mined by the titration method, based on the reduction of 2,6-dichlorophenol indophenol dye[3]. Dried tomato fruit tissues (0.2 g) were thoroughly ground in 0.4% oxalic acid solution and centrifuged at 3000 r.p.m. for 15 min and the supernatant was made up to 20 ml by adding more of oxalic acid solution. Five ml of the tissue extract was titrated against standardized indophenol reagent. A pink colour indicated the end point which, however, persisted only for about 15 sec.

The results indicate a reduction in ascorbic acid content both in healthy and fungus-infected and insect fed fruits. The reduction in ascorbic acid was directly proportional to the increase in the exposure to insect and also to the increase in incubation period after inoculation. Amongst the various treatments the per cent reduction was highest in fruits inoculated with fungus followed by fungus inoculated together with insect fed. With an increase in feeding duration of *D. busckii* the per cent loss of ascorbic acid increased. Various workers[4–7] also observed reduction in ascorbic acid as a result of pathogenesis.

In insect alone the reduction was 69.5% after 30 min duration; and in fungus it was 86.3% while with fungus together with insect the reduction was less than that seen with fungus only but more than that with insect only for 30 min duration.

It appears that the enzyme ascorbic acid oxidase which is known for metabolising ascorbic acid is more active in fruits infected with fungus than in insect but with insect and fungus together the enzymatic activity is slightly reduced.

One of the authors (PS) thanks CSIR, New Delhi, for a fellowship.

14 December 1987; Revised 8 April 1988

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ISOLATION OF *CANDIDA TROPICALIS* FROM A CASE OF EMPYEMA

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CANDIDA TROPICALIS, an opportunistic pathogen, was isolated from a case of empyema in an old, debilitated and diabetic patient.

Empyema is an acute or chronic condition characterized by purulent effusion and usually associated with bronchiectasis, lung abscess and pneumonia[1]. Although the role of aerobic and anaerobic bacteria has been investigated in empyema, the occurrence and etiological significance of fungi have not been well studied. The present communication describes the occurrence of *C. tropicalis* in empyema of a 57-year-old male patient.

A 57-year-old male patient who had empyema received extensive doses of antibiotics and other cytotoxic drugs but there was no clinical response. A specimen of purulent exudate was submitted to the laboratory for microbiological examination. A loopful of the material was inoculated on nutrient agar, brain-heart infusion agar, Sabouraud's dextrose agar with chloramphenicol (0.05 mg/ml) and simplified sunflower seed medium[2]. The first three media were incubated at 37°C while the last was kept at 25°C. The isolate was identified according to the procedures recommended by Lodder[3]. Drug sensitivity of the isolate to nystatin (100 μg) was conducted by disk diffusion method.

Bacteria, actinomycetes, dimorphic fungi or *Crypiococcus neoformans* could not be recovered from the empyema fluid of the patient. However, pure and heavy growth of *C. tropicalis* was observed on Sabouraud's dextrose agar with chloramphenicol (figure 1). The isolate produced thin-walled chlamydospores on cornmeal agar at 37°C within 32 h and was found sensitive to nystatin.

In the absence of any other organisms from the exudate, isolation of *C. tropicalis* in pure culture and the clinical history of the patient suggested that the isolate may be associated with empyema in this old, debilitated and diabetic patient.

Though *C. tropicalis* has been found incriminated with many disorders of man and animals[4–7], there appears to be hardly any report on the occurrence of this opportunistic yeast in the empyema of lung. The involvement of *Candida* spp. is most often observed in debilitated, aged and diabetic patients whose

Figure 1. Appearance of *Candida tropicalis* on Sabouraud's dextrose agar with chloramphenicol after 9 days of incubation at 37°C.

immune system functions less than optimally[5]. The same is true of the present case as the host was highly compromized. This emphasizes the need to undertake systematic studies on the role of potential and opportunistic fungal pathogens in the etiology of empyema which clinically simulate bacterial pulmonary empyema.

Thanks are due to Mrs. J. A. Acharya for technical assistance.

28 January 1988; Revised 4 May 1988

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A LEAF BLIGHT OF SCENTED GERANIUM CAUSED BY *COLLETOTRICHUM GLOEOSPORIOIDES* PENZ.

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THE oil of scented geranium (*Pelargonium graveolens* L. Herit.), obtained by steam distillation of the herb, is an important aromatic oil widely used in high-grade perfumery and cosmetics. The oil is being imported in large quantities to meet the demands of the indigenous perfumery industry[1].

A severe leaf blight disease was observed in fields of scented geranium at the CIMAP Experimental and Demonstration Farm, Bangalore, during the rainy seasons of 1985 and 1986. The symptoms first appeared on the margin of the leaves as brown necrotic spots which later expanded towards the midrib leading to complete necrosis and rotting of leaves. The disease thus gave a blighted appearance to the field. Subsequently, severe defoliation occurred resulting in heavy losses of herbage and in oil yields.

A large number of isolations were made on potato dextrose agar (PDA) medium. Leaf pieces including disease lesions and healthy tissue were surface-sterilized with mercuric chloride (0.1%) and placed on the medium aseptically. The fungus growing from these pieces was examined and identified as *Colletotrichum gloeosporicides* Penz. The identity of the fungus as *C. gloeosporioides* anamorph of *Glomerella cingulata* (Stonem) Spaulding and Schrenk. was later confirmed by the Commonwealth Mycological Institute, Surrey, UK (IMI No. 313455).

For conducting pathogenicity tests, a conidial suspension in sterile water (10^6/ml), prepared from conidia harvested from a 10-day-old culture of *C. gloeosporioides* grown on PDA, was sprayed on detached leaves and potted plants. Leaves and