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

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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 adhesive. 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). 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 and Seymour 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 and common carp.

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.

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

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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, Vririppuram. 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., Phaseolus 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.

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 Kharif legumes viz blackgram, greengram and soybean in India. In addition, this virus has a large host range which includes Brochiaria rubosa, Cosmos bipinnatus, Cajanus Cajan, Dolichos biflorus, Eclipta alba, Phaseolus acutifolius, P. acutifolius, P. lathyroides, P. Vugaris and Xanthium strumarium. 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 reservoir of this virus and source of primary inoculum from where the vector transmits the virus to the main crop.

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

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In the Fusarium wilt a disease of cotton, vein clearing is the typical early symptom. This symptom ap-