INCIDENCE OF FUNGAL INFECTION ON THE DEVELOPING EGGS OF *CYPRINUS CARPIO* VAR *COMMUNIS* AND USE OF POLYTHENE SHREDS AS EGG ATTACHMENT DEVICE

K. G. PADMAKUMAR, V. JAYAPRAKAS,
A. V. MATHEW and
U. MOHAMMED KUNJU
Kerala Agricultural University,
Regional Agricultural Research Station, Kumarkom,
Kottayam 686 566, India.

DURING the trials on breeding of common carp, *Cyprinus carpio* var *communis* it has been observed that *C. carpio* eggs are increasingly infected by a fungus which hampered hatching and further development of eggs. Their incidence was relatively higher when water hyacinth, (*Eichornia crassipes*) and *Pistia* sp were used as egg collectors. The fungus was identified to belong to the genus *Saprolegnia.*

Common carp *C. carpio* var *communis* spawns year round and they breed naturally in confined waters. The fertilized eggs of common carp are small, spherical, demersal and adhessive. The diameter of the developing eggs varies from 1–2 mm. The perivitelline space surrounding the egg is narrow. Embryo hatches within 48 hr at temperatures between 28°C and 32°C.

With the object of large scale production of common carp seeds, mature brooder females with rounded soft and bulging abdomen and with vent projecting into papillae like structures were selected. Ripe males which release milt with gentle pressure on the abdomen were also collected and one set consisting of one female and two males were kept together in 6 feet plastic pools filled with clean filtered freshwater at the R.A.R.S. Kumarakom. Aquatic weed *Eichornia crassipes* and *pistia* sp were used as egg collectors. For this, the plants were thoroughly washed several times before introducing into the pool. About 2 kg of weed per kg body weight of the female were used. The brood fish were released into the pools in the evening; by morning the egg collectors with thousands of eggs attached to their roots were transferred to hatching *hapas* in the open channels where there was considerable free flow of water.

The development of the eggs in the hatching *hapas* was continuously observed. The fertilised eggs in the hatching *hapas* were enveloped by a cloudy covering which in about 10–12 hr appeared as a white cottony envelope encircling the eggs. All the affected eggs appeared as hairy balls with tuft hair like outgrowths

