CHROMOSOME NUMBERS IN THE FAMILY VITACEAE

REPORTED data on grapes lay major emphasis on cultivation, cultural practices, plant protection and related aspects in relation to local important cultivars. Reports on comparative cyto-taxonomy and cyto-genetics of cultivars and their wild relatives are very scanty. Paucity of work on these aspects is all the more striking in view of the rich taxonomic diversity of this family scattered over several continents. Even in the limited Indian context, we have over 8 genera and 200 species of wild relatives allied to cultivated grapes[1]. In view of this situation, a comprehensive programme on comparative taxonomy, cytogenetics and phylogeny has been recently taken up with a view to utilize this basic information for a long-range applied programme of breeding better strains of grapes suited to various Indian conditions. A preliminary report on chromosomal numbers of important cultivars and a few species from related genera is presented here.

Somatic counts have been recorded from fresh, healthy root-tips pretreated with α-bromonaphthalene for 1·5 to 2 hours and hydrolysed in N HCl at 60°C for 15 minutes and squashed in acetocarmine. For gametic chromosome counts, the flower buds at proper stage were fixed in acetic alcohol (1 : 3) for 24 hours and anthers squashed in aceto-carmine.

This communication reports chromosome counts in 18 cultivars for the first time. In rest of the cultivars the chromosome numbers have been confirmed as reported by earlier workers. It is interesting to note that there is constancy in the chromosome numbers in different grape cultivars of *Vitis vinifera*. As regards the chromosomal constitution of the wild related species, chromosome numbers of 11 taxa are being reported here for the first time. Earlier reports of chromosome numbers in 8 taxa have been confirmed. However, for four of the earlier reported taxa, our present observations differ as follows:

TABLE I

Cytological studies in grape cultivars

Name of the grape cultivars	Chromosome number reported for the first time	
	n	$2n$
1. Bangalore Blue	19	..
2. Bangalore Purple	..	38
3. Barbarossa	19	..
4. Black Champa	19	..
5. Black Monukka	19	..
6. Castiza	19	..
7. Chasselas New Chattle	19	..
8. Convent Large Black	19	..
9. Country Bangalore	19	..
10. Delight	19	..
11. Kishmish Charni	19	..
12. Lomint Tokay	19	..
13. Lugleanga	19	..
14. Oval White	19	..
15. Ribier	19	..
16. Rubi Red	19	..
17. Spin Sahebi	19	..
18. Tas	19	..

Collation of the earlier and present data as above indicates the possibility of euploid series in *Cayratia* and perhaps in *Leea*. This needs further studies on material from different locations. *Leea* is a distinct genus in the family characterized by non-climbing erect habit with typical stipules. Among five of the species, four have $n = 12$ and one has $n = 24$.

Species	Reported by				
	Krishnaswamy *et al.*[2]	Shetty[3]	Shetty and Raman[4]	Vatsala[5]	Present work
Cayratia carnosa	..	$2n = 98$	..	$n = 40$	$n = 60$
C. pedata	..	$2n = 72$	..	$n = 40$ $2n = 80$	$n = 20$
Tetrastigma tenuifolia (Syn. *T. sulcatum*)	$2n = 22$	$2n = 30$	..	..	$2n = 52$
Leea sambucina (Syn. *L. indica*)	..	..	$2n = 24$	$2n = 22$	$n = 12$ $2n = 24$

TABLE II

Cytological studies in wild relatives of grapes

Name of the species	Chromosome No. reported in the present study		Earlier report	Reported by
	n	2*n*		
1. *Cayratia carnosa*	60	..	$n = 40$	Vatsala[5]
			$2n = 98$	Shetty[3]
2. *C. pedata*	20	..	$n = 40$ $2n = 80$	Vatsala[5]
			$2n = 72$	Shetty[3]
3. *Cissus auriculata*	11	22	..	first report
4. *C. canarensis*	..	44	..	first report
5. *C. elongata*	12	24	..	first report
6. *C. pallida*	12	..	$2n = 24$	Shetty[3]
			$2n = 26$	Krishnaswamy *et al.*[2]
7. *C. quadrangularis* (2-edged)	..	24		first report
8. *C. setosa*	11, 12	22, 24	$2n = 22$	Shetty[3]
9. *C. trifolia*	40	80	..	first report
10. *C. woodrowii*	12	24	..	first report
11. *Cissus* sp.—ornamental variety	24	..	..	first report
12. *Leea aspera*	12	..	. . .	first report
13. *Leea sambucina*	12	24	$2n = 22$	Vatsala[6]
			$2n = 24$	Shetty and Raman[4]
14. *Leea* sp.—unidentified	24	..	..	first report
15. *Leea* sp.—from Konkan	12	..	..	first report
16. *Tetrastigma sulcatum*	..	52	..	first report

Our data summarized above indicate a possibility of euploid series which is also in consonance with the earlier reports by Shetty and Raman[4] but the reports of Vatsala[5] and Hazra and Sharma[6] taken together perhaps indicate a polybasic situation as $x = 10$, 11, 20.

First reports in wild relatives of grape include the chromosome counts for six *Cissus* species and two *Leea* species. A peculiar constancy is observed in chromosome numbers in species of *Ampelocissus*. In the genus *Cissus* the chromosome number ranges from $n = 11$ to $n = 40$ which suggests the occurrence of aneuploidy.

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