

FIG. 1. Seasonal incidence of Cyanophage AC-1 in the waste stabilization pond inside the Indian Agricultural Research Institute Campus, New Delhi, during 1975 and 1976.

and 1976, the pattern of seasonal distribution was fairly similar during both years. The phage was found to be completely absent during the winter months from November to January and the titer was high from May to August with a maximum in May and June (135-140 PFU/ml) (Fig. 1). Climatic conditions might account for the pronounced fluctuations observed during different months. It is also possible that the high incidence of the phage during the summer months might have resulted in a degeneration of the host population leading to a paucity of the host cells in the subsequent months. Consequently the phage titer would be too low to be detected.

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CHROMOSOME STUDIES IN *OCIMUM*

DURING a course of study on the genus *Ocimum*, which is of commercial importance, certain interesting observations were recorded. The two species of this genus included in the present report, namely, *O. carnosum* Link. et Otto and *O. viride* Willd., had both been reported to possess $2n = 64$ chromosomes¹. A cursory examination of these species, collected from different areas, has shown a different chromosome number during the present investigation. As such, a detailed investigation of the karyotypes of these species has been carried out with the aid of refined techniques.

The seeds of *O. carnosum* and *O. viride* were collected from Jardin Botanique de l'Université Louis Pasteur de Strasbourg (France) and Experimental-cum-Botanic Garden of the Department of Botany, University of Calcutta, respectively.

For the study of the somatic chromosomes, several trials of pretreatment were given, of which an 1:1 aqueous mixture of α -bromonaphthalene and aesculin with a little bit of saponin was found to be the most suitable. Root-tips were kept for $1\frac{1}{2}$ h at $14-16^{\circ}\text{C}$ for pretreatment. Fixation was done in propionic alcohol (1: 2) for 3-4 h and for staining the usual aceto-orcein squash technique was followed.

The observations made are as follows :

O. carnosum Link. et Otto.

$$2n = 48 = 2A + 2A' + 44C$$

The diploid chromosome number in this species is $2n = 48$ (Fig. 1). All the chromosomes have been grouped under three types, namely, A, A' and C (see idiogram). Both the A and A' type chromosomes show secondary constrictions. But, in A type, the two lower arms are equal in length, while in A' type, the two upper arms are equal in length. The rest of the chromosomes, belonging to type C have median to submedian primary constrictions. Variation in chromosome number ($2n = 51$) has also been observed, where six chromosomes were seen to have secondary constriction. The length of the chromosomes varies from $2.295 \mu\text{m}$ to $0.972 \mu\text{m}$.

O. viride Willd.

$$2n = 38 = 4B + 34C$$

The somatic chromosome number is $2n = 38$ (Fig. 2). All the chromosomes have been grouped under two types, namely, B and C (see idiogram). Type B shows satellited chromosomes, while type C consists of the rest of the chromosomes with median to submedian primary constriction. Length of the chromosomes ranges between $1.86 \mu\text{m}$ to $1.12 \mu\text{m}$.

The present study on *O. carnosum* and *O. viride* has indicated clearly $2n = 48$ and 38 chromosomes, respectively. In view of the observations recorded earlier (see Sobti¹), it appears that the species have several cytotypes in nature. Due to the commercial

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1. Sobti, S. N. and Pushangandan, P., In: *Cultivation and Utilization of Medicinal and Aromatic Plants*, Eds. C. K. Atal and B. M. Kapur, Regional Research Laboratory, Jammu-Tawi, 1977, p. 273.

GENETIC CONTROL OF ARTIFICIALLY INDUCED DESYNAPSIS IN JUTE (CORCHORUS OLITORIUS L.)

