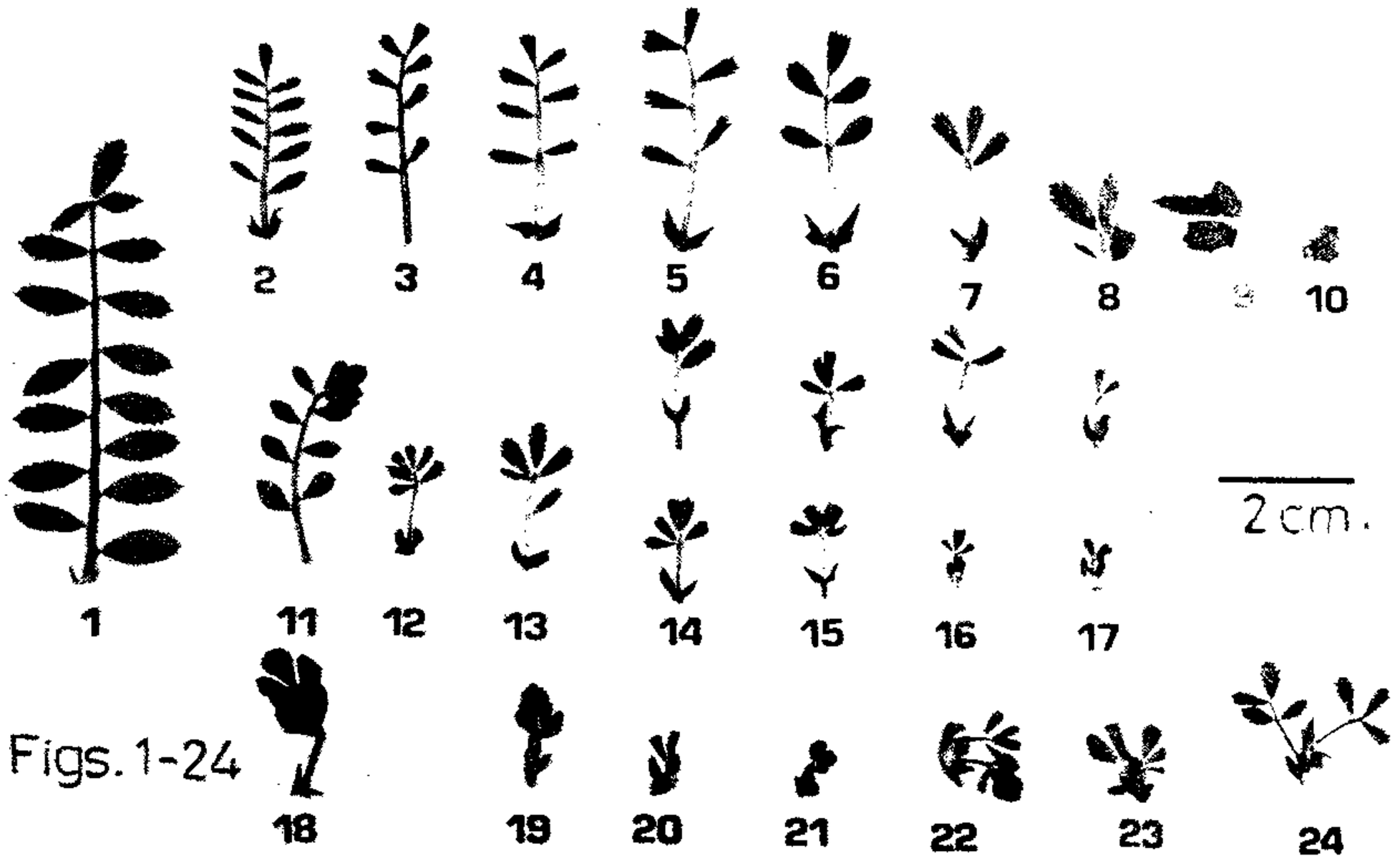

Figures 1–24. 1. Leaf (control) **2–9.** Reduction in number of leaflets. **10.** Node with stipules only. **11–17.** Leaflets condensation at top of rachis and reduction in number of leaflets. **18–19.** Fusion of all the leaflets of a leaf. **22–24.** Leaves of 3rd and 4th nodes fused with stipules.

some cases a simple bladed leaf has been noted (figures 18–19). In other leaves, there has been a gradual reduction in the size of the rachis as well as in the number of leaflets (figures 2–9). Stipules of 3rd and 4th node also fuse with leaves (figures 21–24). The leaf on the 5th node at times bears only stipules as the lamina of the leaf is reduced completely (figure 10). The frequency of such stipule bearing more or less naked nodes has been found to be more with 100 ppm *i.e.* in 53.4% laterals each has 2.1 such nodes whereas with 10 ppm 41.6% laterals each has 1.38 such nodes. Leafless nodes in *Riccinus communis* have already been described when the plants were treated with a different morphactin[4] (EMD 7301 W).

