

Schrank, which remains crouched over its eggs until the larvæ emerge, the *Cheletomorpha* took no further interest in the welfare of its young, but wandered away to lay a few more eggs in another place.

Silk production is common in the Tetranychidae; but it has not previously been recorded in the Cheyletidae, and it is possible that, in *Cheletomorpha*, part of the salivary gland is modified for this purpose.

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Control of Flowering in Rice by Plant-Growth Substances

THERE is a difference of opinion regarding the presence or absence of florigenic properties of the plant-growth substances. The flowering behaviour of various crop plants as influenced by these substances has been studied by many workers in the field¹⁻⁵. The present investigation aims at studying the effect of various plant-growth substances such as β -indolylacetic acid, α -naphthylacetic acid and 2,3,5-triiodobenzoic acid on the flowering of four different varieties⁶ of rice.

Pure grains of the varieties *N.136* (early), *T.1145* (early-winter), *T.141* (mid-winter) and *J.192* (late-winter) were procured from the Central Rice Research Institute, Cuttack. After a preliminary selection for uniformity, the seeds were soaked in three different concentrations, 500, 250 and 100 p.p.m., of each of the three different plant-growth substances for 72 hr. The grains thus treated were washed thoroughly in water and then sown in seed-bed pots. At the age of 21 days, the seedlings were transplanted to 10-in. earthenware pots containing a mixture of soil and cow-dung manure in the proportion of 8:1. The plants were next subjected to weekly foliar spray with the corresponding hormone solution in which the seeds were soaked previously. The spraying was commenced with 28-day-old seedlings and was continued until the panicles emerged in each plant. Care was taken to maintain uniform soil moisture throughout the experimental period by frequent applications of water.

The criterion of ear emergence was taken as the exertion of the floral axis through the flag leaf sheath of the main shoot. Observations were taken each day at about 9 a.m. The number of days taken from sowing to ear emergence is presented in Table 1. The results indicate a wide difference among the various varieties in the response to the different treatments. The auxin β -indolylacetic acid had no effect on ear emergence in varieties *N.136*, *T.1145* and *T.141*, but produced a significant earliness in the variety *J.192*. The auxin α -naphthylacetic acid brought about a significant delay in ear emergence in the early variety *N.136* and early-winter variety *T.1145*, it had no effect in the mid-winter variety *T.141*, but produced significant earliness in the late-winter variety *J.192*. The so-called anti-auxin 2,3,5-triiodobenzoic acid produced no effect in the varieties *N.136* and *T.1145*, but brought about earliness in the varieties *T.141* and *J.192*. Thus the effect of this so-called anti-auxin is in the same direction as the auxins and not opposite to the auxins.

Table 1. TIME FROM SOWING TO EAR EMERGENCE IN DAYS (AVERAGE OF 24 PLANTS)

Sowing date for early variety December 19, 1955; for the other three varieties July 2, 1956

Treatments	Days from sowing to ear emergence			
	Early variety <i>N.136</i>	Early-winter variety <i>T.1145</i>	Mid-winter variety <i>T.141</i>	Late-winter variety <i>J.192</i>
β -indolylacetic acid				
500 p.p.m.	84.17	105.46	113.33	120.17
250 "	85.77	105.29	112.63	118.96
100 "	85.17	105.08	112.42	119.17
α -naphthylacetic acid				
500 p.p.m.	92.50	107.08	112.58	120.21
250 "	87.86	107.25	112.50	119.25
100 "	87.20	106.04	112.42	119.50
2,3,5-triiodobenzoic acid				
500 p.p.m.	83.50	105.42	112.46	119.64
250 "	80.10	105.17	112.08	119.83
100 "	81.29	105.33	112.17	120.25
Controls	82.29	105.33	113.04	121.00
S.E. Mean	1.04	0.32	0.25	0.27
C.D. at 5 per cent	3.05	0.91	0.69	0.77

One clear result apparent from these studies is that the plant-growth substances in bringing about a modification in floral response have something to do with the normal flowering period of the rice variety. The normal flowering period of a rice variety again is intimately connected with its photoperiodic behaviour⁷. Generally early and medium-early varieties are either long-day or intermediate ones^{8,9}; the early-winter, mid-winter and late-winter varieties are predominantly short-day plants^{10,11}. The differential behaviour of a plant-growth substance on varieties of rice normally of different flowering durations is exemplified by taking one example. Thus in the present investigation α -naphthylacetic acid brings about a delay in the early and early-winter varieties, is without any effect in the mid-winter variety, while it brings about a significant earliness in the late-winter variety.

The other finding is that the earliness produced in these cases, though statistically significant, is of no agricultural importance. It is sharply in contrast with the results of Sircar and Kundu¹², who found a conspicuous earliness in a late-winter variety 'Rupsail' of Bengal by β -indolylacetic acid and α -naphthylacetic acid.

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