

junction of chromosomes is normal at anaphase I and II. Tetrad formation is regular.

TABLE I

Karyotype analysis in *Coelachyrum lagopoides*

Chromosome	Length in microns		Arm ratio (r)	Centromeric index (i)	Centromere
	Long arm	Short arm			
I	1.35	1.35	1.0	50	M
II	1.20	1.10	1.1	48	m
III	1.10	1.00	1.1	45	m
IV	1.00	0.80	1.3	41	mSAT
		+0.2			
V	1.00	0.80	1.3	44	m
VI	0.88	0.88	1.0	50	M
VII	1.00	0.50	2.0	33	Sm
VIII	0.90	0.40	2.2	31	Sm
IX	0.68	0.68	1.0	50	M

It is difficult to say precisely about the basic chromosome number in this genus, until the chromosome counts are known in all the species. Unfortunately the chromosome number is reported only in this species. However, the tribe Eragrostae to which the *Coelachyrum* belongs show the base<sup>2</sup> number of nine and ten. The closely related genus *Eleusine* and the present species of *Coelachyrum* has the basic number of nine. It is most likely that nine is the basic chromosome number in this genus also.

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## KARYOLOGY OF A TRIPLOID *HIPPEASTRUM STYLOSUM* HERB.

THE genus *Hippeastrum* Herb. is a South American ornamental Amaryllid with about 55 species spread over in tropical and sub-tropical regions of the world<sup>1</sup>. Uptill now, about 14 species were cytologically worked out chiefly by Inariyama<sup>2</sup>, Sato<sup>3</sup>, Sincad<sup>4</sup>, Mookerjee<sup>5</sup>, Sharma<sup>6</sup>, Sharma and Jash<sup>7</sup>, Fernandez<sup>8</sup> and Lakshmi<sup>9</sup>. A perusal of the previous work revealed the existence of diploid ( $2n = 16, 18$ , and  $22$ ) as well as polyploid and aneuploid numbers ( $2n = 33, 44, 49, 46$ ) in the genus<sup>8, 10</sup>. However, *H. stylosum* Herb. was observed to be a diploid with 22 somatic chromosomes<sup>5</sup>. During the course of extensive investigations on the cytology of bulbous ornamental *Hippeastrums*, a triploid taxon of *H. stylosum* with  $2n=33$  chromosomes was encountered in the collections secured from Chandra Nursery, Sikkim, the karyology of which is presented here.

Actively growing root tips were pre-treated with aqueous 0.1% solution of colchicine for 3-4 hours. Root tips were washed, fixed in acetic-alcohol (1:3) for 24 hours and squashed with acetoorcein. Fifty cells were scored for determining the chromosome number. All cells showed 33 chromosomes (Fig. 1) which ranged in length from  $5.16 \mu\text{m}$ – $14.19 \mu\text{m}$  (Table I) and could

