

**DIPHYES BLUME, A FORGOTTEN GENUS
OF THE SUBTRIBE BULBOPHYLLINAE (ORCHIDACEAE, EPIDENDROIDEAE)**

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ABSTRACT

The genus *Diphyes* Blume is reinstated. 62 new combinations on the species level are validated.

KEY WORDS: Orchidaceae, Epidendroideae, Bulbophyllinae, *Bulbophyllum*, *Diphyes*, paleotropics.

Carl Ludwig von Blume (1796-1862) was one of the most prolific botanist of his time. He described many new genera and species mostly from SE Asia. After years of oblivion his taxa are reappraised. Such genera as *Echioglossum*, *Crepidium* or *Osyricera* to mention a few, are assigned to Blume. The genus *Diphyes* was described by Blume in 1825 in his fundamental work about orchids of the former Dutch East Indies. The genus was divided into 8 sections: *Monanthes* Bl. (with the only species *D. tortuosa* Bl.), *Diptychanthes* Bl. (*D. mutabilis* Bl.), *Stachysanthes* Bl. (*D. flavescens* Bl., *D. gibbosa* Bl., *D. odorata* Bl.), *Desmosanthes* Bl. (*D. angustifolia* Bl., *D. capitata* Bl., *D. crocea* Bl., *D. obtusa* Bl., *D. sulcata* Bl.), *Corymbosia* Bl. (*D. laxiflora* Bl.), *Polymeres* Bl. (*D. mucronata* Bl., *D. tenuifolia* Bl., *D. violacea* Bl.), *Diasperia* Bl. (*D. cernua* Bl., *D. ciliata* Bl., *D. pusilla* Bl.) and *Macrocaulia* Bl. (*D. gracilis* Bl., *D. hirsuta* Bl., *D. inaequalis* Bl., *D. ovalifolia* Bl., *D. tenella* Bl.). As thus can be seen, Blume did not recognize typical section, what was a normal procedure at that time. Unfortunately, it causes that the lectotypification of *Diphyes* is difficult. From among Blume's sections, only *Desmosanthes* was transferred to *Bulbophyllum*, all other have been ignored or reduced to the synonymy.

Detailed examination of the original description of the genus and comparing it with species included by Blume to *Diphyes* led us to the conclusion that the genus should be typified by *D. tortuosa*. It is the only species of Blume's content of *Diphyes* with „*sepalia... basi leviter cohaerentia...*”. In any other species originally attributed to *Diphyes* the sepals are free to the base (Table 1).

***Diphyes* Blume**

Bijdr. Fl. Ned. Ind.: 310, t. 66. 1825; LECTOTYPE (*hoc loco designatus*): *Diphyes tortuosa* Bl.

Incl.: *Bulbophyllum* Thouars sect. *Polyblepharon* Schltr., Repert. Sp. Nov. Regni Veg., Beih. 1:P 701 & 794. 1913.

Plants usually small, with pending rhizome. Pseudobulbs narrowly cylindrical, enveloped basally by sheaths. Leaf single. Inflorescence single-flowered, much shorter than the pseudobulbs. Flowers small, non-resupinate. Sepals much larger than petals. Lateral sepals connate near the base or almost up to apices forming a boat-shaped structure, inrolled or flat apically. Lip small, oblong-ovate to linear, more or less ciliate along margins. Column foot nearly as long as the column part. Stelidia prominent, digitate, longer than anther.

The genus is widely distributed from Bhutan to Australia, with centre of diversification in New Guinea. It comprises over 60 species.

Diphyes appears to be somewhat similar to the genus *Rhytionanthos* Garay et al. by having horn-like structure formed by the fusion of lateral sepals. In *Diphyes*, however, the horn is open on the upper surface with bi-lobed apex, whereas in *Rhytionanthos* it is closed at the bottom and upper surface and lateral sepals are connate to the apex. *Pelma* Finet is another genus resembling *Diphyes* in habit and in general flower structure. In *Pelma* the lip is concave at the base, and the cavity is partly covered by two converging teeth whereas in *Diphyes* is ellipsoid, and almost flat on the upper surface. In all other respects, however, *Diphyes* seems to occupy rather an isolated position in the subtribe Bulbophyllinae.

The following species belong to the genus:

Diphyes aberrans (Schltr.) Szlach. & Rutk., *comb. nov.*
Basionym: *Bulbophyllum aberrans* Schltr., Repert. Spec. Nov. Regni Veg. 10: 177. 1911.

