

BLOSSOM BIOLOGY OF GUAVA AND ITS RELATIVES

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Studies on blossom biology of guava and its relatives revealed that both longitudinal and irregular bud splitting were recorded with more of longitudinal splitting. There was no clear vision of bud splitting. In *P. cattleianum* and *P. cattleianum* var *lucidum* which showed bright shining on the top of the bud in the previous day evening. The anthesis was between 4.00 a. m. to 7.05 a. m. and the peak anthesis differed from species to species. The duration of anthesis ranged from 30 minutes to 135 minutes. The anther dehiscence was between 4 a. m. and 8 a. m. in guava cultivars with a peak between 5 a. m. to 7 a. m. whereas it was 4 to 9 a. m. in relatives with individual species differing in their peak opening. The stamens splitted longitudinally.

The guava a native of Central America is now found in all parts of the tropics and sub-tropics. For further development of this fruit crop, a planned, breeding programme is needed. Hawkes (1971) has indicated the importance of near relatives and wild species in crop improvement. However, very little is known about the guava species except for *P. guajava*. Hence, the present investigation was carried out in the Department of Horticulture, Allahabad Agricultural Institute, Allahabad.

MATERIALS AND METHODS

Two uniform trees in each of eight species viz., *Psidium guajava* L. var *Safeda*, *P. guajava* L. var *Seedless*, *P. cujavillus* Burm., *P. pumilum* Firm., *P. polycarpum* Lamb, *P. cattleianum* Sabine, *P. cattleianum* var *Lucidum* Deg., *P. molle* Bert and *P. friedrichsthalianum* Nied receiving identical cultu-

ral treatments were selected randomly for the study. From each tree four branches were selected representing four directions and the branches were tagged for easy identification. The blossom biology was studied from July to September periods by adopting the methods of Balasubramaniam (1959) and Teatitia *et al.*, (1970). From 50 tagged flowers, the observations were recorded.

RESULTS AND DISCUSSION

1. Mode of bud splitting

In guava cultivars longitudinal splitting was more. However, 28% irregular splitting was also observed in Seedless type (Table-1). The bud splitting commenced at 5-00 to 6-00 A.M. prior to 24 hours of anthesis. The bud splitting started at middle and proceeded towards top as well as the base of the flower. However, there were variations in guava relatives and the same are presented below :

Mode of bud splitting in *Psidium* species

Species (1)	Longitudinal % (2)	Irregular % (3)	Remarks (4)
<i>P. guajava</i> var <i>Safeda</i>	100	—	No irregular splitting

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(1)	(2)	(3)	(4)
<i>P. guajava</i> var Seedless	72	28	Almost 25% irregular splitting
<i>P. cujavillus</i>	—	100	First started as longitudinal. But latter splitted irregularly.
<i>P. pumilum</i>	100	—	Clearcut longitudinal splitting.
<i>P. polycarpum</i>	100	—	At first one side of the bud only.
<i>P. cattleianum</i>	—	—	Before anthesis the buds splitted irregularly on the top. There was bright shining in the previous day evening
<i>P. cattleianum</i> var <i>lucidum</i>	—	—	
<i>P. molle</i>	76	24	Almost 25% irregular splitting.
<i>P. friedrichsthalianum</i>	100	—	Bud splitted prior to anthesis.

2. Anthesis

The change from the closed bud to open petal stage was accelerated as light intensity and temperature in-

creased (Beddows, 1969). There were variations in time and percentage of anthesis and anther dehiscence among the various species and are furnished below :

Species	Time of flower opening		Duration minutes
	From A.M.	to A.M.	
1. a. <i>P. guajava</i> var <i>Safeda</i>	4.45	6.00	75
b. <i>P. guajava</i> var <i>Seedless</i>	5.30	7.45	135
2. <i>P. cujavillus</i>	5.20	6.15	55
3. <i>P. pumilum</i>	4.00	5.10	70
4. <i>P. polycarpum</i>	6.15	7.05	50
5. <i>P. cattleianum</i>	5.45	6.15	30
6. <i>P. cattleianum</i> var <i>lucidum</i>	5.45	6.15	30
7. <i>P. molle</i>	5.30	7.05	95
8. <i>P. friedrichsthalianum</i>	5.00	6.00	60

