TWO NEW SOFT ROT DISEASES OF LOQUAT FROM INDIA

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DURING the survey of some local fruit rot diseases at Gwalior (Madhya Pradesh) on 15 April 1982, two new soft rot diseases of Loquat (*Eriobotrya japonica* Lindl.) were noticed. The pathogenic fungi were isolated from the surface sterilized diseased portions of the fruits on potato dextrose agar medium. Pathogeneicity was successfully established by inoculating healthy fruits with 5-day old culture of the pathogen after making a slight injury on the fruits. The inoculated fruits were incubated at room temperature under aseptic conditions and symptoms of disease developed after 7 days. Reisolation of the pathogen from this artificially inoculated fruit yielded the same fungus. The symptoms of the disease and cultural characteristics of the pathogens were as follows:

1. *Soft rot caused by* ***Pestalotiopsis versicolor*** *(Speg.) Steyart.*

The young spots were small, dark brown and water soaked. In advanced stages, the infected portions of the fruits became very soft and tufts of spores were found over the infected surface.

Mycelium of the pathogen was immersed, branched, septate and pale brown. Acervuli were dark brown with hyaline, branched, septate and cylindrical conidiophores. Conidia measuring 16–22 × 3–6 μm, fusiform, 3–5 septate with dark central cells and hyaline end cells. Apical cells of conidia bearing three simple appandages.

Culture deposited at CMI, England as IMI 267875.

2. *Soft rot caused by* ***Fusarium semitectum*** *Berk. & Rav.*

The lesions were water soaked and smaller but completely destroyed the fruits within 15 days. The entire rotted surface of the fruit was covered with pinkish white cottony growth of pathogen.

The mycelium of the pathogen was floccose, hyaline, branched and septate with scanty pinkish aerial hyphae. Conidia were formed in a salmon-coloured powder scattered over the surface of aerial hyphae, spindle shaped with tapering ends. Microconidia 0–2 septate and measuring 8–14 × 2.0–2.5 μm. Macroconidia 3–5 septate and measuring 25–35 × 3–4 μm.

Culture deposited at CMI, England as IMI 267874.

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EFFECT OF 2-PHENYL-3-AMINO QUINAZALINE-4-ONE ON *COSMARIUM PRAEMORSUM*. BREB.

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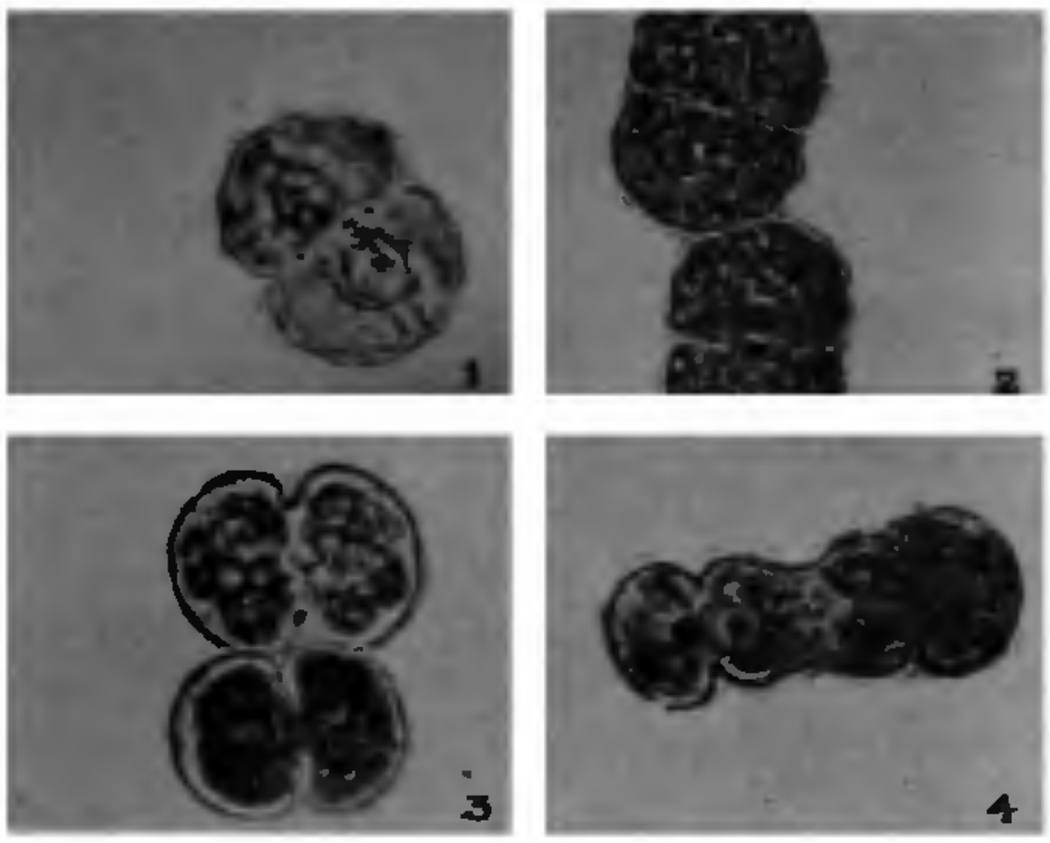
THE studies with chemical mutagens on Desmids are recent. In *Chlorella*, mutagenic action of ethylnemine, during different stages of cell cycle, was studied[1] and the resistance to ethionine was later observed[2] Ramadevi[3] reported the effect of EMS, mitomycin-C and Actinomycin-D on *Cosmarium imperssulum*. The present work deals with the effect of 2-phenyl-3-amino-quinazaline-4-one on *Cosmarium praemorsum*.

