BRINJAL FRUIT ROT CAUSED BY *FUSARIUM MONILIFORME* SHELD.—A NEW RECORD FROM INDIA

DURING regular survey in the field, brinjal fruit rot was observed on variety Manjri Gota. Visually the fruits were sunken and had turned brown, with pinkish growth, on the calyx. Microscopic examination of the rotted fruit revealed the presence of *Fusarium moniliforme* Sheld. and *Phomopsis vexans*. These two pathogens were isolated and purified by single hyphal tip method. Pathogenicity of the two pathogens was established by inoculating young brinjal fruits, of variety Manjri Gota.

The fruits inoculated with *F. moniliforme* showed reddish brown discolouration on calyx and stem end of the fruits. All the fruits dropped on the third day after inoculation. *F. moniliforme* was reisolated from these fruits. Fruits inoculated with *P. vexans* exhibited typical symptoms of *Phomopsis* rot. There was no fruit drop in this case.

A review of literature revealed that although *Phomopsis vexans* on brinjal has been reported in India[2–7] there is no record of *Fusarium moniliforme* Sheld. occurring on brinjal fruits in India[1]. Thus, this forms the first report of *Fusarium moniliforme* Sheld. on brinjals in India, causing fruit rot.

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RELATIONSHIP BETWEEN HORMONE LEVELS AND RNA SYNTHESIS IN GROWING FRUITS

^{32}P INCORPORATION in RNA parallels changes in auxin levels in developing and senescing maize grains and gibberellin levels in *Luffa* fruits.

Considerable evidence has accumulated in recent years to suggest that RNA synthesis is a major determinant of hormone-induced plant growth[1–6]. There is, however, no unequivocal demonstration of a correlation between endogenous hormone levels and plant growth.

In the investigation described in the present paper, an attempt is made to correlate the synthesis of RNA with the endogenous levels of auxins and gibberellins in maize seeds and *Luffa* fruits, which are known to be rich in auxins[7] and gibberellins[8], respectively.

Maize grains developing on the cob were collected from different parts of the cobs, weighed and classified into different age groups according to grain weight. Luffa fruits, varying in length and at different degrees of maturity, were collected from plants growing near the university campus. Slices of maize grains or the mesocarpic tissues of the *Luffa* fruits were incubated with nucleic acid precursors and orthophosphate ^{32}P for 1 hr and the RNA was extracted according to Kirby[9]. Auxin was extracted in ether[10] and estimated colorimetrically following the method of Gordon and Weber[11]. Gibberellins were extracted from the mesocarp of the *Luffa* fruits with acetone and bioassayed[12] using dwarf pea seeds cv. Supreme.

Figure 1 shows that ^{32}P incorporation in RNA increased upto the grain weight of about 70 mg and thereafter decreased gradually, even though the grains continued to increase in weight. The peak of the curve concerning RNA synthesis coincided with the peak of auxin level, and the decrease in auxin level was associated with a comparable decrease in RNA synthesis. In very young grains, low auxin level was associated with relatively slow rates of RNA synthesis.

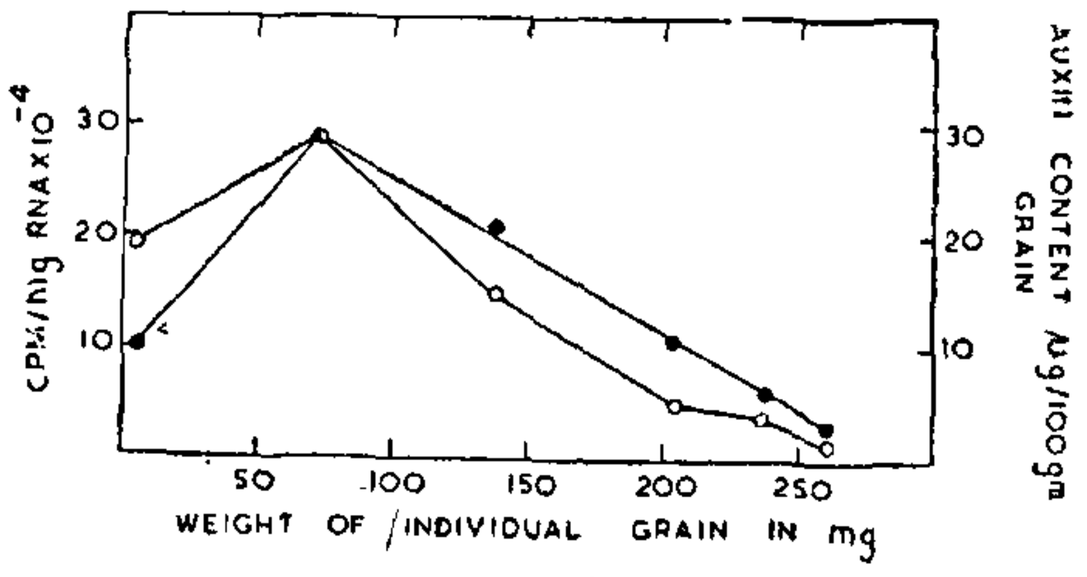

FIG. 1

In *Luffa* fruits (Fig. 2) RNA synthesis was maximum when the fruits were about 8 cm long and then declined sharply although the fruit continued to increase in length. The trend in RNA synthesis was also very similar to that of the level of gibberellin-like substances of the fruit, the peaks being attained in both the cases in fruits of the same length.

