

A New Study of *Narcissus*

A new study by Dr. B.J.M Zonneveld has come from Holland. The article was accepted for publication in *Plant Systematics and Evolution* on 24 January 2008. An abstract follows; to read the complete article online, follow the link at the end of the abstract.

The systematic value of nuclear DNA content for all species of *Narcissus* L. (Amaryllidaceae)

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Abstract The taxonomy of all species of *Narcissus* (Amaryllidaceae), an important horticultural crop, has not been investigated recently. As a new approach, genome size was determined by flow cytometry with propidium iodide from 375 accessions. The somatic nuclear DNA contents (2C) were shown to range from 14 to 38 pg for the diploids. *Narcissus assoanus* and *N. gaditanus* are, based on their nuclear DNA content, removed from section Apodanthi and placed in a new section Juncifolii. The different ploidy levels and species involved were entangled for *N. ‘fernandesii’* s.l. and a new allotetraploid form is named here. Section Pseudonarcissus was much more heterogeneous in nuclear DNA content than expected. Sixty-five accessions of *N. pseudonarcissus* possessed, with 23.7 pg, similar amounts of DNA. However, several species from this section were clearly distinctive in nuclear DNA content. It runs from the diploid *N. primigenius* with 21.7 pg to the also diploid *N. nevadensis* with 38.2 pg. Also *N. abscissus* and *N. moleroi* are with about 26 pg clearly different from *N. pseudonarcissus*. For the first time, in 11 accessions, hexaploidy was found in *N. pseudonarcissus* ssp. *bicolor*. A new section Nevadensis with 30–39 pg of nuclear DNA was split off from the section Pseudonarcissus with now 21–27 pg. A nonoploid *N. dubius* with 96.3 pg has by far the highest amount of nuclear DNA and can be calculated to have the highest ploidy ever reported in *Narcissus*. The total number of *Narcissus* species was determined as 36, nine more than in Flora Europaea and they were divided up in two subgenera and 11 sections. Flow cytometry is shown to produce easily obtainable and original systematic data that lead to new insights. Genome size or C-value turns out to be one of the most salient features to define the status of the species in the genus *Narcissus*.

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