Literature reviews

by Jan Schlauer

Rivadavia, F., Miranda, V. F. O. de, Hoogenstrijd, G., Pinheiro, F., Heubl, G., and Fleischmann, A. 2012. Is *Drosera meristocaulis* a pygmy sundew? Evidence of a long-distance dispersal between Western Australia and northern South America. Annals of Botany 110(1): 11-21.

Essentially the present paper answers the initial question by a loud and clear "yes", providing compelling evidence from germination pattern (cryptocotylar), pollen morphology (aperture type 7-8), chromosome number (2n = 32, 34, 36 with equal frequency), DNA data (rbcL sequence homology nests *D. meristocaulis* within sect. *Bryastrum* – the pygmy sundews, ITS+*rps16* homology place it sister to the same), and leaf trichomes (stout, short yellow gland-like trichomes with four-celled peduncle and a glandular head on petiole present, but the eight-celled biseriate microglands characteristic for sect. *Bryastrum* are missing in *D. meristocaulis*). The only disturbing fact that remains is the occurrence of *D. meristocaulis* in the Neblina massif at the Brazil/Venezuela border, separated from the remaining pygmy sundews by the whole extent of the Pacific Ocean. But even this disjunction is not completely unknown to plant geographers, as admitted by the authors.

The impressive list of similarities mentioned in the paper above can be augmented by a personal observation by the reviewer (JS), as an investigation of dried material of *D. meristocaulis* (kindly provided by Fernando Rivadavia) for naphthoquinones did not reveal any detectable amount of plumbagin nor of 7-methyljuglone. These acetogenic compounds are distributed throughout the genus *Drosera* with the notable exception of sect. *Bryastrum* that apparently lacks them whatsoever.

Heřmanová, Z. Kvaček, J. 2010. Late Cretaceous *Palaeoaldrovanda*, not seeds of a carnivorous plant, but eggs of an insect. Journal of the National Museum (Prague), Natural History Series, 179(9): 105-118

The paper discloses with reasonably good evidence that the fossils formerly interpreted as seeds and attributed to a genus *Palaeoaldrovanda* closely related to *Aldrovanda*, are in fact fossilized insect eggs. Several Tertiary *Aldrovanda* fossil seeds, seeds of the recent *A. vesiculosa* and different insect eggs are compared by scanning electron microscopy demonstrating the microstructural similarities among the *Aldrovanda* seeds and significant differences of these to *Palaeoaldrovanda* that position the latter closer to the insect eggs. In particular, according to the authors "*Palaeoaldrovanda* is not a seed with a basic anatropical and bitegmic organisation; there is no evidence of a raphe, and the wall structure is simple. *Palaeoaldrovanda* does not show a clearly pronounced micropyle or chalaza. (...) Our new interpretation of *Palaeoaldrovanda* significantly influences the current view of the family Droseraceae. It is at least possible that this family did not evolve until the Tertiary. It may also influence the hypotheses of the first unequivocal appearance of carnivorous plants in general."

The following two papers that appeared in Carnivorous Plant Newsletter should be viewed from this new perspective:

Degreef, J.D. 1997. Fossil *Aldrovanda*. Carniv. Pl. Newslett. 26(3): 93-97

Schlauer, J. 1997. Fossil *Aldrovanda* - Additions. Carniv. Pl. Newslett. 26(3): 98