INCIDENCE OF SQUIRTING CUCUMBER MOSAIC VIRUS OF CUCUMBER IN WEST BENGAL

CUCUMBER (*Cucumis sativus* L. var. local), mainly grown as summer and rainy season crop in West Bengal, is found to be infected by many viruses[1] resulting in a great economic loss. During the survey made in 1973–74, the plants were found to be severely infected (60–90%) with the virus diseases in different cucurbit growing fields of West Bengal. On critical analysis of the diseased samples, a type of symptom, not hitherto reported, was noticed in some leaves and attempts have been made to identify the virus(es) involved.

The infected plants were found to have yellowish green leaves. The pinpointed yellow chlorotic spots were found to develop from the leaf margin. Crumpling of tissues with slight mottling of leaves were also noticed. Slight vein clearing and mosaic symptoms were observed at early stage of infection. But with the advance of the disease, chlorotic spots enlarged and spread over the entire surface of the lamina. The growth of the plant became stunted. The disease could easily be transmitted to healthy cucumber seedlings through sap inoculation using 0·1 M citrate-phosphate buffer (pH 8·0) with 10 mM DIECA (Diethyl Dithiocarbamate) and the percentage of transmission was found to be 68 whereas in case of distilled water, used as extraction medium, the percentage of transmission was very low (10%).

The thermal inactivation point, dilution end point and ageing *in vitro* of this virus have been found to be 45° C, $10^{-1.0}$ and 18 hours respectively. The virus is found to have very limited host range and could be transmitted to only watermelon (*Citrullus lanatus* cv. Charleston Gray), squash (*Cucurbita pepo* cv. Early Prolific Straightneck), bittergourd (*Momordica charantia*) and dhundul (*Luffa cylindrica*). Cantaloupe (*Cucumis melo* Selection B63–3) was found to carry the virus symptomlessly. But it did not infect pumpkin (*Cucurbita moschata*), bottlegourd (*Lagenaria vulgaris*), ash gourd (*Benincasa cerifera*) and tinda (*Citrullus vulgaris* var. *fistulosus*). In *Datura stramonium* and *Chenopodium amaranticolor*, the virus could produce local necrotic spots initially, followed by the development of systemic symptoms.

As regards insect transmissibility, the virus was found to be transmitted (70–75%) by *Aphis gossypii* only. *Bemisia tabaci* failed to transmit this virus. The vector has found to transmit the virus upto a period of 24 hours in a non-persistent way.

Present study indicated that the properties of the virus under consideration did not resemble any cucurbit virus reported so far from India but major resemblance with squirting cucumber mosaic virus, reported from Israel[2], was observed. Both the viruses are found to have similar thermal inactivation point, ageing *in vitro*, restricted host range including some restricted cucurbitaceous hosts and both the viruses are found to produce local lesions on *C. amaranticolor*. Complete similarity of these two viruses are found to exist as regards transmissibility by *A. gossypii*. But the dilution end point of the present virus slightly differed from that of squirting cucumber mosaic virus, where it was found to be $10^{-5.0}$. The present virus also differed in its ability to infect solanaceous hosts like *D. stramonium*. Thus considering the similarities and dissimilarities the present virus may be considered as a strain of squirting cucumber mosaic virus and hence stands as the first report of the natural occurrence of this virus on cucumber in West Bengal.

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ANTIBACTERIAL ACTIVITIES OF SOME FLESHY FUNGI

UPTIL now very few[1,3,6] antibiotic activities of Indian fleshy fungi were reported. In the present investigation an attempt has been made to screen the antibiotic activity of locally available fleshy fungi.

Materials and Methods

During the rainy season, the following locally available fleshy fungi were collected from Calcutta and its adjacent suberb, *viz.*, *Tricholoma gigantium* Masse, *Tricholoma crassum* (Berk) Sacc., *Termitomyces striatus* (Beeli) Heim, *Agaricus bisporus* Fries. *Agaricus* sp., *Calvatia cyathiforme* Bosc., *Clitocybe* sp., *Lentinus squarrosulus* Mont., *Lycoperdon* sp. *Chlorophyllum molybdites* (Meyer ex Fr.) Sacc, *Omphalotus olearius* (Dc. ex Fr.) Singer and *Rohodocybe subgilva* (Berk and Br.) Peglar.