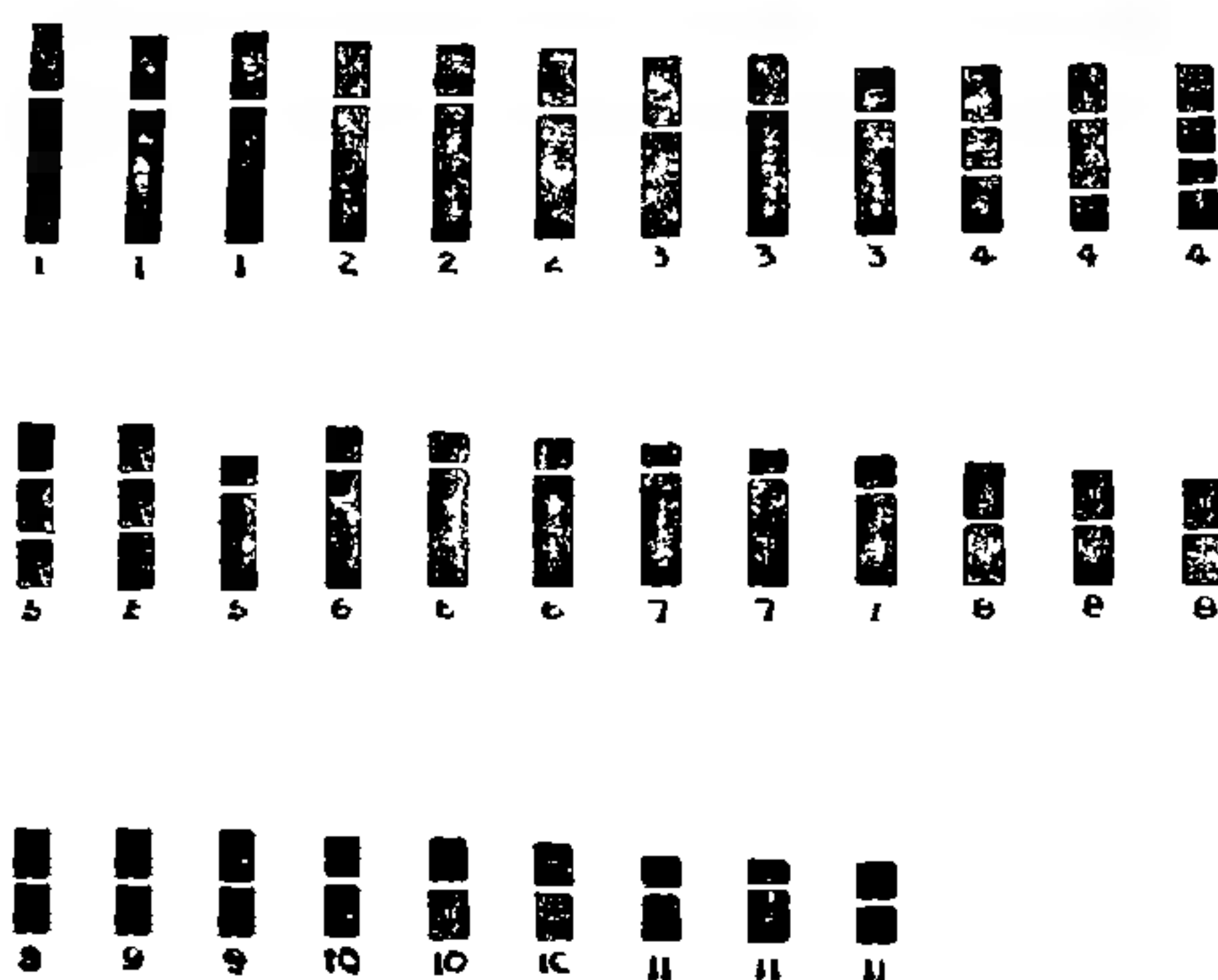
TABLE I

Average lengths of karyotype chromosomes in micrometers of *Hippeastrum stylosum* Herb.

Chromosome number	Chromosome length $\pm$ standard error	Arm ratio s/l
1, 2	$14.19 \pm 0.08$	0.45
*3	$13.33 \pm 0.05$	0.5
4, 5	$12.68 \pm 0.09$	0.42
*6	$11.82 \pm 0.13$	0.47
7, 8	$11.18 \pm 0.05$	0.66
*9	$10.31 \pm 0.01$	0.39
10, 11, 12	$10.32 \pm 0.09$	0.54
13, 14	$9.89 \pm 0.05$	0.42
*15	$8.18 \pm 0.14$	0.34
*16	$9.89 \pm 0.04$	0.29
17, 18	$9.46 \pm 0.12$	0.24
19, 20	$8.6 \pm 0.05$	0.19
*21	$7.74 \pm 0.09$	0.3
22, 23	$7.30 \pm 0.14$	0.80
*24	$6.45 \pm 0.09$	1.0
25, 26, 27	$6.45 \pm 0.05$	1.0
28, 29, 30	$6.02 \pm 0.09$	0.86
31, 32, 33	$5.16 \pm 0.12$	0.83

\* Single chromosomes.

be resolved into 11 triplets (Fig. 2). A basic karyotype of 20 long and 13 medium chromosomes could be recognised. The karyotype is symmetrical with 12 median centromeres, 6 submedian and 15 subterminal ones. There are three pairs of secondarily constricted chromosomes (triplets 4, 5) which are considered to be nucleolar organizing in nature. Of these, chromosomes of the triplet 4 bear two secondary constrictions on their long arms. The present report of 33 chromosomes in this species is the first report on the occurrence of a triploid taxon in *H. stylosum*.



chromosomes, where one constriction was noticed to be in subterminal position. Hence the morphology of the karyotype reported by Mookerjea is at variance with that of the present one in the absence of more number of subterminal chromosomes and presence of satellited and short chromosomes. These differences may reflect intraspecies genotype variations.

The arrangement of the 33 chromosomes in 11 triplets and presence of 3 pairs of secondarily constricted chromosomes give evidence to the triploid nature of the taxon. The chromosome complement seems to be made up of two different genomes since the triplets 1, 2, 3, 5, 6, 7 and 8 are heteromorphic (Table I; Fig. 2). In each of these triplets, two chromosomes are of one type while the other is slightly different indicating its different genomic nature. The homomorphism seen in triplets 4, 9, 10 and 11 can be attributed to their ancestral homology. The taxon therefore appears to be an allotriploid of possible hybrid origin between a diploid and a tetraploid.

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FIGS. 1-2. Fig. 1. Karyotype of *H. stylosum* showing 33 somatic chromosomes,  $\times 3,350$ . Fig. 2. Idiogram of *H. stylosum*.

In the diploid karyotype reported by Mookerjea<sup>5</sup> there are 12 long, 2 medium and 8 comparatively short chromosomes with two pairs of secondarily constricted and one pair of satellited chromosomes. Further she reported all constrictions as either median or submedian except in the cases of secondarily constricted