significant in three respects: (i) this is the first report of a vector transmitting DEMV, (ii) this gives positive proof of a second *Tetranychus* sp., viz., *T. laudeni* transmitting a plant virus and (iii) in view of wide host range for both DEMV and the tetranychid mite, timely mite control in legumes assumes importance.

Further studies on transmission are under progress.

I am deeply indebted to Dr. G. P. ChannaBasavanna, Professor and Head of Entomology, University of Agricultural Sciences, Bangalore, for identification of the mite. I am thankful to Shri M. Achutarama Rao and Shri B. Nagalingam for technical assistance and to Dr. J. Subbaya, Professor and University Head of the Department of Plant Pathology for critical perusal of the manuscript.

Department of Plant Pathology, K. Rajagopalan, S. V. Agricultural College, Tirupati (A.P.), April 10, 1974.


**MYROTHECIUM AND ALTERNARIA LEAF SPOTS OF COTTON IN SOUTH INDIA**

*Myrothecium roridum* Tode ex Fr. causes a leaf spot of cotton in the Punjab and Haryana where it affects a number of cotton varieties (*Gossypium hirsutum*). The disease has not hitherto been reported on cotton in South India. Specimens of leaf spot affecting Hybrid-4 cotton sent from Gujarat in 1971 were referred to the same disease by the senior author. About the same time stray cases of the disease appeared on Hybrid-4 plants raised at Kovilpally near Coimbatore from seed obtained from Gujarat. The disease was not encountered in this area in 1972. Following the rains in October, 1973, a serious outbreak occurred in Coimbatore Taluk in all the important cotton-growing centres and severe leaf damage was
sustained by the important varieties belonging to
the species G. hirsutum and G. barbadense, including
MCU 5, Sujata and the hybrids Hybrid-4, Varalaxmi and C.B.S. 155. The outbreak lasted
till the end of January, 1974.

A feature of this season was the negligible
incidence of the leaf spot of cotton caused by
Alternaria macrospora Zimm. in areas where Myro-
theicum leaf spot occurred, although the disease
had occurred as severe epiphytotics between
November and February in each of the four pre-
ceding years causing alarming defoliation. This
disease is characterised by smaller (0.2 to 1 cm
diam.), nearly circular to irregular, dark brown
spots with concentric ridges giving a target board
appearance. There is no abscission of the spots
as happens in the case of Myrothecium leaf spot.

The interrelationship between the two pathogens
was studied. Strong conidial suspensions from
pure cultures of the two pathogens separately and
together were sprayed on the leaves of variety
MCU 5 (G. hirsutum). Inoculated plants were
placed in a humid chamber for 24 hr. Three days
later circular leaf spots typical of those caused
by M. roridum developed on all leaves sprayed
either with M. roridum alone or with a mixture
of M. roridum and A. macrospora while spots
caused by A. macrospora appeared after 4 to 5
days in large numbers only on leaves sprayed with
A. macrospora alone and were relatively sparse
or absent on leaves inoculated with a mixture of
the two fungi (Table I). In the latter case,
Alternaria spots were seen in areas of the leaf well
removed from spots caused by Myrothecium.
Similar results were obtained with Sujata (G. barba-
dense) and other varieties.

Table I

<table>
<thead>
<tr>
<th>Inoculum</th>
<th>No. of spots caused by M. roridum</th>
<th>No. of spots caused by A. macrospora</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Myrothecium</td>
<td>Alternaria</td>
</tr>
<tr>
<td>M. roridum</td>
<td>4 to 6</td>
<td>..</td>
</tr>
<tr>
<td>A. macrospora</td>
<td>..</td>
<td>10 to 14</td>
</tr>
<tr>
<td>M. roridum plus A. macrospora</td>
<td>4 to 7</td>
<td>0 to 3</td>
</tr>
</tbody>
</table>

In vitro, the two fungi did not show marked
antagonism which appears to be a feature of the
parasitic phase of these facultative parasites.

The encouragement to the investigation given by
Dr. V. Santhanam, Project Coordinator, is
appreciated.

IARI Regional Station,  
Coimbatore 641 003,  
March 10, 1974.

K. V. SRINIVASAN.  
A. KANNAN.

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ORGANISATION OF STOMATAL COMPLEX IN
SOME ORCHIDACEAE

Earlier reports show that the stomata in Orchid-
aceae are of anomocytic type, i.e., they have two
guard cells without any subsidiary cells. However,
the authors while studying the organisation of
stomatal complex in Orchidaceae have observed
subsidary cells in several members, viz., Rhyn-
chostylis retusa Blume, Vanda cristata Lind.,
Calanthe brevicornu Lindl., Coelogyne ovalis Lindl.,
C. cristata Lindl., Bulbophyllum odoratissimum
Lindl. and Pholidota articulata Lindl. var. griffithii
K & P.

Figs 1–4. Figs 1, 2. Epidermal peels of Vanda
cristata and Bulbophyllum odoratissimum respec-
tively. Figs 3, 4. Epidermal peels from young and
old leaves respectively of Pholidota articulata var.
griffithii. Note in Fig. 4 dissolved anticlinal walls
of subsidiary cells.

The leaves are hypostomatic but for Calanthe
brevicornu where they are amphistomatic. The
stomata are of tetracytic type in all the species
mentioned above. They are surrounded by four