Diphyes adenoblepharon (Schltr.) Szlach. & Rutk., *comb. nov.*

Basionym: *Bulbophyllum adenoblepharon* Schltr., Repert. Spec. Nov. Regni Veg., Beih. 1: 803. 1913.

TABLE 1. Taxonomic position of *Diphyes*'s species' according to the various authors.

Taxa described by Blume (1825) <i>D.</i> = <i>Diphyes</i>	Current status (cf. Comber 1990, Seidenfaden 1979, Seidefaden & Wood 1992, Vermeulen 1991) <i>B.</i> = <i>Bulbophyllum</i>
<i>Diptychanthes</i> Bl. <i>D. mutabilis</i> Bl.	= <i>Aphanobulbon</i> Schltr. = <i>B. mutabile</i> (Bl.) Lindl.
<i>Monanthes</i> Bl. <i>D. tortuosa</i> Bl.	= <i>Polyblepharon</i> Schltr. = <i>B. tortuosum</i> (Bl.) Lindl.
<i>Stachysanthes</i> Bl. <i>D. flavescens</i> Bl. <i>D. gibbosa</i> Bl. <i>D. odorata</i> Bl.	= <i>Aphanobulbon</i> Schltr. = <i>B. flavescens</i> (Bl.) Lindl. = <i>B. gibbosum</i> (Bl.) Lindl. = <i>B. odoratum</i> (Bl.) Lindl.
<i>Desmosanthes</i> Bl. <i>D. angustifolia</i> Bl. <i>D. capitata</i> Bl. <i>D. crocea</i> Bl. <i>D. obtusa</i> Bl. <i>D. sulcata</i> Bl.	= <i>Desmosanthes</i> (Bl.) J.J.Smith = <i>B. angustifolium</i> (Bl.) Lindl. = <i>B. capitatum</i> (Bl.) Lindl. = <i>B. croceum</i> (Bl.) Lindl. = <i>B. obtusum</i> (Bl.) Lindl. = <i>B. sulcatum</i> (Bl.) Lindl.
<i>Corymbosia</i> Bl. <i>D. laxiflora</i> Bl.	= <i>Desmosanthes</i> (Bl.) J.J.Sm. = <i>B. laxiflorum</i> (Bl.) Lindl.
<i>Polymeres</i> Bl. <i>D. mucronata</i> Bl. <i>D. tenuifolia</i> Bl. <i>D. violacea</i> Bl.	= <i>Micromonanthe</i> or <i>Megaloglossum</i> = <i>B. mucronatum</i> (Bl.) Lindl. (<i>Micromonanthe</i> Schltr.) = <i>B. tenuifolium</i> (Bl.) Lindl. (<i>Micromonanthe</i> Schltr. or <i>Megaloglossum</i> Carr) = <i>B. violaceum</i> (Bl.) Lindl. (<i>Megaloglossum</i> Carr)
<i>Diasperia</i> Bl. <i>D. cernua</i> Bl. <i>D. ciliata</i> Bl. <i>D. pusilla</i> Bl.	= <i>Monilibulbus</i> J.J.Smith = <i>B. cernuum</i> (Bl.) Lindl. = <i>B. ciliatum</i> (Bl.) Lindl. (<i>Micromonanthe</i> Schltr.) = <i>B. ovalifolium</i> (Bl.) Lindl.
<i>Macrocaulia</i> Bl. <i>D. gracilis</i> Bl. <i>D. hirsuta</i> Bl. <i>D. inaequalis</i> Bl. <i>D. ovalifolia</i> Bl. <i>D. tenella</i> Bl.	= <i>Monilibulbus</i> J.J.Smith = <i>B. schefferi</i> (O.Ktze.) Schltr. = <i>B. ovalifolium</i> (Bl.) Lindl. = <i>B. inaequale</i> (Bl.) Lindl. or <i>B. ovalifolium</i> (Bl.) Lindl. = <i>B. ovalifolium</i> (Bl.) Lindl. = <i>B. tenellum</i> (Bl.) Lindl.

Diphyes amblyanthum (Schltr.) Szlach. & Rutk., *comb. nov.*

Basionym: *Bulbophyllum amblyanthum* Schltr., Repert. Spec. Nov. Regni Veg., Beih. 1: 814. 1913.

Diphyes angusteovatum (Seidenf.) Szlach. & Rutk., *comb. nov.*

Basionym: *Bulbophyllum angusteovatum* Seidenf., Dansk Bot. Ark. 33(3): 41. 1979.

Diphyes arachnoideum (Schltr.) Szlach. & Rutk., *comb. nov.*

Basionym: *Bulbophyllum arachnoideum* Schltr., Repert. Spec. Nov. Regni Veg., Beih. 1: 798. 1913.

