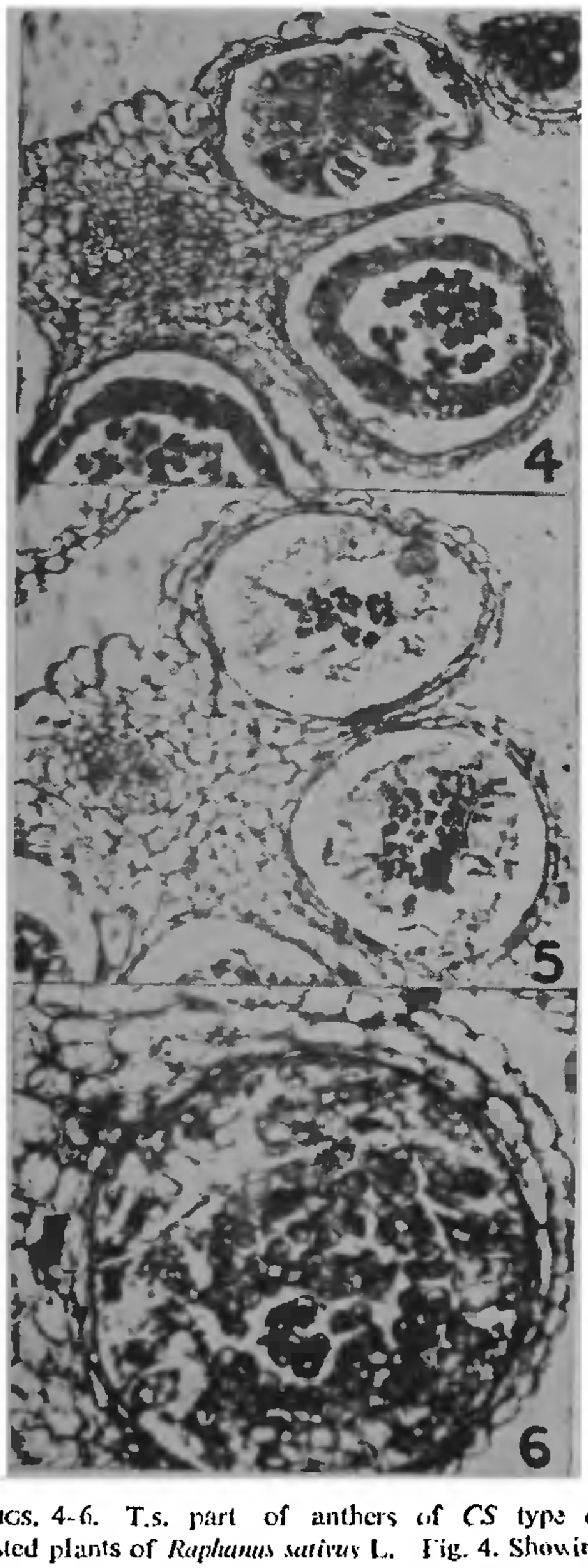
extent of sterility. The anthers of *CS* type of plants were markedly deficient in these substances.



FIGS. 4-6. T.s. part of anthers of *CS* type of infested plants of *Raphanus sativus* L. Fig. 4. Showing hypertrophy of tapetum at pollen mother cell stage, × 120. Fig. 5. Showing hypertrophy of tapetal cells at microspore tetrad stage, × 120. Fig. 6. Showing hypertrophy of tapetal cells at pollen grain stage, × 280.

It was concluded from these findings that the severe infestation of *Lipaphis erysimi* Kalt. caused high degree of male sterility associated with tapetal abnormalities similar to those found in cytoplasmic, genic as well as induced male-sterile plants[3-5]. In the opinion of present authors, the abnormalities in tapetal behaviour, in all probability was a result of vascular inhibition. This subsequently blocked the normal supply of nutrition to this layer, and sterility resulted[6,7]. This fact was also corroborated by the present histochemical observations.

