

APOCYNACEAE

CHROMOSOME STUDIES ON AFRICAN PLANTS. 15. PERIPLOCOIDEAE

The subfamily Periplocoideae currently forms part of the family Apocynaceae (Venter & Verhoeven 1997). This subfamily was previously classified as a section (Brown 1810) or subfamily (Schumann 1895) of the Asclepiadaceae, or as a separate family, the Periplocaceae (Schlechter 1914). The Asclepiadaceae has been studied extensively by especially Albers (Albers 1979, 1983; Albers & Delfs 1983) but as far as can be ascertained, almost no cytogenetic data have been published on the Periplocoideae. The aim of this paper is to contribute to the cytogenetic knowledge of the Apocynaceae in general, and the Periplocoideae in particular.

MATERIALS AND METHODS

Cytogenetic material was collected and fixed in the field (Spies & Du Plessis 1986). The material used and

their localities are listed in Table 3. Voucher specimens are housed in the Geo Potts Herbarium, Department of Botany and Genetics, University of the Orange Free State, Bloemfontein (BLFU).

Anthers were squashed in aceto-carmin and meiotically analysed (Spies *et al.* 1996). Chromosome numbers are presented as gametic chromosome numbers to conform to previous papers on chromosome numbers in this journal (Spies & Du Plessis 1986).

RESULTS AND DISCUSSION

Twenty specimens, representing 10 species and four genera, were studied (Table 3). All specimens proved to be diploid ($2n = 2x = 22$) with a basic chromosome number $x = 11$.

TABLE 3.—Gametic chromosome numbers of specimens of Periplocoideae, with voucher specimen numbers and specific localities

Taxon	Voucher	n	Collecting locality
Tribe Periploceae Bartl.			
<i>Tacazzea apiculata</i> Oliv.	Venter 9248	11	KWAZULU-NATAL.—2732 (Ubombo): Makane's Drift, (–AB).
	Venter 9250	11	KWAZULU-NATAL.—2732 (Ubombo): Sordwana, (–DA).
	Venter 9251, 9252, 9253, 9322	11	KWAZULU-NATAL.—2832 (Mtubatuba): Richards Bay next to Mzingazi Lake, (–CC).
Tribe Gymnanthereae Venter			
<i>Raphionacme dyeri</i> Retief & Venter	Du Preez 2548	11	FREE STATE.—2826 (Brandfort): Soetdoring Nature Reserve, (–CC).
	Du Preez 2565	11	FREE STATE.—2926 (Bloemfontein): Rustfontein Dam, (–BC).
<i>R. galpinii</i> Schltr.	Venter 9269	11	KWAZULU-NATAL.—2732 (Ubombo): Lebombo Mountains near Josini, (–AA).
<i>R. hirsuta</i> (E.Mey.) R.A.Dyer	Du Preez 2531	11	FREE STATE.—2827 (Senekal): Evening Star, Clocolan, (–CD).
	Venter 9309	11	FREE STATE.—2926 (Bloemfontein): Brandkop Racing Track, (–AA).
<i>R. procumbens</i> Schltr.	Venter 9260	11	MPUMALANGA.—2430 (Pilgrim's Rest): Blyderivier Canyon, (–DB).
Tribe Cryptolepideae Venter			
<i>Cryptolepis cryptolepioides</i> (Schltr.) Bullock	Venter 9182, 9183	11	GAUTENG.—2527 (Rustenburg): Rustenburgkloof, (–CA).
	Venter 9181	11	GAUTENG.—2528 (Pretoria): Wonderboom Reserve, (–CA).
<i>C. obtusa</i> N.E.Br.	Venter 9299	11	KWAZULU-NATAL.—2732 (Ubombo): Makane's Drift, (–AB).
<i>Ectadium latifolium</i> (Schinz) N.E.Br.	Venter 9314	11	NAMIBIA.—2615 (Luderitz): Luderitz, (–CA).
<i>E. rotundifolium</i> (H.Huber) Venter & Kotze	Venter 9313	11	NAMIBIA.—2013 (Unjab Mouth): 22 km south of Torra Bay, (–AA).
<i>E. virgatum</i> E.Mey.	Venter 9312	11	NAMIBIA.—2817 (Vioolsdrif): 133 km west of Noordoewer village along the Jan Haak road, (–AA).
	Venter 9237	11	NORTHERN CAPE.—2816 (Vioolsdrif): Richtersveld, (–BD).