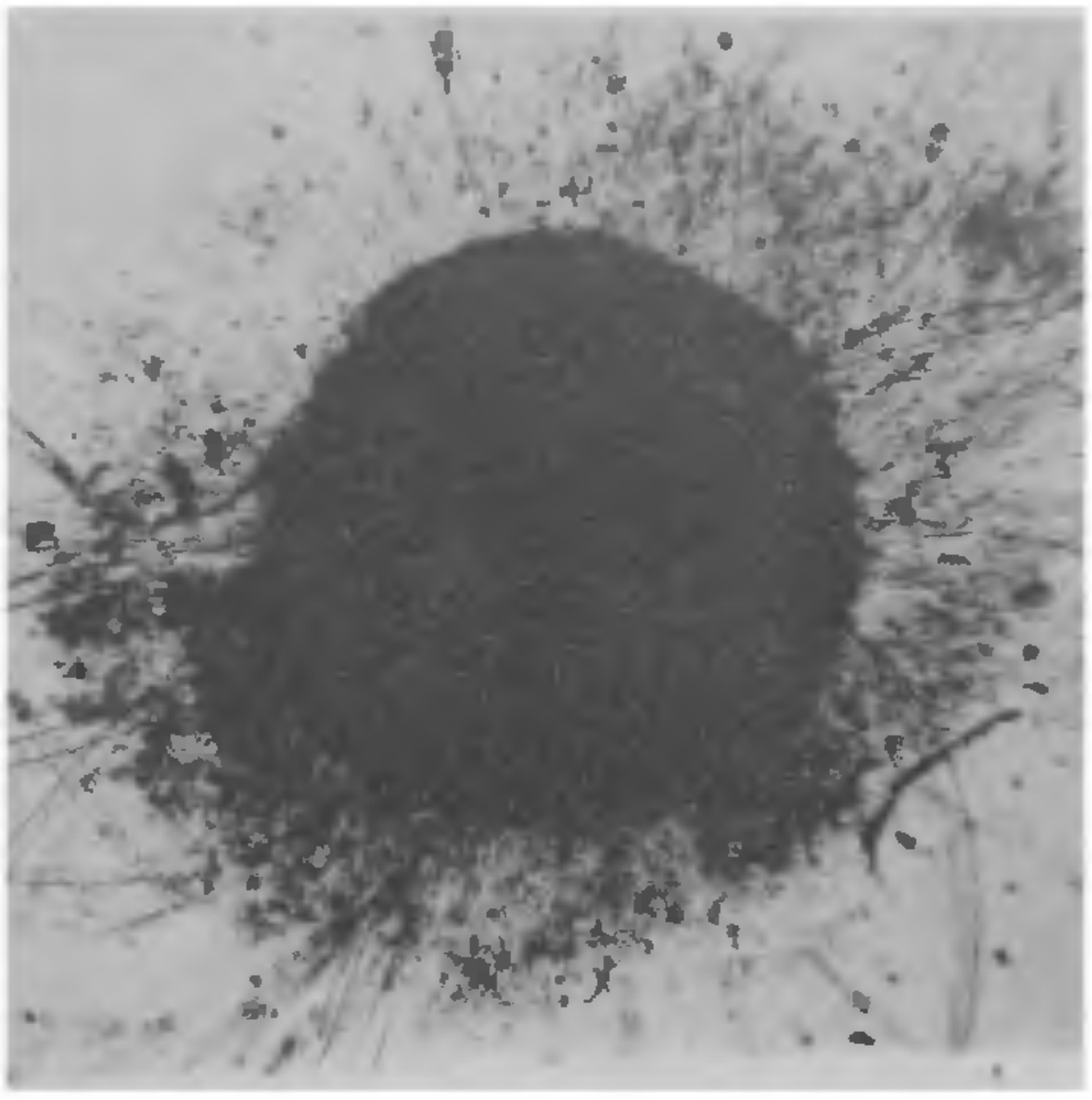

Figure 1. Egg of *C. carpio* infected by fungus *saprolegnia* sp.

(figure 1). The infected eggs did not hatch out and all of them succumbed in 12 to 36 hr.

The affected eggs were separated out and it was found that the infection was caused by a fungus. The pure culture of the fungus, free from bacteria was isolated and identified following Coker[1] and Seymour[3] guide books. The fungal isolate was identified as *Saprolegnia* sp.

In the available literature, there is no previous report of *Saprolegnia* affecting the eggs of *C. carpio* and hampering their development, although the fungus is known to infect the fish fry, fingerlings and bruised adults of major carps[2] and common carps[4].

In later trials, instead of using aquatic weeds as egg collectors, inert polythene sheet shreds cut lengthwise 20 cm × 2 cm, were used by tying 20–30 shreds into a broomy bunch. It was observed that these inert sheets served as good egg attachment surfaces and could be successfully used as egg collecting devices. These sheets do not foul water as weeds do or will not consume oxygen or release metabolites into water. Further, bacterial and fungal contamination is avoided since it was observed that infection of developing eggs was relatively less when polythene sheets were used as egg collectors unlike the rooted floating water weeds.

18 July 1984; Revised 24 October 1984

1. Coker, W. C., *The Saprolegniaceae with Notes on other water Moulds*, Univ. of North Carolina press, Chapel Hill, N.C., U.S.A., 1923.
2. Jhingran, V. G., *Fish and Fisheries of India*. Hindustan Publishing Corporation (India), Delhi, 1975, 954.
3. Seymour, R. L., *The genus Saprolegnia*, Nova Hedwigia, 1970, **19**, 1.
4. Srivastava, G. C., Sinha, S. K. and Srivastava, S. K., *Curr. Sci.*, 1983, **52**, 927.

OCCURANCE OF YELLOW MOSAIC VIRUS ON SIRATRO (*MACROPTILIUM ATROPURPUREUM*) FODDER CROP

P. LAKSHMANAN, V.K. BALAKRISHNAN and T. MANOHARAN.
Tamil Nadu Agricultural University, Research Centre, Vellore 632 001, Tamil Nadu, India.

SIRATRO, *Macroptilium atropurpureum* is being introduced widely as a fodder crop in many parts of North Arcot district, Tamil Nadu. During April–June 1984 the incidence of yellow mosaic virus was noticed in severe form at the University Research Station, Virinjipuram. The leaves of Siratro plants showed yellow patches alternating with green areas which also turned yellow (figure 1). The pods collected from the affected plants were deformed and contained shrivelled under sized seeds.

The white flies *Bemisia tabaci* Genn collected from Siratro fodder field were allowed to feed on the infected plants for one day to acquire virus. Then the white flies were allowed to feed on the healthy plants of *Phaseolus mungo* var *radiatus* L, *Phaselous aureus* Roxb and *Glycine max* (L) Merrill. Within a fortnight typical yellow mosaic symptoms were produced. Seeds collected from the infected Siratro plants were raised in earthen pots and none of the plants exhibited yellow mosaic symptom.

