

**MOHAVEA SUBSUMED WITHIN ANTIRRHINUM
(PLANTAGINACEAE)**

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ABSTRACT

Because the small genus *Mohavea* A. Gray is nested within the New World lineage of *Antirrhinum* L., based on molecular evidence, the two species of *Mohavea* are merged into *Antirrhinum*. The binomial ***Antirrhinum mohavea* D.J. Keil, nom. nov.**, is proposed because the earlier *Antirrhinum breviflorum* Gilib. precludes the use of the specific epithet of *Mohavea breviflora* Coville in *Antirrhinum*. With the addition of the two species from *Mohavea* and the exclusion of *Antirrhinum cyathiferum* Benth. as *Pseudorontium cyathiferum* (Benth.) Rothm., the New World snapdragons (*Antirrhinum* sect. *Saerorhinum* A. Gray) form a monophyletic unit.

Gray (1856) described the genus *Mohavea* and the species *M. viscida* A. Gray to accommodate a peculiar herbaceous annual discovered during the railroad surveys of the 1850s. Coville (1893) described a second species, *M. breviflora*. Heller (1912) noted that *M. viscida* had previously been described as *Antirrhinum confertiflorum* and published the combination *Mohavea confertiflora*. The genus *Mohavea* has been consistently recognized as a distinctive and readily recognizable genus of two species in western American floras, e.g., *The Jepson Manual* (Wetherwax & Thompson 2012).

Antirrhinum (sensu lato) is a genus with a disjunct distribution, comprising species of both the Old World (primarily Mediterranean region) and New World (western North America). Thompson's monograph (1988) of the New World species (sect. *Saerorhinum* A. Gray) included 15 species of annual and perennial herbs and subshrubs. Independently Sutton (1988) in a revision of the tribe Antirrhineae split *Antirrhinum* (sensu lato) into a number of segregate genera, with the New World species being assigned to four genera: *Howelliella* Rothm., *Neogaerrhinum* Rothm., *Pseudorontium* (A. Gray) Rothm., and *Sairocarpus* D.A. Sutton.

Oyama and Baum (2004) investigated the phylogenetic relationships of the New World snapdragons using phylogenetic analyses of sequences of the internal transcribed spacer region (ITS) of nuclear ribosomal DNA from all of the New World species recognized by Thompson (1988), four Old World species, and 13 related genera of the tribe Antirrhineae. They found that the two species of *Mohavea* are nested within the clade that includes most of the New World *Antirrhinum* species. The New World species *A. cyathiferum* Benth. is not at all closely related to the rest of *Antirrhinum*. This species was treated by Sutton (1988) as *Pseudorontium cyathiferum* (Benth.) Rothm., and it is clear from the analyses that its exclusion from *Antirrhinum* and its placement in the monotypic genus *Pseudorontium* are warranted. The phylogenetic analyses of Oyama and Baum (2004) do not support the remaining three genera recognized by Sutton, although relationships among the taxa of *Howelliella*, *Neogaerrhinum*, and *Sairocarpus* were only weakly resolved. With the exclusion of *A. cyathiferum* and the inclusion of *Mohavea*, the remainder of *Antirrhinum* forms a well-supported monophyletic lineage including both the Old and New World species. The remaining American species plus *Mohavea* comprise a monophyletic *Antirrhinum* sect. *Saerorhinum*, albeit only weakly supported.

Ogutcen and Vamosi (2016) also investigated the systematics of the Antirrhineae, using data from multiple DNA regions. Their analysis, like that of Oyama and Baum (2004), recovered a well-supported *Antirrhinum* clade that contains a more weakly supported New World *Antirrhinum* clade in which *Mohavea* is nested. Their sampling included 12 of the New World species but did not include *Pseudorontium cyathiferum* (Benth.) Rothm.

Inclusion of *Mohavea* and the removal of *Antirrhinum cyathiferum* result in a monophyletic lineage of New World *Antirrhinum*. A binomial in *Antirrhinum* already exists for *Mohavea confertiflora*; the species was originally described as *Antirrhinum confertiflorum* (de Candolle 1846). *Mohavea breviflora*, however, has not previously been classified in *Antirrhinum*, and the combination *Antirrhinum breviflorum* Gilib. already exists. I therefore am proposing a replacement name in *Antirrhinum* for this species. Nomenclature for the two species follows.

Antirrhinum confertiflorum Benth. in A. DC., Prodr. 10: 592. 1846. *Mohavea confertiflora* (Benth.) A. Heller, Muhlenbergia 8: 48. 1912.
Mohavea viscida A. Gray, Pacif. Rail. Rep. 4: 122. 1856.

ANTIRRHINUM MOHAVEA D.J. Keil, **nom. nov.** *Mohavea breviflora* Coville, Contr. U.S. Natl. Herb. 4: 168, pl. 17. 1893 (non *Antirrhinum breviflorum* Gilib., Fl. Lit. Inch. 1: 137. 1782).

Etymology. The epithet "mohavea" is the former generic name serving as a noun in apposition to the generic name *Antirrhinum* and retains its own gender and termination irrespective of the gender of the generic name (ICN Article 23.5—McNeill et al. 2012).

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