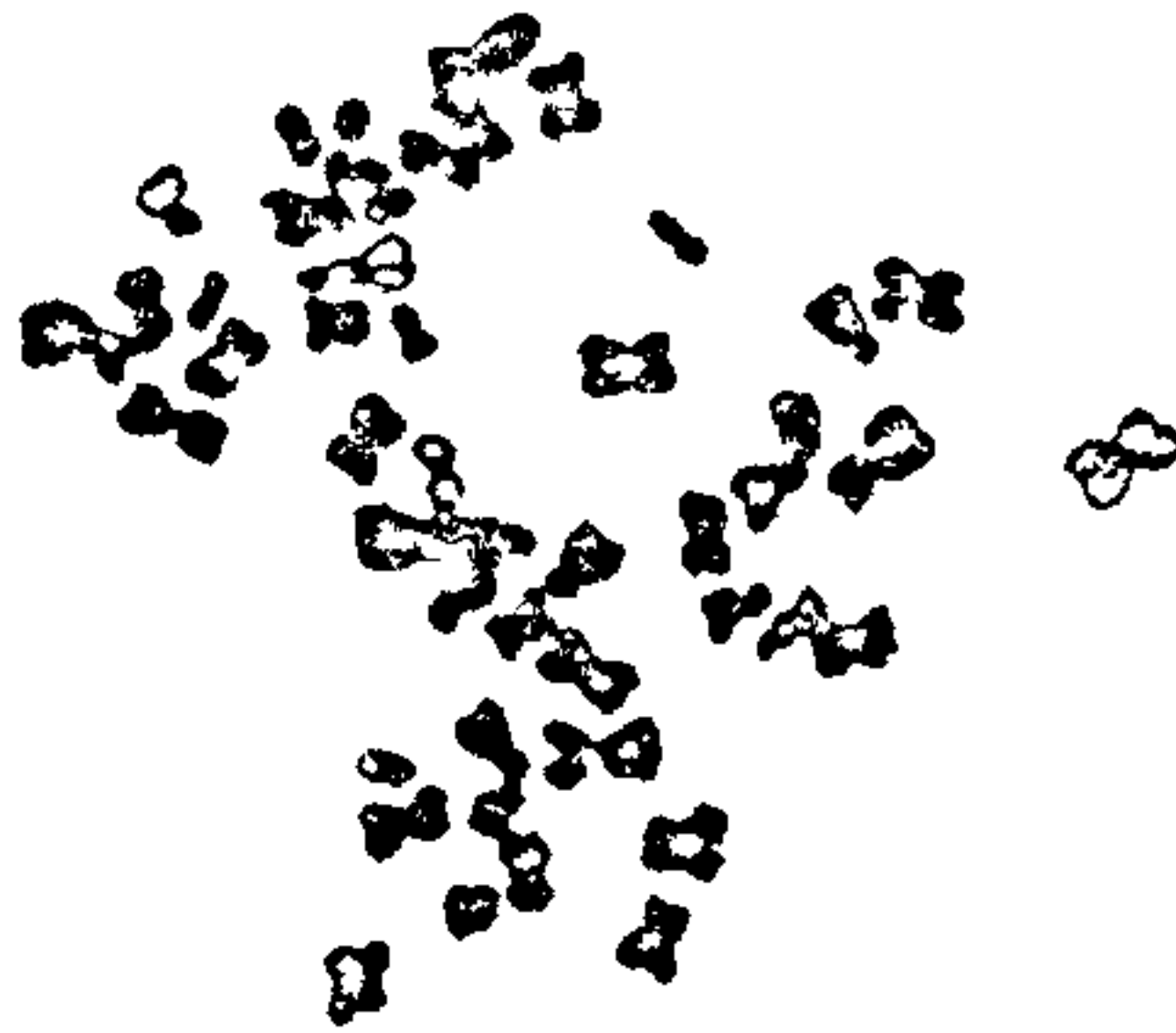
FOLLOWING the analysis in maize^{2,3} both naturally occurring and radiation induced genetically controlled, desynapsis or inability to retain pachytene pairing upto metaphase I stage, have been reported in many plant species. Mitra and Singh⁵ reported naturally occurring asynapsis in *C. olitorius*. The nature of its genetic control is not known. Hence an attempt has been made to examine the nature of inheritance of artificially induced desynapsis in *C. olitorius*.

Seeds of JRO 632 were treated with 0.5% E.M.S. followed by 20 Kr. X-ray. In M₂ generation a few highly sterile, very late maturing plants with very small pods were isolated. On cytological examination by the technique of Basak and Biswas¹, they were found to be desynaptic ones (Fig. 1). Desynaptic plants thus identified were crossed to cytologically normal variety, JRO 632, and the F₂'s from the resulting hybrids were examined for the segregation of desynapsis.

