

TABLE I
Bacterial degradation of insecticides

Name of insecticides	Quantity added (μg a.i. per tube)	Period of incubation (hours)	Replication No.	Absorbance (Mean)			Amount of insecticide degraded μg
				Control	Treatment	Difference	
DDT	1000	6	3	0.285	0.050	2.234	820.00
	1000	24	3	0.280	0.036	0.244	850.00
	1000	72	2	0.275	0.040	0.235	820.00
Parathion	100	6	3	0.134	0.086	0.048	29.00
	100	24	3	0.130	0.043	0.087	60.00
	100	72	3	0.126	0.034	0.092	67.00
Carbaryl	50	6	3	0.372	0.239	0.133	18.00
	50	24	3	0.361	0.201	0.160	22.00
	50	72	3	0.344	0.178	0.166	22.50

was rather negligible. *B. cereus* generally starts sporulating by 24 hours and this may be the cause of the near stoppage of the metabolism of the pesticides.

The value of this characteristic of symbiotes to the host insect can be determined by the *in vivo* studies on the comparative susceptibility of the aposymbiotic and normal bugs to the insecticides. Due to failure to produce aposymbiotic bugs, such studies could not be conducted here. Mallory and Matasmura (1967) have also found such a degradation by the cultured symbiotes of *Rhagoletis pomonella* and have expressed that these may be helpful to the host insect.

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EFFECT OF FUNGAL INFECTION IN VITAMIN C CONTENT OF APPLES

ALL the vitamins, or at least their intermediate precursors are synthesized in green plants. Vitamin deficiency diseases of man, such as scurvy, resulting from ascorbic acid deficiency, has been known for centuries. This vitamin which is essential for man and higher animals is mostly supplied by different fruits. Its biosynthesis by plants has been reviewed by many investigators^{1,2} The important vitamin contents of fruits are known to be largely affected by fungal invasions. It is, therefore, aimed to study the changes in the ascorbic acid contents of two varieties of apple fruits after infection by *Aspergillus niger* van Tiegh causing severe storage rot.

Healthy fruits of both the varieties were inoculated by *Aspergillus niger* van Tiegh and were kept at 26° C ($\pm 1^\circ$ C) for a period of 12 days. On every 3rd day 5 g each of healthy and diseased pulp were taken from both the varieties. The pulp so taken was macerated by grinding with acid washed sand and 10 ml of extracting solution³ and volume of the filtrate was raised to 25 ml. The amount of ascorbic acid was then estimated by the reduction of 2, 6 dichlorophenol, indophenol and measuring changes in optical density at 520 m μ at 15 and 30 seconds intervals as described by Roe⁴.

The results obtained are shown in Table I. The quantity of ascorbic acid in healthy and diseased fruits is the mean of three samples.

It is observed that the amount of ascorbic acid in both the varieties is more or less the same. As the incubation progressed there was a gradual decrease in ascorbic acid content in both healthy and rotted tissues of both the varieties tested. The decline was, however, much faster in diseased fruits while it was comparatively insignificant in healthy tissue. The depletion of ascorbic acid in the diseased tissue may be ascribed to its being lost

due to oxidation. In the present study the gradual decrease in the quantity of ascorbic acid in healthy fruits could be attributed to the overripening of the fruits, as also has been reported by many investigators⁵⁻⁷.

TABLE I

The change of ascorbic acid content in healthy and diseased fruits of two apple varieties infected by *Aspergillus niger* (mg/100 g fruit pulp)

Apple varieties	Incubation period in days					
	Zero	3rd	6th	9th	12th	
KESARI	Healthy	2.08	2.00	2.00	1.8	1.7
	Diseased	..	0.791	0.426	0.00	0.00
EDWARD	Healthy	1.983	1.980	1.881	1.761	1.7061
	Diseased	..	0.356	0.1692	0.00	0.00

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NOCTURNAL POLLEN GERMINATION IN *IMPATIENS* (BALSAMINACEAE)

SEVERAL studies have provided evidence for an intriguing series of relationships among certain dynamic as well as static aspects of pollen grain biology. Although a good deal of data on *in vitro* as well as *in vivo* germination of pollen in day-blooming plants are available, the knowledge on adaptations of night-blooming angiosperms for nocturnal pollination is very meagre. The present work on *Impatiens* L., (Balsaminaceae) intends to study the nature and behaviour of pollen in different species occurring in South India. The taxa

of the genus are highly evolved among Geraniales as evident from their marked zygomorphy of flowers and nectiferous spur. The arrangement of stamens, pistil and spur is markedly adapted for cross pollination. However, the intricacies of reproductive biology and breeding behaviour of these plants are still imperfectly known. The present investigation on *Impatiens* has shown for the first time that the pollen grains of different species will have different germination timings, and has helped in understanding the mode of pollination in these species.

The materials for the present study were collected from high-altitude ranges of South India and cultivated in the green house. Regular observations were made for the study of phenological characters such as season of flowering, time of opening and shedding of flowers. The scapigerous species with tuberous rootstocks which did not survive in the green house, were subjected to phenological observations on the same night or two to three succeeding days and nights after they were brought alive to the green house from the nearest available localities.

Since the pollen in *Impatiens* was found to germinate readily in distilled water, this method was standardised for all the species studied except in the occasions when the pollen did not germinate during the day hours (e.g., *I. acaulis* and *I. scapiflora*). In the latter case the sucrose solution of 2, 4, 5, 10% concentrations was used. The petri-dishes were covered with wet blotters to maintain cold and humidity inside. Pollen of 22 taxa was subjected to germination test, and the phenological data obtained are given in Table I.

As it is evident from Table I, a majority of species of *Impatiens* are night-blooming and have a wide range of timings with regard to pollen germination. Among the species investigated, *I. acaulis* (Naduvattam) and *I. scapiflora* (Jodpala, near Mercara) collected during the late South-West monsoon are of special interest. When the pollen grains from the opened flowers of these species were put in water or sucrose medium, they failed to germinate either under decreased or increased temperature conditions. From the phenological observations made during night it was revealed that the flowers in these species are chiefly night-blooming. Pollen from just-opened flowers in the night when put in water resulted in the maximum germination within a short duration (10 minutes). The rate of growth of pollen tube in the beginning was found to be 56.25 μ in length per minute. In *I. scapiflora* brought from Jodpala during July-August, retained viability for nearly 24 hours or even more under cool and humid environment. On the other hand,