be brought down to room temperature otherwise rapid uptake of water by the heated seed would cause damage to the seed.

In the accelerated ageing test, iodination for 8 and 16 hr proved better than other durations but iodine treatment for 24 hr showed the maximum effect in the counteraction of heat injury. In the case of alleviation of heat injury the effect of iodine was more pronounced on seedling vigour.

The antimicrobial action of iodine may account partly for the beneficial effect under warm-humid storage conditions favouring microbial invasion of stored seeds. The significant beneficial effect of pre-iodination in overcoming heat injury would, however, indicate that iodine exerted its beneficial effect in ways other than a mere control of pathological deterioration. Perhaps, the stabilization of olefinic bonds of unsaturated fatty acid moieties of lipoprotein components of the cell membranes rendered them less susceptible to lipid peroxidation and free radical reactions.

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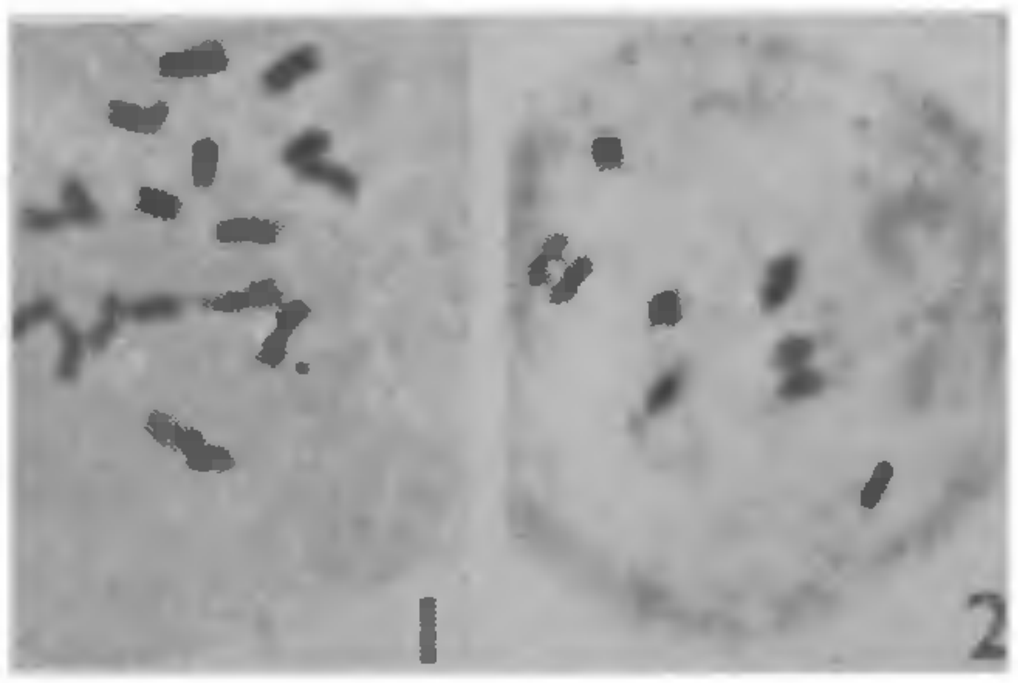
CYTOLOGICAL STUDIES IN *COELACHYRUM LAGOPOIDES*, (POACEAE)

Coelachyrum Hochst. and Nees. is a small genus containing about five species distributed in N. tropical Africa and S.W. Asia[1]. One species of this genus *C. lagopoides* (Burm.) Senat. is found in India and Ceylon[2]. It is an annual, prostrate grass, rooting at nodes and usually found in sandy soil. The chromosome number has been reported to be $2n = 36$ by Krishnaswamy and Ayyangar[3]. Present investigation, however, shows the number as $2n = 18$. It is obvious that this species has diploid and tetraploid races. Karyotype and meiotic behaviour have not been investigated. This communication deals with these aspects in the diploid taxon.

Seeds were collected by the author near Belgaum (Karnataka State). Plants were raised in the glass house. Root tips were excised from the potted plants and pre-treated with 0·002 molar 8-hydroxyquinoline for 3 hours at 10 to 15° C. They were stained with Schiff's reagent and squashed in 0·5% acetocarmine. Spikes were fixed in Carnoy's fluid (6 : 3 : 1) and microsporocytes were stained with 1% acetocarmine. The slides were made permanent using acetic acid–butanol series and mounted in euparal. For description of karyotype method followed by Levan *et al.*[4] has been adopted. The type of chromosomes were determined using arm ratio (r) and centromeric index (i) as parameters.



FIGS. 1–2. Fig. 1. Somatic metaphase plate showing $2n = 18$ chromosomes. Fig. 2. Metaphase I with 9 bivalents. All Figs., × 900.

Eighteen chromosomes were counted from the root tip cells. Somatic chromosomes are shown in Fig. 1. They are medium sized. The difference between longest and shortest chromosome in the compliment is very small; therefore, they cannot be categorized into long, medium and short chromosomes. They form a gradual series. Karyotype has three types of chromosomes. They are a single pair of satellited submedian chromosome with SAT on short arm, six pairs of median chromosomes and two pairs of chromosomes with submedian centromere. The satellite is very small and measures about 0·2 micron. The chromosome length ranges from 1·3 to 2·7 microns with an absolute length of 16·82 microns. The details of karyotype are given in Table I. Like most diploid grasses, meiosis is also normal in this taxon. Nine bivalents are observed at diakinesis and metaphase I (Fig. 2). A single nucleolar bivalent is usually noticed. Dis-

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

TABLE I

Karyotype analysis in Coelachyrum lagopoides

Chromosomes	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 +0·2	1·3	41	mSAT
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 Eragrosteae to which the *Coelachyrum* belongs show the base[2] 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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KARIYOLOGY 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[1]. Uptill now, about 14 species were cytologically worked out chiefly by Inariyama[2], Sato[3], Snead[4], Mookerjea[5], Sharma[6], Sharma and Jash[7], Fernandez[8] and Lakshmi[9]. 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[8, 10]. However, *H. stylosum* Herb. was observed to be a diploid with 22 somatic chromosomes[5]. 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 μm–14·19 μm (Table I) and could

TABLE I

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

Chromosome number	Chromosome length ± standard error	Arm ratio s/l
1, 2	14·19 ± 0·08	0·45
*3	13·33 ± 0·05	0·5
4, 5	12·68 ± 0·09	0·42
*6	11·82 ± 0·13	0·47
7, 8	11·18 ± 0·05	0·66
*9	10·31 ± 0·01	0·39
10, 11, 12	10·32 ± 0·09	0·54
13, 14	9·89 ± 0·05	0·42
*15	8·18 ± 0·14	0·34
*16	9·89 ± 0·04	0·29
17, 18	9·46 ± 0·12	0·24
19, 20	8·6 ± 0·05	0·19
*21	7·74 ± 0·09	0·3
22, 23	7·30 ± 0·14	0·80
*24	6·45 ± 0·09	1·0
25, 26, 27	6·45 ± 0·05	1·0
28, 29, 30	6·02 ± 0·09	0·86
31, 32, 33	5·16 ± 0·12	0·83

* Single chromosomes.