

## 7. Apomixis in Job's tears (Coix lachryma-jobi).

Two plants of Job's tears were found growing isolated in the Botany Experimental Farm. The plants were weak and produced a few female spikelets. The male spikelets were either absent or only poorly developed. The latter when opened and examined were found to be empty. The plants, therefore, were male sterile but they produced normal healthy seeds. Since there was no pollen source anywhere near, it was suspected that the seeds were formed apomictically. To make sure that there was no contamination by pollen from outside, the female spikelets were bagged before the styles showed. Normal healthy seeds were obtained from these also. Further, when the ovules were squashed and examined, they showed the presence of several five-nucleate embryo sacs in each indicating the occurrence of apomixis. It was reported earlier (MNL 39: 183, 1965) that Coix when crossed with maize (used as male) produced parthenogenetic diploid mother plants.

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## 1. Physiological studies of the stature mutant nana-1.

The stature mutant, nana-1, is a non-responder to gibberellins. Through the use of bioassays van Overbeek demonstrated a higher rate of auxin inactivation in the coleoptile of the mutant as compared to that of its normal sib.

Using extracts of both nana and normal coleoptiles, we have tested for inhibition of elongation in the Avena coleoptile section test, qualitatively analyzed the peroxidase isozymes by use of polyacrylamide gel disc electrophoresis, and tested peroxidase activity quantitatively by spectrophotometric assays. These studies have revealed no qualitative or quantitative differences in peroxidase activity between nana and its normal sib.

Inhibitors of peroxidase activity, such as ferulic and caffeic acids elicited no differential response between treated normal and nana intact coleoptiles or mesocotyls. However, incubated mutant coleoptile sections responded to lower concentrations of IAA and elongated more than incubated sections of normal coleoptiles as well as comparable sections on intact normal seedlings.

These initial studies suggest that differences in growth rates of the nana and normal coleoptiles and mesocotyls are due to differential auxin production and not to differences in peroxidase activity.

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