C. praemorsum obtained from Cambridge culture collection was maintained in Chu's I0 medium, at 18–22° C with an illumination of 16/8 hours, light and dark, respectively. The unialgal clonal cultures are raised and maintained.

The 2-phenyl-3-amino-quinazaline and Zn and Cd complexes were prepared by standard methods[4]. The chemical, 2-phenyl-3-amino-quinazaline Zn (II) and Cd (II) complexes were dissolved in dimethyl formamide in three different molar concentrations ranging from 0.0001, 0.001 and 0.01 M. Five ml of actively growing culture was centrifuged at 2000 RPM, for 5 min. and sedimented cells inoculated into the various concentrations of the chemical. The treatments was continued for 4 hr. The cells, however, survived only for one hour, since the treatment is lethal.

The observations are recorded on every eighth day for 40 days; and during this period, the effect of chemical on morphology of *Cosmarium-preanorsum* is studied.

Apart from the Zn and Cd complexes, the ligand had very little effect on the morphology and is comparable to control cells (figure 1). When treated with quinazaline Cd (II), many cells show chloroplast contraction (figure 2) and even fragmentation (figure 3).



Figures 1-4 *Cosmarium Praemorsum Breb* **1.** Control Cell × 2400. **2.** Cell showing chloroplast contraction × 2400. **3.** Cell showing Chloroplast fragmentation × 2400. **4.** Abnormal Cell × 2400.

In quinazaline Zn (II) treated cultures, at the end of the third week, a few abnormal forms, are recorded due to suppression in the wall formation (figure 4).

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RESIDUAL MERCURY LEVEL IN A BLUE-GREEN ALGA, *WESTIELLOPSIS PROLIFICA*, JANET.

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THE use of elemental mercury in caustic chlorine industries and mercurial compounds as seed dressings and subsequent discharge of waste on leaching to water bodies, create widespread environmental problems, particularly when the inorganic mercurial compounds are converted, in natural waters, to biologically active compounds[1]. Algae have been shown to concentrate heavy metals to a large extent in crop field[2]. Algicidal effects of 2,4-dichlorophenoxy acetic acid on *Cylindrospermum sp*[3], and panacide effects on dertain green and blue-green algae[4] were reported. Holderness *et al*[5] studied the effects of methylmercury on the growth of *Coelastrum microsporum* Naeg. Hannan and Patouillet[6] reported the effect of inorganic mercury on the growth rates of alga. The present work was proposed to study the accumulation of mercury in laboratory controlled cultures of *Westiellopsis prolifica*, Janet.

The alga was grown in allen and Arnon's medium as modified by Pattnaik[7]. After sterilisation of the growth medium, mercuric chloride was added in order to get the sub-lethal concentrations of 0.01, 0.02, 0.03 and 0.04 mg.l^{-1}. Keeping the volume of the medium at 50 ml in each flask, control flasks were maintained without the mercury salt for comparison. The inoculated flasks were kept in a culture room at a temperature $27 \pm 2°$ C and under a 12 hr illumination of 2500 ± 200 Lux. Cells were harvested for experimental work at 3 day interval to study the residual mercury accumulation in the exposed algal cells. After 15 day exposure, the cultures were centrifuged, washed and resuspended in mercury freeculture medium for recovery studies.

The cultures were centrifuged and washed 5 times with distilled water to ensure complete removal of adhered mercury on the outer surface of the algal tissue. The tissues were digested in a Klein's apparatus with an acid mixture (1:1, conc. H_2SO_4 and conc. HNO_3 acid). Residual mercury measurements were made in a mercury analyser (ECIL, MA 5800A) fitted with a mercury cold vapour analysis attachment. Total mercury levels were expressed as mg g^{-1} dry wt.

With the increase in exposure period, the residual mercury concentration increased showing a positive correlation (figure 1). The exposed algal cells, when transferred to mercury-free growth medium, could recover only partly. The residual mercury concentration level declined after 15 day recovery (figure 1), possibly due to excretion of mercury from the algal cells. What sets mercury apart from the other pollutants is the comparative irreversibility of its toxic action[6]. The mechanism by which mercury was picked up probably depends upon the concentration of mercury. Effect of toxicity was most obvious immediately after the addition of mercury in continuous culture experiments. Our experimental trend is in agreement with other workers[8,9]. The recovery observed in *Westiellopsis prolifica* might have resulted from volatilization or fixation or excretion of mercury from algal