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CHANGES IN ASCORBIC ACID CONTENTS OF PINEAPPLE (*ANANAS COMOSUS*) FRUITS BY *CERATOCYSTIS PARADOXA*

THERE is considerable modification in the vitamin C (ascorbic acid) contents of fruits during fungal infection[2-4]. *Ceratocystis paradoxa* Dade Moreau has been reported to cause considerable damage to the pineapple[4]. The individual fruit exhibited 80·2% decay after 8 days of infection. The present note incorporates the post infectional modification in the contents of ascorbic acid.

The healthy fruits of pineapple of nearly the same age were inoculated with the pure culture of *C. paradoxa*. Another set of fruits without fungus served as the control. Both the sets were incubated at 25 ± 2° C for 8 days. The ascorbic acid contents in healthy and diseased fruits were determined[2,3]. The results are summarized in Table I.

There was a gradual decline in ascorbic acid in both healthy and the diseased fruits but it was more

TABLE I

Ascorbic acid contents (in mg/100 g in the pulp) of healthy and infected fruits of pineapple

	Days of incubation				
	0	2	4	6	8
Ascorbic acid in infected	50·5	50·0	39·5	27·5	19·1
Ascorbic acid in healthy (control)	50·5	51·3	50·8	48·1	47·2

pronounced in the infected ones. Losses in control fruits were comparatively small. Rapid decline in ascorbic acid in mango, papaya, guava and 'aonla' fruits by fungi was reported[2,3,6]. Such decline in vitamin C may be due to the increased oxidation in the infected fruits because the enzymes, oxidases including ascorbic acid oxidase was known to occur during fungal infection[1]. Ascorbic acid oxidase was also detected in certain fungi[5,7].

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AFLATOXIN PRODUCTION AND LOSS IN CALORIC VALUE OF MAIZE SEEDS DUE TO *ASPERGILLUS PARASITICUS*

MAIZE is a potent source of energy with high caloric values. This is also one of the best substrates for the growth of *Aspergillus flavus* and *A. parasiticus* as well as for aflatoxin production. Consumption of aflatoxin contaminated food causes a wide range of diseases in animals[1] and human beings[2]. In this communication aflatoxin production and loss in caloric value of maize seeds due to a known aflatoxin producing strain of *A. parasiticus* (NRRL–3240) is reported.

Two sets of experiments were conducted with Ganga–2 variety of maize. In one lot, 25 g surface sterilized seeds were used and in the second lot, 25 g of soaked seeds were autoclaved at 15 lb psi for 10 minutes in a 250 ml Erlenmeyer flask. Both the seed lots were inoculated with 0·5 ml spore suspension of *A. parasiticus* and the flasks were incubated at 28 ± 1° C for different periods. After each incubation period, the infested seeds were extracted with chloroform. Qualitative estimation of aflatoxin was done on TLC plates in toluene ; iso-amyl alcohol : methanol (90 : 32 : 2, v/v) solvent system[3] and quantity of aflatoxin B_1 was estimated by the method of Nabney and Nesbitt[4].

For the determination of caloric value, thoroughly washed and dried seeds were ground and the flour was pressed to form pellets. Caloric values of the samples were estimated by the method of Lieth[5] by using an isothermal bomb calorimeter.

Aflatoxin formation started after 2 days in autoclaved maize seeds, while in surface sterilized seeds, it was initiated on the 4th day (Table I). The maximum production of aflatoxin was achieved on the 16th day in autoclaved seeds and on 20th day in surface sterilized seeds. The quantity of aflatoxin continued to rise with the increase of incubation periods, till it reached the maximum. Subsequently, during the later phase of incubation period (30 days) there was a decline in the aflatoxin concentration.

TABLE I

Production of aflatoxin B_1 in maize seeds at different incubation periods by Aspergillus parasiticus

Incubation period (in days)	Amount of aflatoxin B_1 (mg/100 gm)	
	Surface sterilized seeds	Autoclaved seeds
0	—	—
2	—	+ (trace)
4	+ (trace)	5·36
6	3·64	8·44
8	5·36	11·80
10	7·28	14·16
12	9·44	16·52
14	12·78	18·88
16	14·16	20·06
20	15·80	20·06
30	14·16	18·88