CROTOLARIA STRIATA DC. A NEW NATURAL HOST OF BEAN COMMON MOSAIC VIRUS

WEED plants play an important role in the ecology of viruses by serving as potential reservoirs. During a survey of virus diseases of weeds *Crotolaria striata*, a common weed was found infected with a mosaic disease at Gorakhpur. The mosaic symptoms and easy sap transmission indicated the virus nature of the disease.

The thermal inactivation point of the virus was 58° C, dilution end point 1 : 1,000 and longevity *in vitro* 24 hours at room temperature (28–30° C). When mechanically transmitted, the virus produced systemic infection in *Crotolaria juncea*, Linn., *Glycine max* Endl., *Phaseolus vulgaris* L., *Vicia faba* L. and *Vigna sinensis* (L) Endl. and small necrotic local lesions on *Chenopodium amaranticolor* Coste and Reyon. The plants which proved to be immune to the disease include *Abelmoschus esculentus* Moench, *Brassica oleracea* L., *Capsicum annuum* L., *Cucurbita maxima* Duchesne, *C. pepo* L., *Cucumis sativus* Linn., *Datura stramonium* L., *Euphorbia hirta*, Linn., *Lycopersicum esculentum* Mill., *Nicotiana tabacum* var. white Burley and *Solanum melongena* L.

The disease is transmitted by *Aphis gossypii* Glover and *A. craccivora* Koch in a non-persistent manner. The disease is also transmitted through the seeds of cowpea (*Vigna sinensis* L).

The virus showed its closeness to Beau common mosaic virus as described by Moskovets and Baratova[1] in producing local lesions on *C. amaranticolor* Coste and Reyn and to that of Smith[2] in its host range, physical properties and symptomatology. The identification was confirmed with the antiserum of bean common mosaic virus, kindly supplied from Het Instituut voor, Planten ziektenkundig onderzoek be Wageningen, Binnenhaven 12.

Ruppel *et al.*[3] recorded *C. striata* as a reservoir of *Dioscorea* green banding virus and Cook[4] reported a mosaic infection in Puerto Rico which induced dwarfness in plants and reduced seed production but the disease was not seed borne.

Crotolaria striata DC. is being reported for the first time here as a natural host of bean common mosaic virus.

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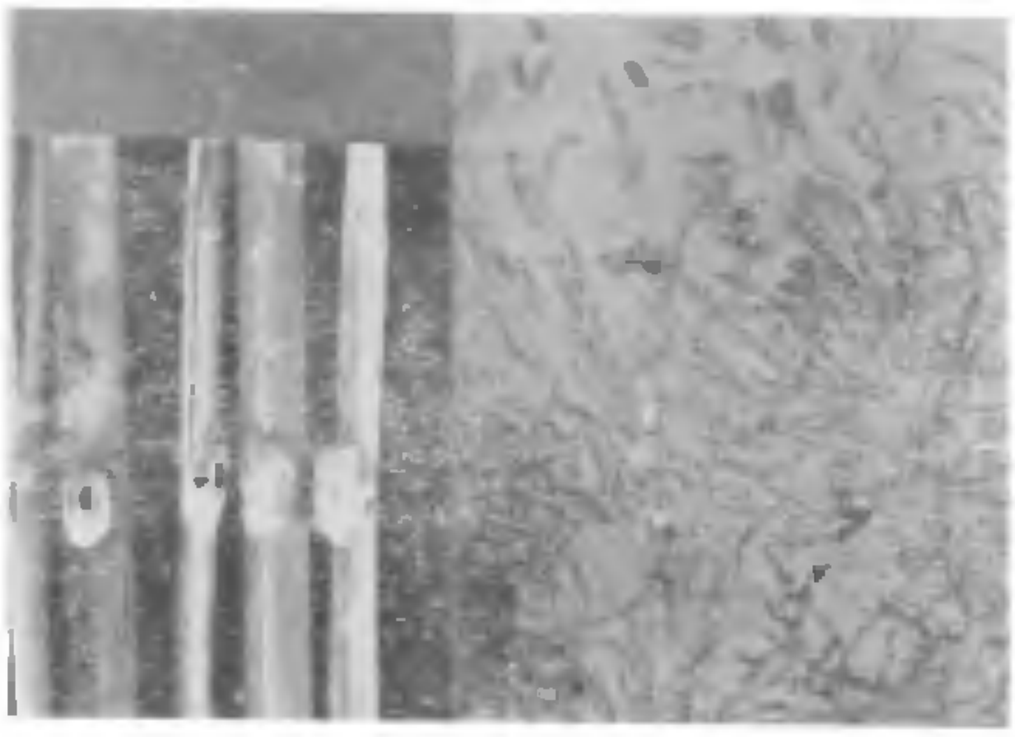
ENTOMOPHTHORA FUMOSA SPEARE, AN ENTOMOGENOUS FUNGUS ON RICE BROWN PLANT HOPPERS

A FEW species of *Entomophthora* are known to infect brown plant hoppers of rice (*Nilaparvata lugens* Stal). Sakai[4] reported the infestation of brown plant hoppers in Japan by *Entomophthora delphacis* Hori. *E. apiculata* var. *major* was responsible for reducing brown plant hopper population in Fiji (Hinckly[1]). *E. coronata* and *Hirsutella* sp. were periodically found to kill brown plant hoppers in rice fields at the International Rice Research Institute, the Phillippines (IRRI *Annual Report*[2]).

