

Miscellaneous notes

POACEAE

THE BASIC CHROMOSOME NUMBER OF THE GENUS *PENTAMERIS* (ARUNDINOIDEAE)

The genus *Pentameris* Beauv. contains nine species and is endemic to Western Cape, South Africa (Barker 1993). In his revision of *Pentameris*, Barker (1993) described chromosome numbers for *P. distichophylla* (Lehm.) Nees ($2n = 6x = 36$) and *P. thuarii* Beauv. ($2n = 2x = 12$). Both numbers suggest a basic chromosome number of 6 for this genus. Unfortunately his report did not contain any photographic evidence of these chromosome numbers.

During this study, meiotic chromosomes of the following species were studied according to the method described by Spies & Du Plessis (1985):

P. thuarii, Spies 6160: Western Cape, 3322 (Oudtshoorn): Montagu Pass, (–CD).

P. oreophila N.P.Barker, Spies 6166: Western Cape, 3322 (Oudtshoorn): Swartberg Pass, (–AC).

P. macrocalycina (Steud.) Schweick., Spies 3644: Western Cape, 3319 (Worcester): Franschoek Pass, (–CC).

At least 20 well-spread meiotic cells, where chromosome configuration could be recognized, were studied per specimen.

These results clearly indicate that *P. thuarii* (Figure 1A) and *P. oreophila* (Figure 1B) have gametic chromosome numbers of $n = x = 7$, and *P. macrocalycina* (Figure

1C, D) has $n = 3x = 21$. The most interesting finding was the high number of multivalents observed in the *P. macrocalycina* specimen. The lowest number observed in a cell was five and most cells contained seven quadrivalents. This possibly indicates that the particular specimen is an auto-allopolyploid with a possible AAAABB genomic constitution.

The results of this study unequivocally indicate that the basic chromosome number of *Pentameris* should be $x = 7$. This supports the phylogenetic analysis, based on ITS sequences of the Arundinoideae, of Hsiao *et al.* (1998), where *Pentameris* forms a clade with *Pentaschistis* and *Prionanthium*, both having a basic chromosome number of seven (De Wet 1954, 1960; Tateoka 1965; Davidse *et al.* 1986; Davidse 1988; Du Plessis & Spies 1988; Spies & Du Plessis 1988; Du Plessis & Spies 1992; Morton 1993; Spies *et al.* 1994; Visser & Spies 1994; Klopper *et al.* 1998).

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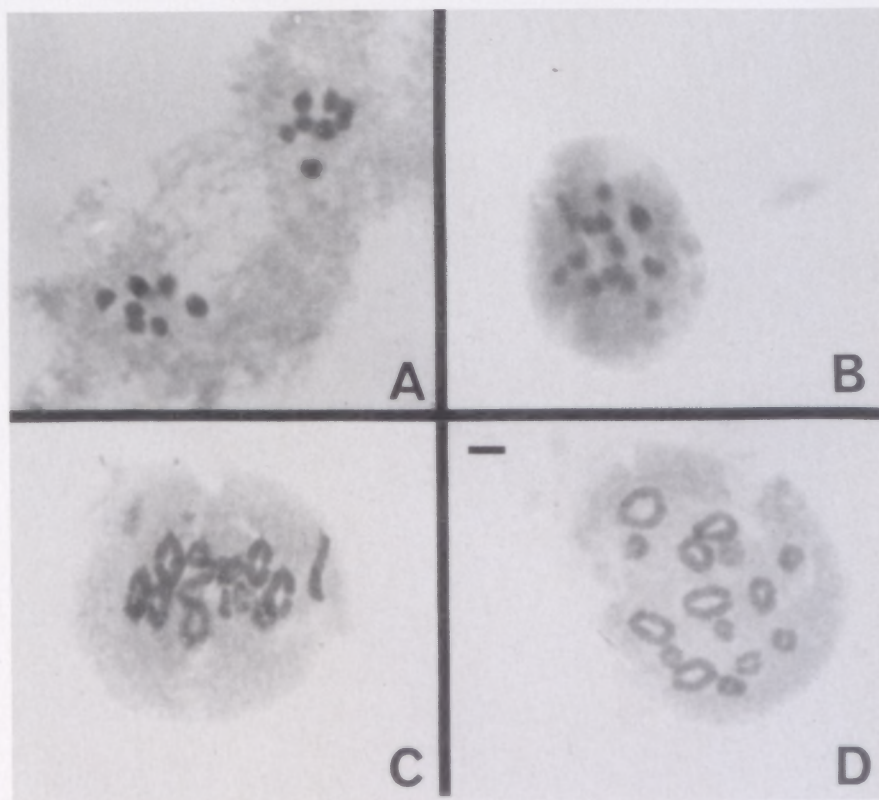


FIGURE 1.—Meiotic chromosomes in the genus *Pentameris*. A, *P. thuarii*, Spies 6160, late anaphase I with 7 chromosomes in each pole; B, *P. oreophila*, Spies 6166, early anaphase I. C, D, *P. macrocalycina*, Spies 3644: C, metaphase I with $6_{IV}9_{II}$; D, diakinesis with $7_{IV}7_{II}$. Scale bar: 6.4 μ m.

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