of plasma corticosterone in sham-operated animals, whereas it produced no change in corticosterone level in adrenalectomised rats since the animals had no intact adrenal cortex. Malathion produced a significant eosinopenic response in both sham-operated and adrenalectomised rats. The eosinophil counts reduced from 876 to 135 counts/cm³ in sham-operated animals and from 1206 to 275 counts/cm³ in adrenalectomised animals, indicating that malathion has eosinopenic effect through some direct nonspecific toxic action. Malathion did not produce any significant change in the levels of plasma sodium and potassium in both sham-operated and adrenalectomised rats. The level of plasma potassium was significantly higher in adrenalectomised rats (6.5 mEq/l) compared to that of sham-operated (5.4 mEq/l), an effect similar to adrenalectomy.

The involvement of adrenal glands in mediating the hyperglycaemic effect was observed with other insecticides and herbicides like guthion diquat and paraquat. In contrast hyperglycaemia induced by P, P-DDT was not mediated through adrenal glands. Guthion failed to produce increase of liver glycogen in adrenalectomised animals. Speirs and Mayer reported a decrease of eosinophils after administration of benzyl alcohol which was due to some direct action but not through adrenal glands.

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A NEW DISEASE OF WHITE BUTTON MUSHROOM (AGARICUS BISPORUS)

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During the cultivation of Agaricus bisporus from October to January some note-worthy diseases were earlier recorded but a disease caused by Gliocladium virens Miller, Giddens and Foster is being reported for the first time from India or from any other country.

The disease is characterised (figure 1) by the formation of brown necrotic lesions from the margin of the pileus which migrated deep into the juncture of pileus and stipe, causing browning and necrosis in the stipe due to which there was splitting of the fungal hyphae of the stipe. The diseased fruit bodies did not produce any characteristic odour. The normal course of the development of sporophores was checked and the mushroom appeared ugly. Pathogenicity of G. virens was also tested by inoculating the fruit bodies of A. bisporus (figure 2). Preliminary studies show that the disease can be controlled by spraying benlate (methyl

Figures 1 & 2. 1. Diseased fruit body of Agaricus bisporus. 2. Symptoms of disease developed three days after artificial inoculation.
1-(butyl carbamoyl)-2-benzimidazol carbamate at 0.05% at the beginning and in the middle of cropping.

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PEROXIDASE ISOENZYME PATTERN IN THE LIVING BARK TISSUE AS AN INDEX OF MALE AND FEMALE IDENTITY IN DIOECIOUS BURSERA PENICILLATA (DC) ENGL.

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In an earlier communication it was pointed that in the dioecious Bursera penicillata (DC) Engl., a host of sandal (Santalum album Linn.), the leaf peroxidase isoenzyme pattern in the mature male and female plants as well as young vegetative plants (raised through shoot cuttings) showed characteristic differences which could be of use in determining the male and female identity of the Bursera plants.

The Bursera plants remain leafless from November to March. Fresh foliage is put forth during April and simultaneously tiny white flowers appear which remain on the plant for 6 to 10 days, the pollination taking place within this period. In the female plants, the fruits formed ripen and drop during August. The green leaves continue to remain on the Bursera plants (male and female) up to November. Thus, the Bursera plants remain leafless for nearly five months. Hence the utility of the differences in the leaf peroxidase isoenzyme pattern for determining the male/female identity in these plants is limited only to their leaf-bearing period. It was hence of interest to examine the differences, if any, in the peroxidase isoenzyme patterns in the living bark tissue of these plants and their utility in determining the male/female identity in these plants, as the living bark has no limitation of the availability as in the case of the leaves. The peroxidase isoenzyme pattern in the living bark tissue of the Bursera plants was therefore studied. The results of the study are reported in this note.

For the experiments, twigs were separately taken during (i) the second week of April (flowering period), (ii) the second week of September (corresponding to the post fruit-drop period in the female plant), and (iii) the second week of December (leafless period) from mature Bursera plants (10 male and 10 female) as well as from young Bursera plants (6 male and 6 female) raised through shoot cuttings taken from mature male/female plants as described earlier. In respect of these young plants, which remained vegetative throughout because of their not yet reaching the flowering age (usually 5 years) and in which the leafless period corresponds with that in the mature plants, the twig samples were taken at the same time as in the case of the mature plants. From the twigs, the thin bark layer is peeled off and the outer dead bark portion is scraped off to get the living bark tissue. This tissue (4 g in each case) was cut into small bits and used for preparing the enzyme extract and for studying the peroxidase isoenzyme pattern by polyacrylamide gel electrophoresis as detailed earlier.

It was observed that the peroxidase isoenzyme pattern in the living bark tissue, while it differed between the male and female plants, remained the same in all the male/female plants during April, September and December, irrespective of the fact whether the plant was the young vegetative plant or mature plant at the flowering or post fruit-drop period, and irrespective of the fact whether the plants were at the leafless period or leaf-bearing period. The peroxidase isoenzyme patterns obtained in respect of the male and female Bursera plants and the $R_f$ values of the bands are shown in the figure.

It can be seen that characteristic differences occur in the peroxidase isoenzyme pattern in the male and female Bursera plants. While the peroxidase isoenzyme bands with $R_f$ values 0.34, 0.64 and 0.68 were common both for the male and female plants, that with $R_f$ value 0.28 remained characteristic of the female plant and that with $R_f$ value 0.46 remained characteristic of the male plant. It may be pointed out that the bands with the $R_f$ values 0.34 and 0.46 in the male plant appear faint during the period September to December.

The characteristic differences occurring in the peroxidase isoenzyme pattern in the male and female Bursera plants could be of use, without any limitation of time, in determining the male and female identity in the young Bursera plants raised from seed, and in