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EFFECTS OF INDOLE ACETIC ACID AND GIBBERELLIC ACID ON THE AKINETE FORMATION OF *PITHOPHORA OEDOGONIA* (MONT.) WITTROCK.

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ALTHOUGH considerable information exists concerning the effects of IAA and GA_3 on the growth stimulation of a number of algae[1–3], there is little or no information on the possible role of IAA and GA_3 in the sporulation of green algae. The present investigation deals with the effects of IAA and GA_3 on the akinete formation of *Pithophora oedogonia.*

This alga was collected from a freshwater pond at the University campus. Clonal cultures were raised

Table 1 *Effects of IAA and GA_3 on the akinete formation of P. oedogonia.*

Hormone	Observation	Concentration (ppm) 0 (Control)	0.01	0.1	1	10	100	500
IAA	Initiation (days)	5	21	22	23	25	–	–
	Maturation (days)	15	26	26	28	30	–	–
	Akinete (%) formation	99	18.5	5.5	2.7	1.5	0	0
GA_3	Initiation (days)	5	18	19	21	22	29	36
	Maturation (days)	15	24	25	27	29	37	44
	Akinete (%) formation	99	26	20	19	16.3	10.5	3.5

from single germinating akinetes and maintained in Bold's basal medium (BBM)[4] at $22 \pm 1°C$ and illuminated at 2 K lux light intensity from day light fluorescent tubes for 16 hr a day. The akinete initiation appears after 5 days from the day of inoculation of vegetative filaments. This was evident by the contraction of the greater part of cell protoplasm towards one end. This part, after 15 days of inoculation of filaments, is separated by a septum and subsequently develops a thick cell wall upon maturation.

With a view to testing the responses of akinete formation to IAA and GA_3, the reagents were dissolved separately in minimal volume of 80% ethanol and mixed slowly into a known amount of BBM to prepare the hormone solution of desired concentrations. The pH was adjusted to 7.5. Observations were made to determine the time taken for initiation, maturation of akinete and percentage of akinete formation.

The results show that at any of the concentrations of both of IAA or GA_3 used, the time taken for akinete initiation is delayed and the percentage of akinete formation is decreased as compared to control. Delay in akinete initiation and decrease in percentage akinete formation being directly proportional to the concentration of hormones used. At the concentration of 100 ppm of IAA, all the vegetative cells of the alga died after 30 days of inoculation of filaments; therefore the question of sporulation does not arise here. However, at 500 ppm of GA_3, akinete initiation was delayed by 31 days and its formation was reduced to 3.5% as compared to the control showing 99% of akinete formation (table 1). It was observed that at similar concentrations, IAA was more inhibitory to sporulation than GA_3. In the present study, at any of the concentration of the growth hormones used, the time interval from initiation to maturation of akinete formation was reduced as compared to control, showing 10 days interval between the two events.

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OCCURRENCE OF BACTERIOPHAGES IN THE GANGA

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THE river Ganga is now considered to be one of the most polluted rivers of the world[1]. Pasricha and de Monte[2] suggested the use of bacteriophages as an index of water contamination and observed that Ganga water in the Calcutta region had bacteriophages of *Salmonella typhimurium*, *Shigella dysenteriae* and *Vibrio cholerae*. We have examined the occurrence of bacteriophages in 48 samples of Ganga water collected from various places extending from Hardwar to Haldia on the Bay of Bengal.

The results show that all the 48 samples tested possessed bacteriophages. Thirty-eight samples harboured bacteriophages capable of lysing *E. coli* SA500 but only 19 showed the presence of bacteriophages for *E. coli* K12. The corresponding values for *Salmonella* and *Klebsiella* were 27 and 25 respectively. No bac-