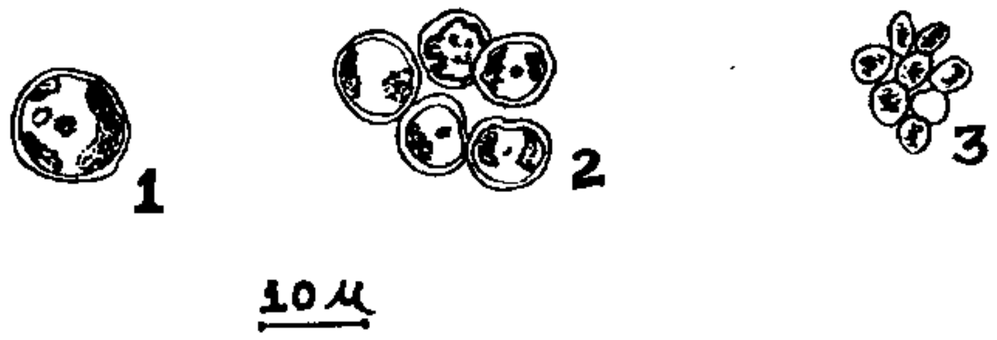
on an old wall at Krishna Society, Ahmedabad, during the month of August, 1965.

The cells are solitary as well as in clusters but without gelatinous investment. They are usually globose but sometimes spheroidal or slightly pressed. The size of the cells varies from 7 to 10 μ but smaller cells 3 to 4 μ in diameters have also been found. The cell wall is usually thick. Each cell contains two to three parietal chromatophores and a single nucleus. Reproductive cells are not observed.



FIGS. 1–3. *Botrydiopsis arrhiza* Borzi. **Fig. 1.** A solitary vegetative cell. **Fig. 2.** A cluster of normal cells. **Fig. 3.** A cluster of small cells.

This species is more often found on moist soil than in strictly aquatic habitats.[4] At Lucknow, it has been found growing as a planktonic form as well.[3] Here it inhabits on a moist wall. The mode of reproduction, *viz.*, the formation of aplanospores shows the adaptability of this species to a terrestrial environment. The morphological differences between the specimen of Ahmedabad and that of Lucknow may, therefore, be of ecotypic nature.

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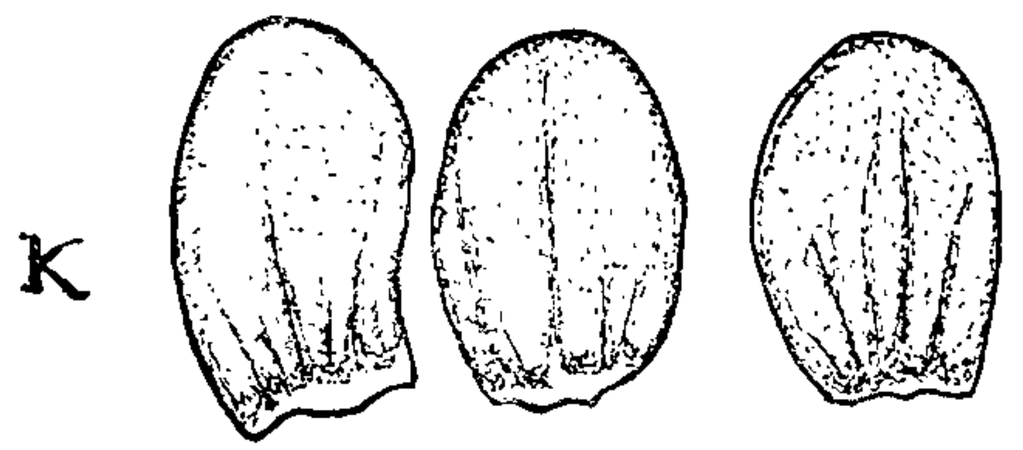
COMPARATIVE EFFECTS OF INDOLE-3-ACETIC ACID, KINETIN AND GIBBERELLIC ACID ON THE GROWTH OF ISOLATED *CUCURBITA PEPO* COTYLEDONS

