these antibiotics. Of these Agrimycin-100 was more effective than the rest. The Cyanophycean members were resistant to all the concentrations of the four antibiotics, with the sole exception of *Aulosira implexa* which was susceptible only in Agrimycin-100 treatment in higher concentrations.

The Chlorophycean members showed varying degrees of resistance to different antibiotics. Majority of the Chlorophycean members, *e.g.*, *Chlamydomonas* sp., *Oedogonium* sp., *Ulothrix* sp. *Spirogyra* sp. and *Closterium* sp. were found to be very susceptible to higher concentrations of all the four antibiotics used, whereas *Ulothrix* sp., *Protococcus viridis*, *Oedocladium* sp. and *Chlorococcum humicolo* survived with all the concentrations of the antibiotics. The mechanism of action of antibiotics on algal cells is not clearly known. The lethal effects in some algal forms in higher concentrations of antibiotics may be due to disturbed metabolic stability on account of irrepairable damage caused to DNA.

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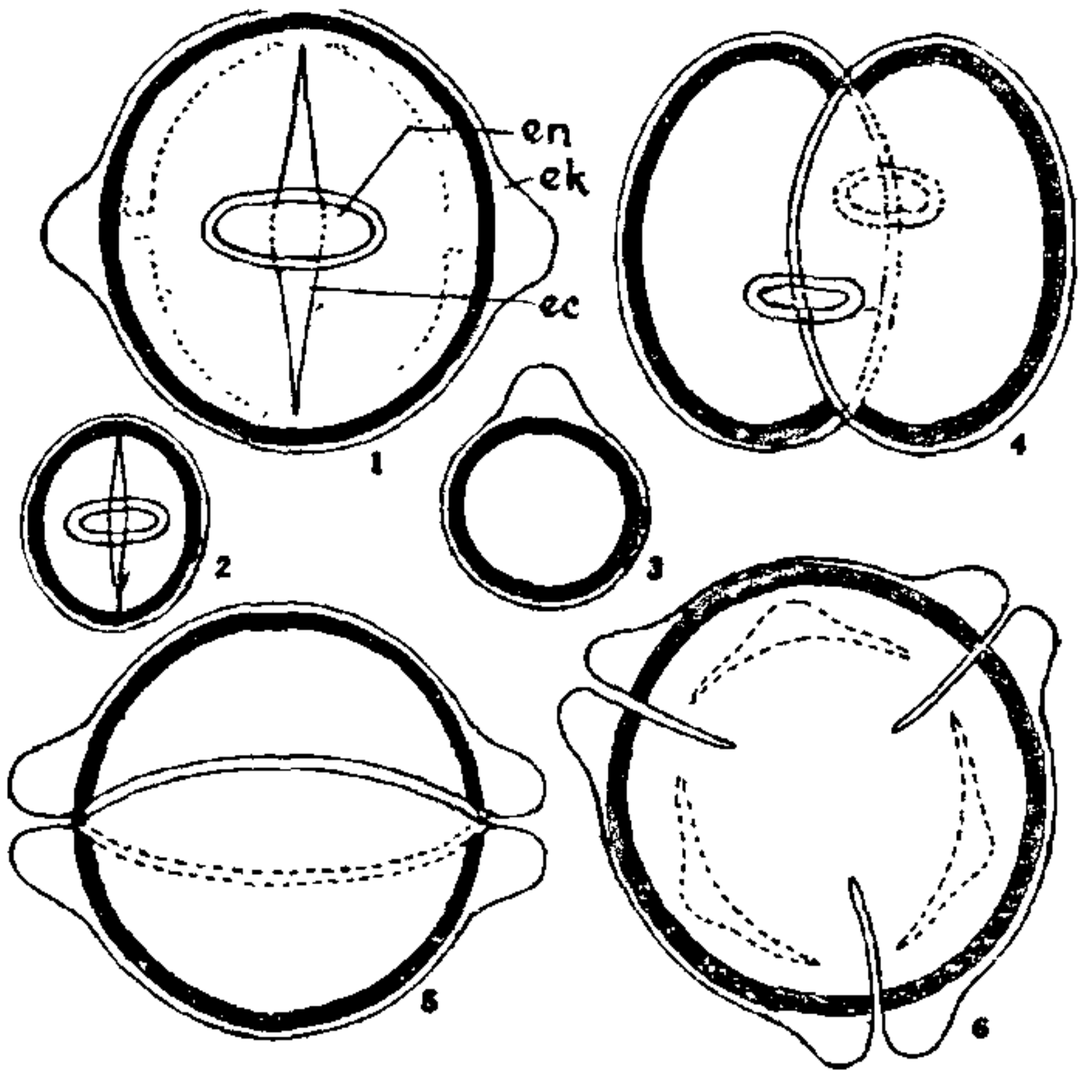
POLLEN DIMORPHISM IN THE HETEROSTYED *SOLANUM MELONGENA* LINN

POLLEN dimorphism in the heterostylons genus *Rudgea* (Rubiaceae) has been recorded as early as 1877 by Darwin. Since then a number of Workers[1–3] described pollen dimorphism associated with heterostyly. Viuilleumier[3] reported heterostyly in 26 angiosperm families including Solanaceae. Köhler[5] in a very comprehensive work described pollen dimorphism associated with heterostyly in the genus *Waltheria.*

Material for the present work was collected from Lucknow and pollen slides were prepared for longi-stylous and brevistylous flowers separately by the acetolysis method of Erdtman[4]. For morphological analysis about 1,000 pollen grains were examined.