High mortality in the brown plant hopper population was noticed in the rearing cages at the Central Rice Research Institute, Cuttack, during September–October 1975 and 1976 due to an *Entomophthora* species. The average natural mortality was 23·2% with a range from 7·3 to 47·9% during the period. The disease was favoured by high relative humidity (80%) accompanied with temperature range of 25·6 to 32·6° C prevailing during the period of its occurrence. The mortality rate was higher among the adults than nymphs especially brachypterous and macropterous females than adult males. The infected hoppers showed the symptoms of loss of appetite, loss of mobility and finally became inactive. The mycelium of the fungus emerged through the intersegmental membranes of the abdomen and joints of the legs. The network of the white wooly mycelium developed all over the body. The insects were found either sticking to the leaf sheath being completely covered by the mycelium which made identification of the insect difficult (Fig. 1) or floating on the standing water in the field. Microscopic examination of the diseased insects revealed the presence of long, irregularly tubular hyphae and conidiophores bearing elliptical conidia (Fig. 2). Repeated attempts to isolate the fungus failed. Slides were prepared from the diseased insects and in absence of mature fruit

bodies, the fungus was identified to be nearer to *Entomophthora fumosa* Speare. This fungus has been reported on the citrus mealy bug (*Pseudococcus citri* Risso) and was responsible to check the population in Florida (Speare[4]). The slides of the fungus have been deposited at Commonwealth Mycological Institute, Kew, England (IMI No. 21296). This constitutes the first record of the fungus on rice brown plant hoppers.



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FIGS. 1–2. Fig. 1. Brown plant hoppers affected by *Entomoprthora fumosa*. Fig. 2. Conidia and conidiophore (× 200).

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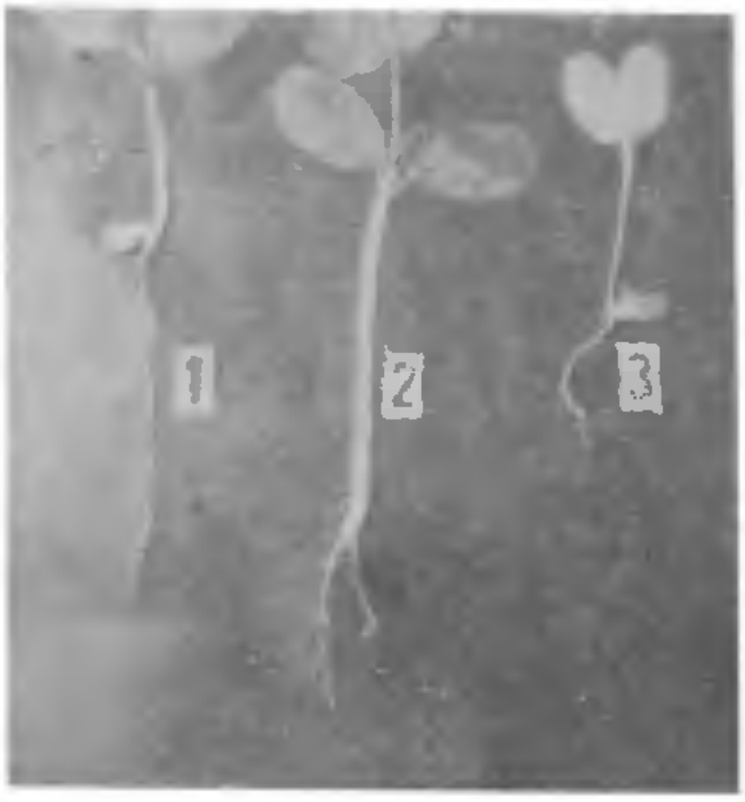
A NOTE ON PSEUDO-MONOCOTYLEDONY IN *COCCINIA INDICA* W. & A.

SEEDS of *Coccinia indica* show epigeal germination. The radicle comes out first and thus fixes the germinating seed to the soil. Later, 2 to 5 secondary roots also develop from and below the tigellum. The hypocotyl grows very fast, and carries the two cotyledons up, out of the soil. Usually the seedcoat remains adhered to the tigellum (Fig. 1) but occasionally it also comes out of the soil. The two opposite cotyledons then open out, become photosynthetic in function and grow in size. The first plumular leaf appears next followed by a further growth of the shoot (Fig. 2).



FIGS. 1–3. Fig. 1. Seedling with two separate cotyledonary leaves and the seedcoat adhered to the tigellum Fig. 2. Further growth of the seedling. Fig. 3. Seedling showing pseudo-monocotyledony.

This is the normal morphology of the seedling. Rarely, the seedling exhibits pseudo-monocotyledony, where the two cotyledons fuse laterally to their three-fourth length but maintain their individuality at the distal ends (Fig. 3). In such pseudo-monocotyledonous seedlings the plumule is situated at one side and opposite to the "combined cotyledons". The plumule seems to be rudimentary since it never produces a short and the seedling dies within a month.

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A NOTE ON THE PHYTAL FAUNA IN AND AROUND BALUGAON IN CHILKA LAKE

THE hydrobiological works with special reference to fisheries of the CHILKA LAKE (Fig. 1), the largest brackish-water lake of India located in Orissa State, have been well documented[1–3]. Surprisingly enough the extensive phytal fauna association of the lake have remained unexplored. The phytal serve both as feeding and breeding grounds for invertebrates and fishes. As such the importance of phytal in the littoral production of animal communities need not be over-emphasised as it is useful for a variety of ecological purposes[4–13]. Five dominant algae (*viz.*, *Cladophora glomerata*.