AMONGST the epigeal seedlings cucurbits are remarkable in that in light, their cotyledons undergo marked expansion and greening, taking up leafy form and function. The factors governing this expansion are as yet obscure. Many studies have shown expansion of leaf discs by kinetin,[2] gibberellins[3,4] and also by cobalt.[5,6] None, however, throw adequate light on the nature of action of these, in controlling the ultimate leaf form. Since pumpkin cotyledons expand in light in water and this expansion is enhanced by kinetin even on isolation,[1] it was of interest to compare the growth effects of kinetin with that of the other two growth substances, *viz.*, indole-3-acetic acid and gibberellic acid.

Although kinetin and gibberellic acid both caused enlargement of the cotyledons, it was observed that the nature of growth and the ultimate form they produced were different. Table I gives their areas. The cotyledons were isolated from dark grown *Cucurbita pepo* var. King of Mammoths seedlings with about 5 mm. of hypocotyl. They were floated on water, kinetin, gibberellic acid and indole-3-acetic acid solutions for 72 hours under 500 lux light from fluorescent tubes at 28 ± 2° C.



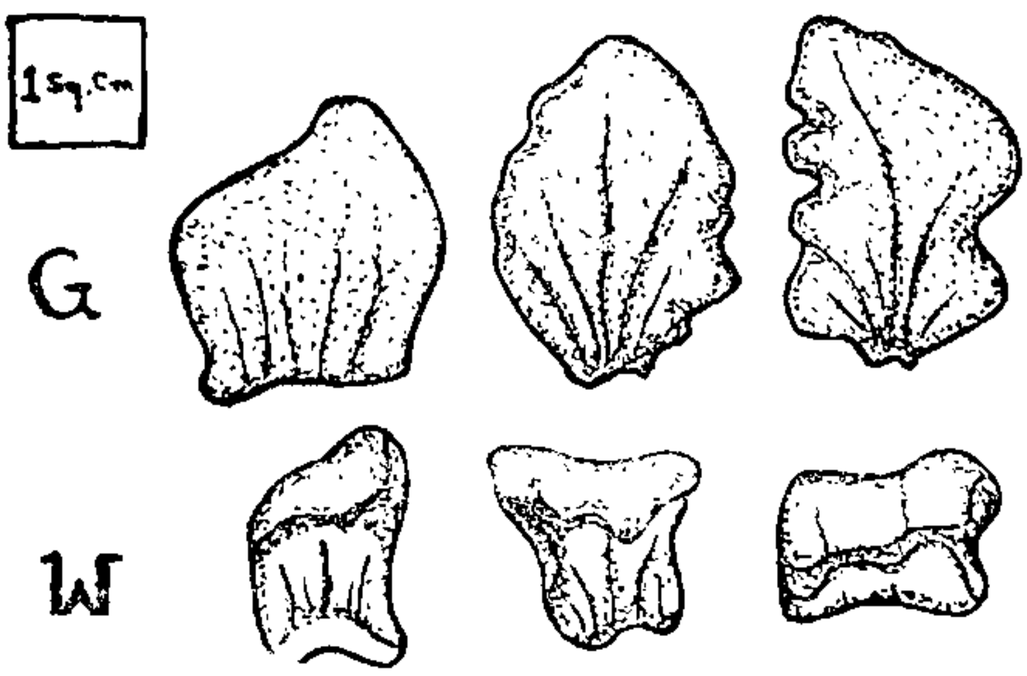


FIG. 1. Showing the different growth patterns in gibberellic acid and kinetin induced expansion of isolated pumpkin cotoledons in light. K = Kinetin 10 ppm. G — Gibberellic acid 100 ppm, W = Water.

While kintein and gibberellic acid cause marked expansion, indole-3-acetic acid is without any effect. Difference in the kinetin-induced and gibberellic acid-induced growth are evident within the first 24 hours of incubation. In kinetin the cotyledons become boat-shaped while in gibberellic acid they curl downwards along the longitudinal axis. At 72 hours the former are flat, ovate with smooth margin while the latter oblong, pale green and with curly margin.