It thus appears that there is a close correlation between RNA synthesis and auxin and gibberellin levels in the developing fruits. However, growth of *Luffa* fruits and maize grains continued even when both RNA synthesis and hormone levels declined. If RNA synthesis is one of the controlling factors of

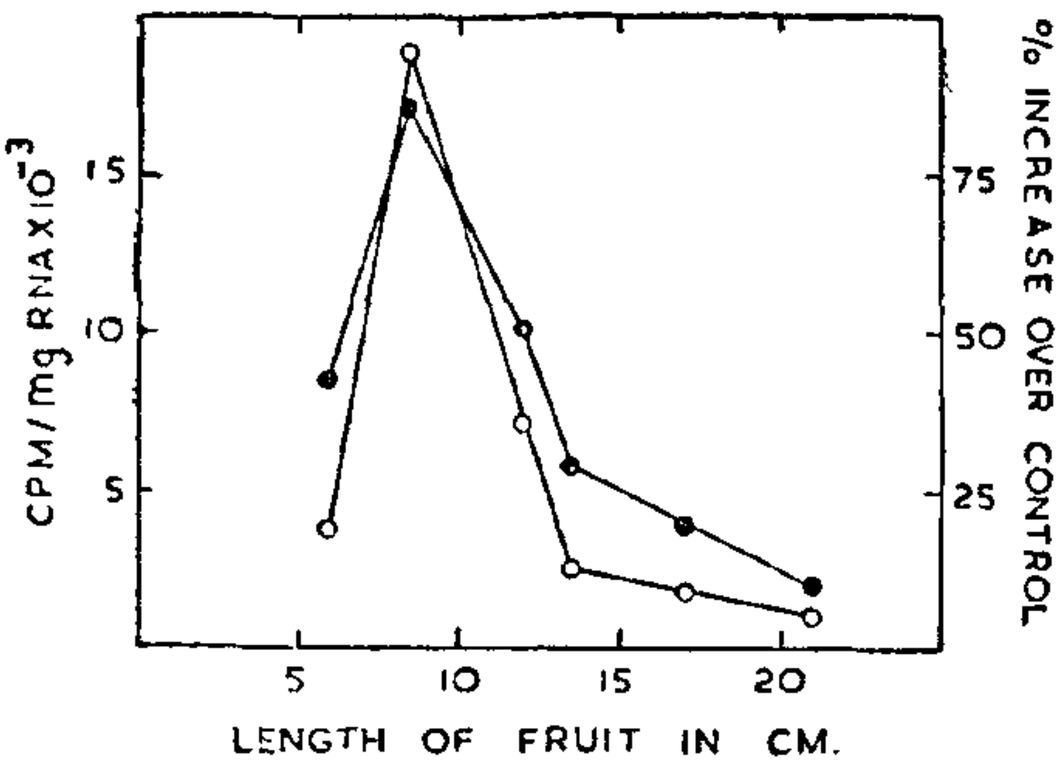

FIG. 2

senescence, as has been suggested by numerous studies[13–19] then the process of senescence started soon after the peak in RNA synthesis was attained although there was no external expression of senescence symptoms. Application of hormonal substances has been reported to delay the senescence of many plants[20] and the decline in auxin and gibberellin levels would also suggest that the onset of senescence might have taken place long before senescence symptoms became visible. However, growth proceeded in spite of declining hormone levels and the RNA synthesis, indicating that in the later stages of fruit growth hormone effects on growth and senescence are uncoupled. Sitton *et al.*[21] have observed that cytokinin content of root exudates of sunflower plants increase initially but declines sharply after flowering, which is accompanied by senescence. Unfortunately, changes in RNA levels of such plants were not recorded.

It would be interesting to know whether similar situations as have been recorded in the present investigation, also operate in other senescent tissues like leaves, internodes, floral parts, etc., in each of which senescence is associated with decreased RNA synthesis[19, 22]. Correlative studies concerning ethylene and abscisic acid levels and their RNA synthesis during ontogeny may provide further useful information for constructing an integrated picture concerning the hormonal control of growth and senescence in plants.

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FOSSIL WOOD OF *TERMINALIA* FROM THE TERTIARY OF WEST BENGAL

IN the present note a fossil wood resembling the modern genus *Terminalia* L. is described from the Silabati River bed near Garbeta, Midnapu Disrtrict, West Bengal. This is the first record of the occurrence of *Terminalia* type of wood from the Tertiary of Midnapur District, West Bengal. The fossil wood is represented by a small piece of decorticated secondary xylem and shows the following characters : *Wood* diffuse porous (Fig. 1). Growth *rings* indistinct. *Vessels* large to medium, solitary as well as radial multiples of 2–3, t.d. 65–230 μ, r.d. 153–765 μ; tylosed, thick walled,