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Genomic constitution and nucleic acid level in *Zantedeschia aethiopica* Spr. and *Zantedeschia elliottiana* Engl.

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Objectives

The main objective of present studies was to investigate the Karyotypes of *Z. aetheopica* and *Z. elliottiana*. Also, to determine the cellular nucleic acid content by biochemical studies to find the correlation if any, between alterations in somatic chromosome complement and change in nucleic acid level.

Materials and Methods

- Plant Material : *Z. aetheopica* and *Z. elliottiana* of the Araceae were collected from bioherb research institute, Kangwon National university, Chuncheon, Korea and maintained in a greenhouse at 28 ° C, with a 12-16 hr photoperiod. Plants growing in greenhouse were used as a ready source of materials for the cytological analysis and flow cytometric study of plants.

Results

The present investigations have been undertaken to workout chromosomal and bio-chemical basis of two species of *Zantedeschia* of Araceae i.e, *Z. aethiopica* and *Z. elliottiana* respectively. A detailed karyotype analysis of two species of *Zantedeschia* reveals gross similarity of the chromosome complement. However, they can be distinguished from one another by minor differences by details of chromosome structure including length, position of primary and secondary constriction.

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Table 1. Mean of chromosome lengths and centromeric position of *Z. aethiopica*.

Chromosome Type	Number of chromosome	Chromosome length (mm)	Special features[1]
A	1	3.85 ± 0.12[d]	SM
B	2	2.85 ± 0.15[c]	M
C	4	2.90 ± 0.19[c]	SM
D	3	2.90 ± 0.01[c]	M
E	5	2.50 ± 0.02[b]	M
F	1	1.55 ± 0.04[a]	M

[1] SM = Submedian region centromere; M = Median region centromere.

Table 2. Mean of chromosome lengths and centromeric position of *Z. elliottiana*.

Chromosome Type	Number of chromosome	Chromosome length (mm)	Special features[1]
A	1	3.90 ± 0.12[d]	SM
B	2	2.85 ± 0.15[c]	SM
C	4	2.50 ± 0.19[c]	SM
D	3	2.45 ± 0.01[c]	M
E	5	2.25 ± 0.02[b]	M
F	1	2.15 ± 0.04[a]	M

[1] SM = Submedian region centromere; M = Median region centromere.

Table 3. Genomic size analysis of two *Zantedeschia* species.

Plant	Somatic chromosome number	Karyotype formula[1]	2C DNA content (pg)	Mbp
Z. aethiopica	32	2n = 10 M + 22 SM	1.014 ± 0.10[b]	993.72
Z. elliottiana	32	2n = 14 M + 18 SM	0.925 ± 0.05[a]	906.50

[1] SM = Submedian region centromere; M = Median region centromere.

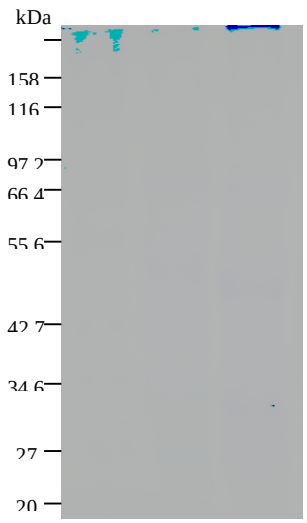

Fig. 4. Polyacrylamide gel showing leaves protein bands of two *Zantedeschia* sps. (M) Marker, (1) *Z. elliottiana*, (2) *Z. aethiopica*.