Flowers in *Solanum melongena* are brevistylous and longistylous.

Pollen grains of the species are normally 3-zono-colporate (Fig. 1). Considering both the longi and brevi-stylous forms, three more apertural types have been found namely, 1-aperturate (Figs. 2 and 3), 2-syncolporate (Figs. 4 and 5) and 6-pantocolporate (Fig. 6) (3 equatorial and 3 mesocolpar).



Magnifications ×1,600.

FIG. 1 : 3. Zonocolporate (equatorial view).

FIGS. 2 and 3 : 1. Aperturate (equatorial and polar view).

FIGS. 4 and 5 : 2. Syncolporate (equatorial and polar view).

FIG. 6 : 6. Pantocolporate.

Abbreviations ec—ectocolpium, en—endocolpium, ek—ektexine.

The 3-zonocolporate pollen grains are (PXE) 21–25 μ × 27–31 μ; endocolpium lalongate (1·5 × 15 μ); ectoexine in the endocolpium region thick and conspicuously protruding and granulose exine surface.

In *Solanum melongena* the basic 3-zonocolporate type is found in both the longi- and brevi-stylous flowers. However, in the brevistylous forms, 92% of grains are 3-zonocolporate, while 1-aperturate (size range 12–14 μ × 14–17 μ) are 2%, also 2-syncolporate (size range 12–21 μ × 14–28 μ) are 6% and the 6-pantocolporate (27–31 μ × 29–32 μ) are less than 0·5%, which are completely absent in the logistylous flower type. In *Waltheria* Köhler[5] reported two absolutely different morphotypes, the spinate and the smooth (with greater number of apertures) in the longistylous and brevistylous forms respectively. Erdtman[4] observed larger and smaller grains in the longistylous and brevistylous forms respectively in *Primula*. Pollen dirmophism is known to be associated

with heterostyly. In *Waltheria* the dimorphism is with regard to the exine surface ornamentation and number of apertures. In *Primula*, it is with regard to pollen size and in the present study the di-(or poly-) morphism is with regard to the aperture. It may also be pointed out that the brevistylous forms are totally sterile. As a general rule, pollen sterility is associated with pollen abnormalities.

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EFFECT OF HERBICIDES ON THE RNA CONTENT IN *SESBANIA BISPINOSA* JACQ.

Five-day old seedlings of *S. hispinosa* were treated with 1 ml of solution containing 1, 5, 25 and 100 ppm of herbicide. RNA estimation was done according to Markham[7] using a spectrocolorimeter at 430 nm.

The results (Table I) give the mechanism of action of a number of herbicides and its relation with RNA synthesis. The amides are known to alter the level of both RNA and DNA (Smith *et al.*[10]) and the present results support the enhancement effect with prefix. Increase in level of RNA with 100 ppm of 2, 4-D further supports the work of Key and Shannon[6] and Robertson and Kirkwood[11]. The triazoles primarily induce chlorosis (Ashton and Crafts[1], Dubey and Rao[4]) but the present work points towards their negative interference with the purine synthesis also (Bartel and Wolf[2]). The carbamates are generally RNA inhibitors (Moreland *et al.*[8], Veersekaran *et al.*[13]) but the results with Asulox 40 at 100 ppm could not alter the level and very likely it may inhibit the synthesis at higher concentrations. (Veersekaran *et al.*[13]). For substituted ureas primary site of action is P II but an increase in RNA content with Afalon adds to the meagre information available for their role in nucleic acid metabolism. Triazines too, are photosynthetic inhibitors but they may inhibit RNA synthesis also; however an increase wherever reported is not due to nitrogen absorption but due to a decrease in other constituents (Ashton and Crafts[1]). As regards the

Table I

RNA PO_4 content in S. bispinosa *seedling under various concentrations of herbicides*

Sl. No.	Commercial and chemical names of the herbicides	PO_4/g Dry wt.			
		Herbicide Conc. ppm			
		1	5	25	100
1.	AC 92533-(N (1-ethyl propyl) 2, 6-dinitro-3-4-xylidine)	0·77	0·81	0·83	0·88
2.	Afalon-N (3, 4-dichlorohenyl)-N-methoxy-N-Methyl urea	0·77	0·78	0·80	0·83
3.	Amitrole (3-Amino-1.2.4-Triazol)	0·78	0·77	0·74	0·70
4.	Asulox 40-(Methyl (4-aminobenzen sulphonyl carbamate)	0·78	0·78	0·80	0·78
5.	Atrataf-(2-chloro-4 ethylamino-5-isopropylamino-S. triazine)	0·77	0·74	0·69	0·61
6.	Dalapon-(2, 2-dichloro propionic acid)	0·77	0·74	0·70	0·64
7.	Planavin-(4-(methyl sulphonyl)-2, 6-dinitro-N, N-dipropylaniline)	0·78	0·73	0·68	0·58
8.	Prefix-(2, 6-Dichlorophiobenzamide)	0·78	0·78	0·81	0·85
9.	Nata (Na-Trichloroacetic acid)	0·79	0·80	0·82	0·78
10.	2, 4-D. (2, 4-Dichlorophenoxyacetic acid)	0·78	0·81	0·84	0·90
	Control	0·78			

Average of 2 values.