Tribe Periploceae

Tacazzea apiculata is the only species being studied cytogenetically (Table 3).

Tribe Gymnanthereae

Chromosome numbers are reported for the first time in *Raphionacme dyeri*, *R. galpinii*, *R. hirsuta*, *R. procumbens* and *R. zeyheri*. This number of $2n = 2x = 22$ is confirmed for *R. flanaganii* Schltr., which was previously studied by F. Albers (pers. comm.).

Tribe Cryptolepideae

This is the first report for any African species in this tribe. The chromosome number of $2n = 2x = 22$ found in

Cryptolepis cryptolepioides, *C. obtusa*, *Ectadium latifolium*, *E. rotundifolium* and *E. virgatum* (Figure 7), corresponds with those chromosome numbers previously noted for certain Asian species of this tribe, i.e. *Cryptolepis buchananii* Roem. & Schult. (Sharma 1970; Navaneetham 1982), *C. grandiflora* Wight (Navaneetham 1982; Navaneetham & Sampathkumar 1984) and *C. sinensis* (Lour.) Merr. [= *C. elegans* Wall.] (Navaneetham 1981).

ACKNOWLEDGEMENTS

The University of the Orange Free State and the National Research Foundation are thanked for financial assistance during this study.

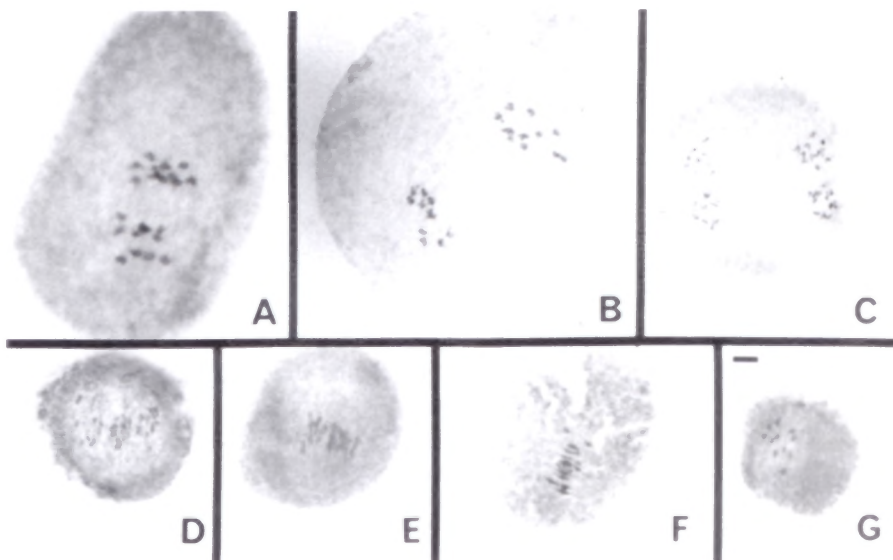


FIGURE 7.—Meiotic chromosomes ($2n = 2x = 22$) in representatives of the Apocynaceae. A. *Tacazzea apiculata*, Venter 9252, anaphase I. B, C. *T. apiculata*, Venter 9322: B, anaphase I; C, anaphase II. D. *Raphionacme hirsuta*, Venter 9309, early anaphase I; E. *Cryptolepis cryptolepioides*, Venter 9181, metaphase I; F. *Ectadium rotundifolium*, Venter 9313, metaphase I; G. *E. virgatum*, Venter 9237, diakinesis. Scale bar: A–F, 6.4 μ m; G, 8.3 μ m.

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J.J. SPIES*, H.J.T. VENTER* and S.M.C. VAN WYK*

* Department of Botany and Genetics, University of the Orange Free State, P.O. Box 339, 9300 Bloemfontein.
MS. received: 2000-06-30.