

RESEARCH NOTE

Mango Losses due to *Diplodia* Stem-end Rot

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The stem-end rot of ripe mango fruits incited by *Physalospora rhodina* (Berk and Curt.) Cook (Syn. *Diplodia natalensis* Pole Evans) has characteristic symptoms and is distinct from lateral localised lesions or stem-end infection of the fruit incited by other fungi. In the initial stage, a small area on the epicarp around the base of the pedicel turns light brown. In the next few hours the affected area enlarges to form a circular snuff brown to black patch with fringed margin which under humid atmosphere extends rapidly, turning the whole fruit completely black within 2 to 3 days. The pulp of the diseased fruit becomes brown and somewhat soft (Fig. 1). Such fruits lose their market value completely.



Fig. 1.—Mango fruit showing symptoms of *Diplodia* stem-end-rot

The disease is widespread and destructive. Wastage due to this disease from outside India (Su^{*} and Fernando[†] is estimated between 2 to 10 percent. In India, Chakravarti and Srivastava[†] observed 10 per cent. infection of the *Langra* variety in Delhi markets.

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A study was undertaken to assess the extent to which fruits of different mango varieties commonly sold in Delhi market suffer from this disease. The fact that the disease manifests only in ripe fruits after release for sale in the retail market and that Delhi receives mangoes of many varieties from all parts of the country proved to be of advantage in this study. Subzimandi, the central market for fruits in the capital, was chosen for this purpose. In all, 5 visits were made at intervals of 30 days between the second week of April and end of August for three consecutive mango seasons of 1964, 1965 and 1966. Disease counts in the early varieties, viz., *Totapari*, *Sindoori*, *Piari* and *Himani* were made during April and May. In the case of *Langra*, *Dushehri*, *Sarauli* and *Chausa*, the counts were made in June, July and August and in the *Desi* only in August. The incidence of the disease was based on the number of mangoes infected out of 4 samples each of 125 fruits of each variety examined in four different shops selected at random during each visit. The average per cent infections for each year and for the three years are given in Table 1. Five infected fruits of each variety were picked up in every visit, brought to the laboratory and the association of the pathogen confirmed in all cases by isolation on PDA.

TABLE 1.—Incidence of *Diplodia* stem-end rot of mango fruits of different varieties in Delhi market

Variety of mango fruits	Infection (per cent.)			Average of the 3 years
	1964	1965	1966	
<i>Totapari</i>	5.0 ..	3.1 ..	5.0 ..	4.3
<i>Sindoori</i>	4.7 ..	3.9 ..	3.8 ..	4.4
<i>Piari</i>	4.5 ..	3.3 ..	4.6 ..	4.1
<i>Himani</i>	4.7 ..	3.6 ..	4.7 ..	4.3
<i>Langra</i>	6.4 ..	4.3 ..	8.0 ..	6.2
<i>Dushehri</i>	6.2 ..	4.0 ..	6.9 ..	5.7
<i>Sarauli</i>	5.6 ..	3.7 ..	7.9 ..	5.7
<i>Chausa</i>	6.2 ..	5.0 ..	7.5 ..	6.2
<i>Desi</i>	5.8 ..	3.8 ..	6.6 ..	5.4

From the results in Table 1, it is seen that fruits of all the 9 varieties, including the *Desi*, showed varying degrees of stem-end rot. Maximum infection of 6.2 per cent for the three year period was recorded in *Langra* as against the minimum of 4.3 in *Totapari*. The per cent. infection in all the varieties was significantly higher in 1966 than in the other 2 years.

The incidence observed is within the range of 2 to 10 per cent. reported by earlier workers. The incidence of the disease is bound to vary with the class of the market. For example, one may not easily find a diseased fruit in any of the fruit stalls of Irwin Road where the shopkeepers meticulously exhibit the best fruits to attract the upper class moneyed customers. On the other hand, one may find mostly diseased fruits in the shops of the slum areas in Karol Bagh where the sub-retailers bring and sell diseased fruits

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discarded by the shopkeepers in superior markets. Since the disease manifests only in the ripened fruits, it is not possible to get a correct picture even from the average shopkeepers in Subzimandi, because the ripened fruits are on continuous sale and are replaced by newer consignments of less ripened ones. The only way to get a precise idea of the incidence of the disease is to purchase a large consignment of the varieties from the wholesalers and watch them for the incidence of the disease until they are over-ripe. This is undoubtedly an expensive proposition. Nevertheless, the results obtained clearly show that the disease is of considerable economic importance. Since only ripened fruits develop the disease, the actual parties affected are the retailers and the consumers. The orchard owner and wholesalers remain unaffected.

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