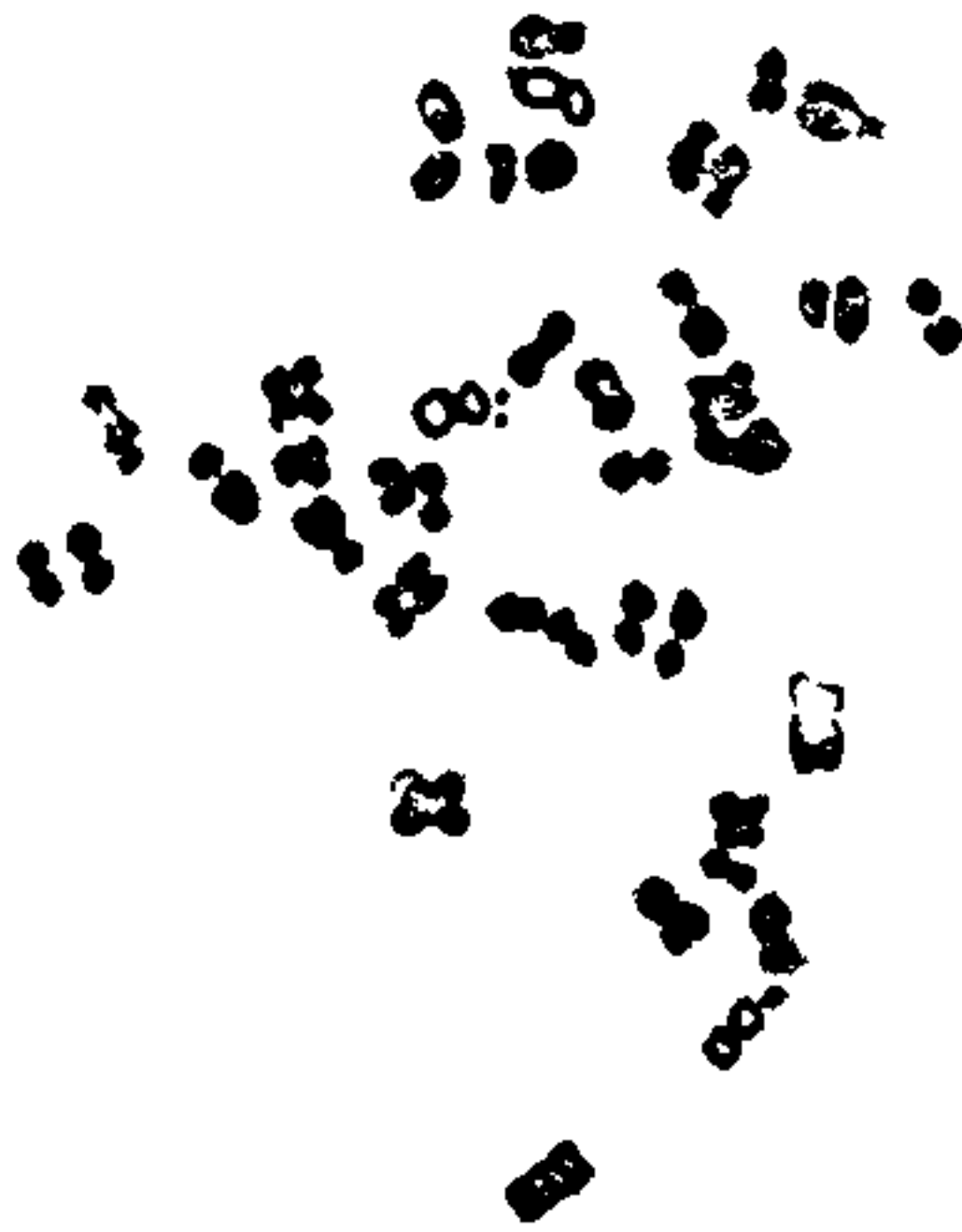


FIG. 1. A PMC at diakinesis showing 14 univalents.

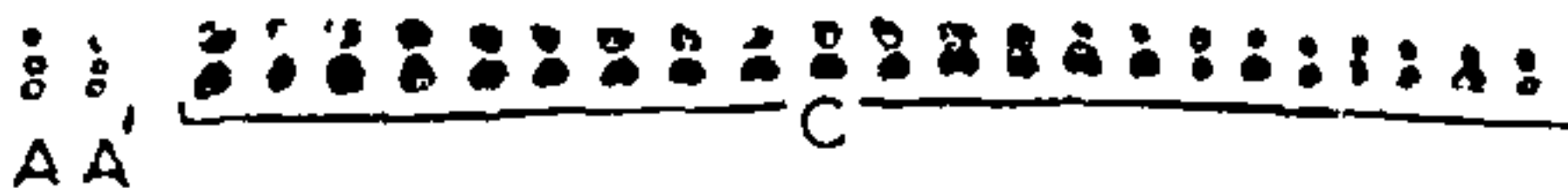
Normal pairing of chromosomes was observed in F₁'s and hence normal pairing was found to be dominant over desynapsis. A total of 588 F₂ plants pooled from 11 families (Table I), examined cytologically



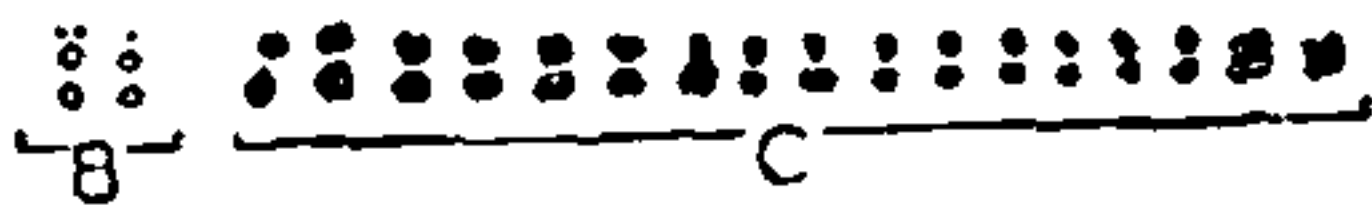
O. carnosum Link. et Otto.



O. viride Willd.



O. carnosum Link. et Otto



O. viride Willd.

importance of these species, it is worthwhile to work out the change of chemical content, if any, associated with the change in the genetic constitution.

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