It is apparent that kinetin causes lateral expansion of the cotyledons stimulating first the growth of the dorsal side and subsequently

of the palisade side. Microscopic examination of the transverse section of the cotyledons and of the epidermal peals showed no marked effect on the cell size suggesting occurrence of cell division.

TABLE I

Showing the expansion of isolated Cucurbita pepo *cotyledons in different concentrations of kinetin, gibberellic acid and indole-3-acetic acid in light (Area of cotyledons in sq. cm. ± S.D.)*

	Concentratiou in ppm.				
	0	1	10	20	100
Kinetin ..	4·0 ±0·6	4·8 ±0·6	5·8 ±0·7	6·7 ±1·1	..
Gibberellic acid ..	4·7 ±0·7	5·1 ±0·4	5·7 ±0·6	..	6·2 ±0·8
Indole-3-acetic acid	4·0 ±0·6	..	..	..	4·1 ±0·7
Initial area ..	1·63 ±0·3				

Gibberellic acid, it appears, induces first stimulation of the palisade side especially along the veins. Since, laminar tissue is not stimulated to grow to the same extent, the margins get curly. This comparative study manifests interesting involvements of the two groups of growth substances in the overall control of cotyledon growth in intact seedlings and of leaf growth in intact plants, since, both types of compounds are believed to be present in plant tissues.

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RECORD OF A BRACONID PARASITE OF *LONGIUNGUIS SACCHARI* ZHNT. IN INDIA

Longiunguis sacchari Zhnt. first recorded to be a vector of the virus causing grassy shoot disease of sugarcane in Maharashtra (Chona *et al.*, 1960) has recently been found to be an efficient vector of this virus in North India as well (Singh and Shukla, 1965). While studying the population of this vector on sugarcane leaves in a field in November 1965, a large number of dead aphids were observed in each colony. The dead aphids were bloated and had turned greyish-white in colour. On further investigation, they were found to be parasitised by a tiny wasp, identified as *Lysiphlebus* sp. (family: Braconidæ). This appears to be the first record of *Lysiphlebus* sp. parasitising *Longiunguis sacchari* in India. Box (1953) has reported *Lysiphlebus testæcipes* Cress. parasitising *L. sacchari* in Natal and Hawaii.

Preliminary data collected on this parasite at the Indian Institute of Sugarcane Research, Lucknow, are presented here. *Lysiphlebus* sp. parasitised nymphs as well as adult aphids. The extent of their parasitisation in nature, as recorded from November 1965 to January 1966, is given in Table I.

TABLE I

Incidence of parasitisation of L. sacchari *by* Lysiphlebus *sp. in nature*

Months	Per cent parasitisation (Total no. of aphids examined is given in parenthesis)	
	Nymphs	Adults
November 1965 ..	16 (176)	28 (118)
December 1965 ..	11 (220)	43 (137)
January 1966 ..	7 (167)	32 (97)

The parasitised aphids were collected from the fields and kept under observation in the laboratory. It was observed that the adult wasp, *Lysiphlebus* sp., emerged through a circular aperture, apparently cut by it. The parasite failed to emerge from some of the parasitised aphids.

The parasite was also reared in the laboratory on the aphid cultures. It was observed that nymphs and adults which are parasitised become sluggish and do not move much even when disturbed. They swell dorsally but remain flat on the ventral side. Four to six days after parasitisation the swelling becomes more pronounced and the aphids die. The dark brown colour of parasitised aphids is gradually lost and finally the cuticle becomes greyish-white. It would appear that all the body contents of the host are consumed and on the emergence of the adult parasite only an empty carcass is left behind. The carcass remains firmly stuck to the leaves with its legs outstretched.

In the laboratory, at 20° to 26° C., one life-cycle of the parasite was completed in 11 to 20 days. The female wasp inserts its ovipositor (presumably after copulation which has not been observed so far) into the posterio-dorsal side of the aphid and takes about 40 to 60 seconds to complete one oviposition. All the