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New Systematic Position of *Desmodiastrum* (*Leguminosae* Tribe *Desmodieae*)

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Desmodiastrum of the tribe *Desmodieae* (*Leguminosae*) is regarded as synonymous with *Alysicarpus*, or as a distinct genus related to *Alysicarpus* and *Desmodium*. To determine its systematic position, updated phylogenetic trees of the *Desmodium* group of tribe *Desmodieae* are obtained as the results of the analyses of cpDNA and nrDNA. *Desmodiastrum* is placed in an independent clade (*Desmodiastrum* clade) with *Codariocalyx*, *Eleiotis* and *Leptodesmia*, which is remarkably remote from the *Alysicarpus* and *Desmodium* clades. The member of the *Desmodiastrum* clade shares dimorphic or trimorphic leaves and drepaniform keel petals with a small lamellate appendage connecting the covered wings. Among them *Desmodiastrum* is supported in its distinctive systematic position by the syncolporate pollen grains. *Desmodiastrum* is recognized as an independent genus distinct from *Alysicarpus*.

Key words: *Alysicarpus*, *Codariocalyx*, *Desmodiastrum*, *Desmodium*, *Eleiotis*, *Leptodesmia*, molecular phylogenetic analyses, pollen morphology, syncolporate pollen grains.

Desmodiastrum (Prain) A.Pramanik & Thoth. (*Leguminosae*) was first recognized by Prain (1897) as a subgenus under *Alysicarpus* Neck. ex Desv. Although the rank was not designated directly with the name, it was indicated by Prain separately in the note under *A. rotundifolius* Dalzell ex Prain. He characterized the subgenus by the calyx being 'much longer than the first joint of the pod, its teeth not imbricated in the fruiting stage. Pods as in *Desmodium* [Desv.].' Prain included four species in the subgenus of which *A. parviflorus* Dalzell and *A. rotundifolius* were transferred from *Desmodium* in Baker (1876). Cooke (1901) recorded *Desmodium parviflorum* as 'this plant forms a connecting link between the genera *Alysicarpus* and *Desmodium* and might with equal reason be placed in either.' Pramanik and Thothathri (1986) treated the subgenus as a distinct genus intermediate between *Alysicarpus* and *Desmodium*. Systematic position of *Desmodiastrum* is, however, problematic. Sanjappa (1992), John and Thengane (1994) and Plants of the World Online (POWO 2022) treat *Desmodiastrum* as a synonym of *Alysicarpus*. In contrast, Brummitt (1992), Kumar and Sane (2003), Ohashi (2004, 2005), Nemoto and Murata (2013) and Ohashi et al. (2017) accepted *Desmodiastrum* as a distinct genus in the tribe *Desmodieae*. Phylogenetic relationships among these three genera have, however, not been studied. We therefore undertook a molecular phylogenetic analysis of

Leguminosae Tribe *Desmodieae* 3. The Systematic Position of *Desmodium velutinum.* J. Jpn. Bot. **94**(2): 65–77.
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Appendix I

Taxon, GenBank accession number for *trnF-trnL*, *trnL-rpl32*, *trnC-rpoB*, *ndhA* intron, ITS and ETS.

Desmodiastrum parviflorum: LC683693, LC683695, LC683697, LC683699, LC683701, LC683703. *Leptodesmia microphylla* 2: LC683694, LC683696, LC683698, LC683700, LC683702, LC683704.

大橋一晶[1]，大橋広好[2]，葉 縝[3]，那谷耕司[1]：**マメ科アコウマイハギ連*Desmodiastrum* の新たな分類学的位置**

Desmodiastrum はマメ科アコウマイハギ連の1属で4種あり，インド（4種），ミャンマー（1種），ジャワ島（1種）に分布する．これらの種はササハギ属 *Alysicarpus* あるいは（旧）ヌスビトハギ属 *Desmodium* として記載されたが，Prain (1897) が *Alysicarpus* の *Desmodiastrum* 亜属にまとめ，更に Pramanik and Thothathri (1986) がこの亜属を独立属 *Desmodiastrum* とした．しかし，今日 *Desmodiastrum* は *Alysicarpus* の異名あるいは独立属とされ，分類学上の位置が定まっていない．本研究では葉緑体 DNA・核 DNA を用いた分子系統解析による推測から *Desmodiastrum* はマイハギ属 *Codariocalyx*, *Eleiotis* およびヒメノハギ属 *Leptodesmia* に近縁であり，*Alysicarpus* や現在の *Desmodium*（ほぼ全部がアメリカ大陸に原産するアコウマイハギ属）とは遠い類縁関係にあることが明らかとなった．これらの4属を比較検討した結果，葉が2型（単葉と3小葉）あるいは3型（単葉，3小葉，1と3小葉の混在形）で，竜骨弁が鎌形で弁部の基部に翼弁に接着する小型の突起があることが共通の形態的特徴であった．しかし，花粉型では *Desmodiastrum* は表面模様が明瞭ないぼ状あるいは皺状の三合流溝孔粒 3-syncolporate であり，一方 *Codariocalyx*, *Eleiotis* および *Leptodesmia* は表面模様が不明瞭な三溝孔粒 3-colporate であった．*Desmodiastrum* の花粉型はこの近縁属内はもとよりアコウマイハギ連の中でも特異であり，分子系統解析の結果と併せて *Desmodiastrum* はササハギ属とは別個の独立属であると考えられる．

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