

## SHORT COMMUNICATION

### Cytological notes in Rutaceae. 2\*: *Neobyrnesia suberosa*

*Neobyrnesia* (Rutaceae: Boronieae) is a monotypic genus of tropical heathlands in the Kakadu region of the Northern Territory (Armstrong and Powell 1980). Cytoevolution is taxonomically significant in the Boronieae especially at the generic level (Smith-White 1954, Stace and Armstrong 1992). Of genera considered close to *Neobyrnesia*, *Zieria* has  $x=18$  ( $n=18, 36$ ) and *Boronia* has evolved by dysploid falls from  $x=18$  ( $n=18, 16, 11, 10, 9, 8, 7$ ). Hence, as a first indicator of likely phylogenetic relationships, the chromosome number of *Neobyrnesia* is of interest.

In this note we report that *Neobyrnesia suberosa* Armstrong has  $n=12$ . Meiosis was observed in pollen mother cells from anthers of young floral buds fixed in Bradley's fluid and stained with Snow's alcoholic carmine (G.J. Leach 3908, East Alligator River near Cahill's Crossing, Kakadu National Park, NT, October 1993; voucher at DNA). Meiosis was regular and in late diakinesis showed twelve bivalents, with small chromosomes, of which one pair often showed early disjunction. This first chromosome number determination for *N. suberosa* shows that it is cytologically distinct and advanced in the Boronieae.

*Neobyrnesia* together with *Boronia*, *Zieria*, *Brombya*, *Medicosma* and *Euodia* sens. strict. comprise an informal grouping of Australasian genera with tetramerous flowers, free petals and ant-dispersed seeds (Hartley 1985, Armstrong 1987). Cytological data are either incomplete or absent for all the latter genera, especially among the tropical taxa, so an interpretation of the cytoevolutionary origin of *Neobyrnesia* must await data from the other related genera. However on present cytological information *Neobyrnesia* may be closer to *Boronia* section *Valvatae* ( $n=16, 10, 9$  in five of 29 species) than to *Zieria*. Moreover, *Neobyrnesia* shares with that section of *Boronia* valvate petals, persistent stamens, some seed characters and northern Australian distribution (P.G. Wilson pers. comm., Weston et al. 1984).

In Rutaceae  $x=18$  is primitive and most genera in Boronieae are based on  $x=18, 16$  or  $14$  (Stace et al. 1993). Reports of  $n=12$  are rare for Rutaceae, occurring only in an unspecified *Boronella* from New Caledonia (Smith-White 1959); in *Melicope semecarpifolia* (= *Euodia confusa* in part) from Taiwan (Hsu 1967, T.G. Hartley pers. comm.); and in *Zanthoxylum* sp. (= *Fagara schlechteri*) from Africa (Paiva and Laitao 1989). Evidently  $n=12$  is advanced and this is the first genus in the family and tribe to be based on  $x=12$ . Further cytogenetic research would be helpful for resolving generic relationships in tropical Australian Rutaceae which ultimately could prove to be as diverse and cytologically informative as the Boronieae of southern heathland Australia.

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\* Part 1, *Nuytsia* 9: 131–133 (1993).

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