The bud splitting in guava cultivars was mainly longitudinal. However irregular splitting was observed to the tune of 28% in seedless and in *P. molle* 24% was recorded. In *P. cujavillus* cent per cent irregular splitting was noticed whereas it was cent per cent longitudinal splitting in var *safeda*, *P. pumilum*, *P. polycarpum*. In *P.*

friedrichsthalianum, *P. cattleianum* and *P. cattleianum* var *lucidum* there was no clearcut splitting. Bud splitting in guava was studied by Sehgal and Singh (1967) and Teotia *et al.* (1970). The anthesis was between 4-45 a. m and 7-45 a. m. in guava cultivars while it was from 4-00 a.m. to 7-05 a.m. in guava relatives. The maximum time

Mean percentage of anthesis in *Psidium* species

Species	4 to 5 A.M. %	5 to 6 A.M. %	6 to 7 A.M. %	7 to 8 A.M. %
<i>P. guajava</i> var <i>Safeda</i>	12	80	8	—
<i>P. guajava</i> var <i>Seedless</i>	—	20	48	32
<i>P. cujavillus</i>	—	80	20	—
<i>P. pumilum</i>	60	40	—	—
<i>P. polycarpum</i>	—	—	80	20
<i>P. cattleianum</i>	—	40	60	—
<i>P. cattleianum</i> var <i>lucidum</i>	—	40	60	—
<i>P. molle</i>	—	8	80	12
<i>P. friedrichsthalianum</i>	—	100	—	—
Mean	8	45.33	39.55	7.1

Mean percentage of anther dehiscence in *Psidium* species

Species	4 - 5 A.M. %	5 - 6 A.M. %	6 - 7 A.M. %	7 - 8 A.M. %	8 - 9 A.M. %
<i>P. guajava</i> var <i>Safeda</i>	8	60	28	4	—
<i>P. guajava</i> var <i>Seedless</i>	—	16	64	20	—
<i>P. cujavillus</i>	26	40	—	—	—
<i>P. pumilum</i>	60	40	—	—	—
<i>P. polycarpum</i>	—	16	60	24	—
<i>P. cattleianum</i>	—	—	32	48	20
<i>P. cattleianum</i> var <i>lucidum</i>	—	—	28	48	24
<i>P. molle</i>	8	64	20	8	—
<i>P. friedrichsthalianum</i>	28	72	—	—	—
Mean	13.78	36.45	28	16.89	14.38

of 135 minutes and the minimum of 30 minutes was recorded for seedless and *P. cattleianum* respectively. Similar findings were recorded by Nalawadi *et al.* (1973) and Ranganath (1973). Slight differences in anthesis

might be due to weather conditions and soil factors as each degree variation of latitude delayed flowering for four days in trees. However, there was no significant difference in anthesis.

The anther dehiscence started from 4 to 8 a.m. with a peak of 5 to 7 a.m. in guava cultivars. The anther dehiscence started prior 15 to 20 minutes in both the cultivars. In guava relatives anther dehiscence was from 5-00 to 8-00 a. m. except in *P. cattleianum* and *P. cattleianum* var *lucidum* where it was from 6-00 to 9-00 a. m. with a peak at 6-00 to 8-00 a. m. In guava cultivars and their relatives the dehiscence started from outer whorl to inner whorl with longitudinal splitting and soon after dehiscence the stamens faded and fell down in most of the cases. This was in agreement with Teotia *et al* (1970). However the latter authors recorded bud splitting from 5-00 to 11-00 a. m. under Saharanpur conditions. These difference might be due to weather factors.

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