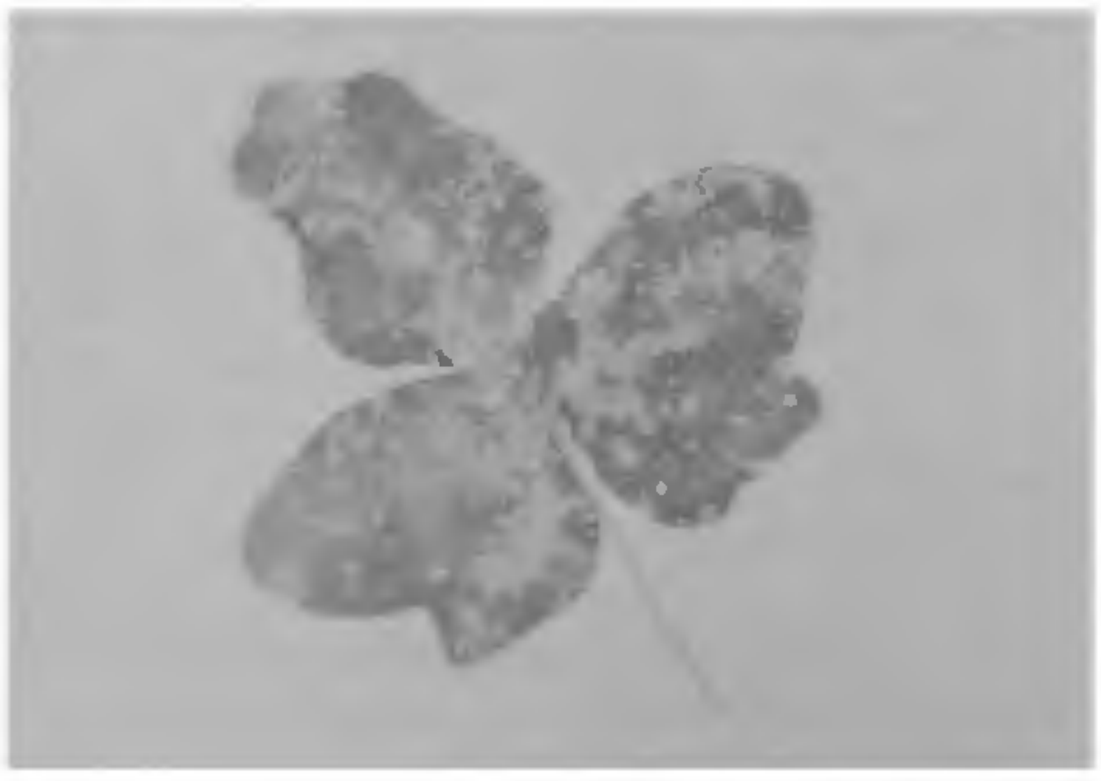

Figure 1. A typical yellow mosaic symptom on Siratro Fodder leaves.

The yellow mosaic symptoms produced on *Phaseolus mungo* var *radiatus* L, *Phaseolus aureus* Roxb and *Glycine max* (L) Merrill resembled to those of symptom produced on *M. atropurpureum*. The pathogenicity is further confirmed by cross-inoculation of virus by white flies on these crops. This yellow mosaic virus is considered as the most destructive disease of Khariff legumes *viz* blackgram, greengram and soybean in India[1]. In addition, this virus has a large host range which includes *Brachiaria ramosa, Cosmos bipinnatus, Cajanus Cajan, Dolichos biflorus, Eclipta alba, Phaseolus acutifolius, P. aconitifolius, P. lathyroides, P. Vugaris* and *Xanthium strumarium*[2]. The occurrence of yellow mosaic virus on *M. atropurpureum* is observed for the first time in India and points out the potential danger of Siratro fodder crop serves as reservior of this virus and source of primary inoculum from where the vector transmits the virus to the main crop.

The authors express their grateful thanks to Dr R. Jayarajan, Professor of Plant Virology, Tamil Nadu Agricultural University, Coimbatore for identification of the pathogen, guidance and encouragement.

10 September 1984

1. Raychaudhuri, S. P., *A manual of virus diseases of tropical plants*, Macmillian Co of India Ltd., 1977, p. 300.
2. Singh, R. S., *Plant diseases*, Oxford and IBH Publishing Co., 1978, p. 564.

A NEW TOXIN RESPONSIBLE FOR THE EARLY SYMPTOM IN *FUSARIUM* WILT DISEASE OF COTTON

VASANTHI SANKARANARAYANAN and S. UMESH KUMAR *
Department of Botany, PSGR Krishnammal College, Coimbatore 641004, India.
**Department of Botany, PSG College of Arts and Science, Coimbatore 641014, India.*

IN the *Fusarium* wilt a disease of cotton, vein clearing is the typical early symptom[1,2]. This symptom ap-