New combinations in the genus *Didymoplexis* (Orchidaceae; Epidendroideae; Gastrodieae), with a new variety of *D. siamensis* from Amami-Oshima Island, Japan

KENJI SUETSUGU¹ & TIAN-CHUAN HSU²

¹Department of Biology, Graduate School of Science, Kobe University, 1-1 Rokkodai, Nada-ku, Kobe, 657-8501, Japan; E-mail: kenji.suetsugu@gmail.com
²Botanical Garden Division, Taiwan Forestry Research Institute, No. 53, Nanhai Rd., Taipei 100, Taiwan


In May 2018, an unknown mycoheterotrophic orchid was discovered in Amami-Oshima Island, Japan. In general morphology, this orchid is nearly identical to *Didymoplexis siamensis* (Rolfe ex Downie 1925: 416) Seidenfaden (1972: 99) distributed from Thailand to Taiwan (Hu et al. 2014) and also recorded in Yakushima, Tanegashima and Amami-Oshima Islands, Japan (Suetsugu et al. 2019). However, the unknown taxon is distinguished from *D. siamensis* because its column lacks the long recurved stelidia (Fig. 1A) that otherwise characterise *Didymoplexiella*. Its taxonomic placement is thus ambiguous under the generic concepts mentioned above.

![FIGURE 1. A. Didymoplexis siamensis var. amamiana from the type locality. B. Didymoplexis siamensis var. siamensis from Amami-Oshima Island. Photograph by Hidekazu Morita.](image-url)
This curious case led us to reappraise the delimitation of *Didymoplexis* and *Didymoplexiella*. After a thorough literature study, it is revealed that the boundary between them is actually not clear and disrupted by several taxa with mixed generic characters. For example, both *Didymoplexis vietnamica* Ormerod (2000: 15) and *D. recurvata* Cribb, Nusbaumer & Gautier in Cribb et al. (2013: 44) have long recurved stelidia agreeing with *Didymoplexiella*, but their well-developed column foot is in contrast distinct from *Didymoplexiella* species (Averyanov 2011). Additionally, *Didymoplex micradenia* (Reichenbach 1868: 295) Hemsley (1883: 311) and the unknown taxon discovered in Amami-Oshima Island share obscure column feet with *Didymoplexiella* species, whereas they lack a pair of elongated stelidia (Hsu & Chung 2007, Phueakkhlai et al. 2014, Gray 2017). The monotypic genus *Didymoplexiopsis* Seidenfaden (1997: 13) with *D. khiriwongensis* Seidenfaden (1997: 13) represents another case of intermediate nature. It was originally described based on the unique combination of characters of *Didymoplexis* (i.e. prominent column feet) and *Didymoplexiella* (i.e. long recurved stelidia) plus the almost free dorsal sepal and petals that were not reported from any *Didymoplexis* or *Didymoplexiella* species known at that time. However, the weakly connate dorsal sepal and petals have now also been described in two distinctly related Madagascarian species *Didymoplexis avatraensis* Cribb, Nusbaumer & Gautier in Cribb et al. (2013: 43) and *D. recurvata* and are hence not unique. Consequently, neither *Didymoplexiella* nor *Didymoplexiopsis* can be clearly differentiated from *Didymoplexis* by any single morphological character proposed in previous studies, and we thus consider that it is impractical to recognise *Didymoplexis*, *Didymoplexiella* and *Didymoplexiopsis* as distinct genera due to their overall morphological similarity and relatively minor and obscure differences. Although molecular data are still lacking in these groups, we presume that *Didymoplexiella* and *Didymoplexiopsis* are more likely derived groups within *Didymoplexis*, judging from their morphological patterns and also the fact that the distribution of *Didymoplexiella* and *Didymoplexiopsis* are both within the known range of *Didymoplexis*.

Based on the above discussion, we propose to redefine *Didymoplexis* to include *Didymoplexiella* and *Didymoplexiopsis* with necessary new combinations. This treatment is actually a reinstatement of the earlier concepts of *Didymoplexis* (Smith 1920, Holttum 1953). The enlarged *Didymoplexis* now comprises about 30 species widely distributed from East Africa and Madagascar through Asia to Oceania and could be characterized by the following floral characters: tepals ± connate but always deeply cleft between petals and lateral sepals and thus only forming short tube or not tubular; lip basally adnate to abbreviate or prominent column foot, widest near apex, with basal and/or central calli; column dilated and with a pair of stelidia at apex; stelidia variable from small teeth-like to prominent anchor-like projections; and stigma always located directly below rostellum near column apex. The unknown taxon in Amami-Oshima Island is then described as a new variety of *Didymoplexis siamensis* because it only differs from typical *D. siamensis* in lacking elongate stelidia.

**Taxonomic Treatment**

*Didymoplexis* Griffith (1844: 383).

Type species:— *Didymoplexis pallens* Griffith.


*Didymoplexiella* Garay (1955: 33, as “*Didimoplexiella*”). Type species:— *Didymoplexiella ornata* (Ridley) Garay (1955: 33).


**Notes:**—Ridley (1891) originally proposed *Leucolaena* based on the presence of long, recurved, apical stelidia on the column. However, Garay (1954) proposed *Didymoplexiella* because he misunderstood Ridley’s “*Leucolaena*” as “*Leucolaena*” and then considered it as a later homonym of *Leucolaena* (de Candolle 1829: 5) Bentham (1837: 55). The epithet *Leucolaena*, composed by Ancient Greek *leukos*, white, and -*olen*., arm or elbow, is presumably derived from its characteristic arm-like stelidia, whereas in *Leucolaena*, Ancient Greek *chlaina*, cloak, (Latinised to –*laea*, when combined) is presumably derived from its whitish woolly hairs. Therefore, the two epithets are not orthographic variants. However, despite their distinct etymologies, *Leucolaena* and *Leucolaena* should still be treated as homonyms as the replaced name of the former, *Didymoplexiella*, has now been widely accepted, and this practice is to be continued in the interest of nomenclatural stability (see Art. 53.2 of the Shenzhen Code, Turland et al. 2018).

Valid names are already available for the following former *Didymoplexiella* species:

*Didymoplexis borneensis* (Schlechter 1911: 428) Smith (1920: 20) [=*Didymoplexiella borneensis* (Schlechter) Garay (1954: 33)]


**Didymoplexis siamensis** (Rolfe ex Downie) Suetsugu & T.C.Hsu, *comb. nov.* Basionym: *Leucolena siamensis* Rolfe ex Downie (1925: 416);


**Didymoplexis siamensis** var. *amamiana* Suetsugu, *var. nov.* (Figs. 1A, 2)


*Didymoplexis siamensis* var. *amamiana* differs from *D. siamensis* var. *siamensis* only in lacking a pair of the long recurved stelidia on each side of its stigma.

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**References**