Tissue culture of the test fungi were prepared aseptically on potatodextrose agar medium from the fresh specimens. Tissue cultures were maintained on potato-dextrose agar medium at 20° C by regular subculturing. For antibiotic screening, all the fungi were grown in malt-peptone[2] and Czapeck dox medium for fifteen days at 25° C. After fifteen days of growth,

culture-filtrates of each fungi were obtained by filtration. The culture-filtrates thus obtained were concentrated to one-fifth of its volume under reduced presssure. Antibiotic activities of each type of culture filtrates were then tested by 'cup-plate'[2] method on plates containing nutrient-peptone agar medium (Peptone—·5%, beef extract—·3%, glucose—1%, agar—2·5% and pH—7·2) seeded with *Bacillus subtilis*. The well developed inhibition zone was noted when fair amount of growth of the organism was observed in incubated plates.

Results and Discussions

Among the fourteen test fungi studied, five showed inhibition zone against *Bacillus subtilis*. Of these five species, *Clitocybe* sp. shows better antibiotic property than the others but this particular mushroom produces antibiotic compound only in malt-peptone medium. Besides *Clitocybe* sp. other three mushrooms (*L. lepidophora, L.erythrogramma* and *Lentinus squarrosulus*) also produce antibiotic compounds in malt peptone medium but they fail to produce antibiotic compounds in Czapeck dox medium. On the contrary, *T. crassum*, fails to produce antibiotic compound when grown in malt-peptone medium and shows more or less a good inhibition zone when grown in Czapeck dox medium. The above data indicate the role of nutrient composition of medium on the antibiotic production by respective mushrooms. Although there is a report of antibiotic production from *Clitocybe illudens* (Anchel *et al.*[1]), this is the first report on the antibiotic production from *Tricholoma crassum*, *Lepiota lepidophora*, *Lepiota erythrogramma* and *Lentinus squarrosulus*. Another interesting point noted from the data is that, except *Lentinus squarrosulus*, all the antibiotic producing strains mentioned above are soil inhabitat which supports the Grossbard's[5] opinion. As both the two species (*L. lepidophora* and *L. erythrogramma*) of the genus *Lepiota* show antibiotic properties, further screening on other available species of the genus might be encouraging in future.

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OCCURRENCE OF *TRICHODINA PEDICULUS* EHRENBERG, 1838 ON FRESHWATER CARPS, *BARBUS* SPP.

Trichodina pediculus, a peritrichous ciliate, has been reported from different geographical locations (USA, USSR, China and Poland) parasitizing fishes (*Rutilus rutilus, Alburnus alburnus, Leucaspis delineatus, Coregonus albula, Carassius carassius*[1]; *Cyprinus carpio*[4,5]; *Leuciscus idus, Perca fluviatilis, Lucioperca lucioperca*[6]; and *Micropterus salmoides*[11,13]) and also Amphibians, *Necturus*[3] and Coelentrates, *Hydra*[2,12].

During our survey on parasitic protozoa of freshwater fishes in Karnataka (India) we came across *T. pediculus* on the body surface and fins of Masheep carps, *Barbus chola* (Ham. and Buch.), *B. sarana* (Ham. and Buch.) and *B. stigma* (Day) collected in the month of November 1978 from Municipal Garden tank, Sharanabasaweshwar tank and the moat arround Bahamani fort, all situated in the heart of Gulbarga city.

The infected tissue was smeared and ciliates were examined live to detect the shape of the body, the velum and the marginal cilia. The air dried smear slides were stained with Klien's silver impregnation technique for studying the details of the adhesive disc. Some of the air dried smear slides were stained with Giemsa or iron hematoxylin after Carnoy's fixation for studying the nuclear complex. The terminology and measurements of various components of adhesive disc and other features of the ciliate presented in this note are in accordance with that outlined by earlier workers[7,9,13]. *T. pediculus* though has been reported by many workers, the details of the adhesive disc as revealed by Klien's silver impregnation technique and other biometric information are furnished by a few only[5,11,13]. The specimens found on *Barbus* spp. have revealed some biometric differences from those reported earlier which are given below in parenthesis with their respective reference number. The values in inverted comma are mean of the range.

The organism is a medium sized 51·6–70·7 μm " 67·8 μm " (72·1–103·0 μm[5]; 61–86 μm[13] " 69 μm "[13], in diameter trichodinid having disc shaped body)