

In the latter, the callus became spongy and died. The cell suspension (figure 1C) obtained from the retrieved callus resumed active growth, and contained highly cytoplasmic aggregates of cells.

The effect of various cryoprotectants on the survival of cells is shown in table 1. As can be seen, a mixture of 5% each of sucrose, glycerol and dimethylsulfoxide resulted in higher viability than that obtained from chemicals when used singly. The anther-derived callus was more sensitive than that obtained from the ovules as evidenced by 34% and 42% survival respectively.

The present study confirms the earlier work on the freeze preservation of the anther-derived haploid callus cultures⁷ and the androgenic anthers of tobacco, petunia⁸ and primula⁹. Furthermore, the mixture of various cryoprotectants proved to be better, as they led to higher survival.

TABLE 1

Effect of various cryoprotectants on survival of tissue cultures of Gossypium arboreum frozen in liquid nitrogen. Data based on the resumption of growth

Cryoprotectant	Survival % of control cultures		
	Anther	Callus	Ovule Callus
Sucrose 8%	7		9
Glycerol 10%	15		19
DMSO 10%	29		27
Sucrose + glycerol +DMSO(5% each)	34		42

The freeze storage of plant cells and tissues in liquid nitrogen brings down growth and metabolism to the zero level, and thus prevents or delays the process of ageing. Moreover, plant tissue cultures on prolonged storage at ordinary temperatures undergo various genetic changes, and, in this respect, it is envisaged that freeze preservation would prevent these genetic erosions, and thus would help to maintain clones of cultures that are genetically unstable.

The author thanks the Indian Council of Agricultural Research for financial assistance.

July 24, 1981.

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CHARCOAL ROT OF MANGO

SHASHI DHAWAN

Central Mango Research Station,
Lucknow 226 006, India

Present Address: National Research Laboratory for
Conservation of Cultural Property, C-257, Nirala
Nagar, Lucknow 226007, India

DURING a survey of the local fruit market of Lucknow in May 1980 a severe charcoal rot was observed on mango var. Baganpalli. The disease appeared from the fruit end and later covered the whole surface of the fruit. Rotting was observed from the pedicle portion internally, shrivelled and showed blackening of the internal tissue which finally bore numerous black oval to irregular small size pycnidia.

The fungus was grown on potato-dextrose agar medium and incubated at 30°C. The pathogenicity of the fungus was established by routine inoculations on healthy fruits typical symptoms of charcoal rot appeared (figure 1). The fungus was identified as *Macrophomina phaseolina* (Tassi) Goid (IMI. 252129). The disease appears to be a new record on mango. Studies on control measures are in progress.

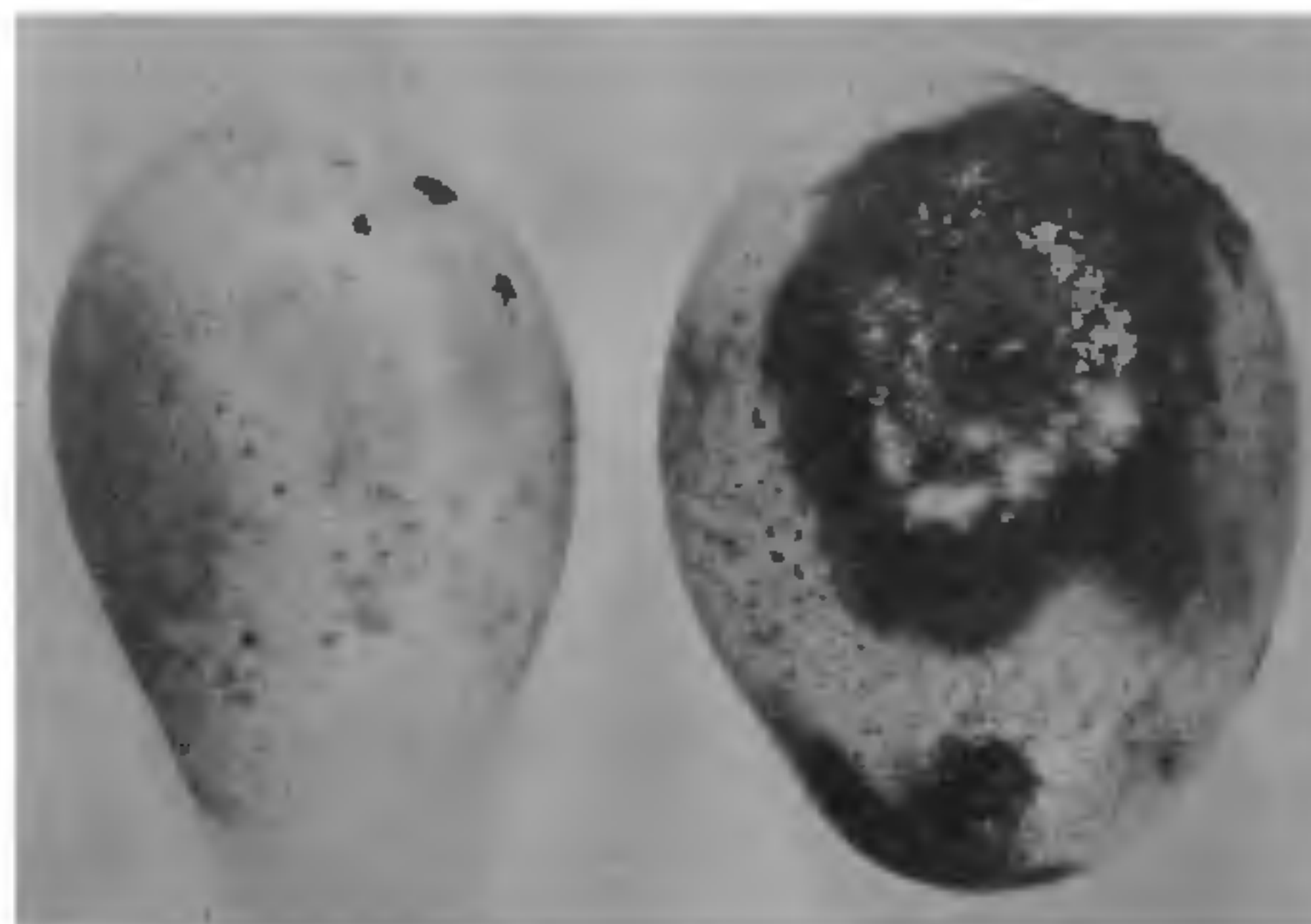


Figure 1. Healthy and *Macrophomina phaseolina* infected mango.

The author is thankful to Dr. J.E.M. Mordue of CMI Kew for identifying the fungus, to the authorities of this Station for facilities, and to C.S.I.R. for financial assistance.

August 13, 1981