Diphyes bicaudatum (Schltr.) Szlach. & Rutk., *comb. nov.*
Basionym: *Bulbophyllum bicaudatum* Schltr., Repert. Spec. Nov. Regni Veg., Beih. 1: 815. 1913.

Diphyes bisepalum (Schltr.) Szlach. & Rutk., *comb. nov.*
Basionym: *Bulbophyllum bisepalum* Schltr. In: K.Schum. and Lauterb., Nachtr. Fl. Deutsch. Sudsee: 196. 1905.

Diphyes blepharicardium (Schltr.) Szlach. & Rutk., *comb. nov.*

Basionym: *Bulbophyllum blepharicardium* Schltr., Repert. Spec. Nov. Regni Veg., Beih. 1: 812. 1913.

Diphyes blephariglossum (Schltr.) Szlach. & Rutk., *comb. nov.*

Basionym: *Bulbophyllum blephariglossum* Schltr., Repert. Spec. Nov. Regni Veg., Beih. 1: 798. 1913.

Diphyes cadetioides (Schltr.) Szlach. & Rutk., *comb. nov.*
Basionym: *Bulbophyllum cadetioides* Schltr., Repert. Spec. Nov. Regni Veg., Beih. 1: 804. 1913.

Diphyes ciliolatum (Schltr.) Szlach. & Rutk., *comb. nov.*
Basionym: *Bulbophyllum ciliolatum* Schltr., Repert. Spec. Nov. Regni Veg., Beih. 1: 809. 1913.

Diphyes cryptanthum (Schltr.) Szlach. & Rutk., *comb. nov.*

Basionym: *Bulbophyllum cryptanthum* Schltr. in K.Schum. & Lauterb., Nachtr. Fl. Deutsch. Sudsee 199. 1905.

Diphyes decumbens (Schltr.) Szlach. & Rutk., *comb. nov.*
Basionym: *Bulbophyllum decumbens* Schltr., Repert. Spec. Nov. Regni Veg., Beih. 1: 820. 1913.

Diphyes dichaeoides (Schltr.) Szlach. & Rutk., *comb. nov.*
Basionym: *Bulbophyllum dichaeoides* Schltr., Repert. Spec. Nov. Regni Veg., Beih. 1: 802. 1913.

Diphyes dichilus (Schltr.) Szlach. & Rutk., *comb. nov.*
Basionym: *Bulbophyllum dichilus* Schltr., Repert. Spec. Nov. Regni Veg., Beih. 1: 813. 1913.

Diphyes dryadum (Schltr.) Szlach. & Rutk., *comb. nov.*
Basionym: *Bulbophyllum dryadum* Schltr., Repert. Spec. Nov. Regni Veg., Beih. 1: 802. 1913.

Diphyes eciliatum (Schltr.) Szlach. & Rutk., *comb. nov.*
Basionym: *Bulbophyllum eciliatum* Schltr., Repert. Spec. Nov. Regni Veg., Beih. 1: 814. 1913.

Diphyes elegantius (Schltr.) Szlach. & Rutk., *comb. nov.*
Basionym: *Bulbophyllum elegantius* Schltr., Repert. Spec. Nov. Regni Veg., Beih. 1: 800. 1913.

Diphyes endotrachys (Schltr.) Szlach. & Rutk., *comb. nov.*
Basionym: *Bulbophyllum endotrachys* Schltr., Repert. Spec. Nov. Regni Veg., Beih. 1: 808. 1913.

Diphyes finisterrae (Schltr.) Szlach. & Rutk., *comb. nov.*
Basionym: *Bulbophyllum finisterrae* Schltr., Repert. Spec. Nov. Regni Veg., Beih. 1: 818. 1913.

Diphyes fuscatum (Schltr.) Szlach. & Rutk., *comb. nov.*
Basionym: *Bulbophyllum fuscatum* Schltr., Repert. Spec. Nov. Regni Veg., Beih. 1: 810. 1913.

Diphyes glabrum (Schltr.) Szlach. & Rutk., *comb. nov.*
Basionym: *Bulbophyllum glabrum* Schltr., Repert. Spec. Nov. Regni Veg., Beih. **1**: 822. 1913.

Diphyes heteroblepharon (Schltr.) Szlach. & Rutk., *comb. nov.*
Basionym: *Bulbophyllum heteroblepharon* Schltr., Repert. Spec. Nov. Regni Veg., Beih. **1**: 807. 1913.

Diphyes inauditum (Schltr.) Szlach. & Rutk., *comb. nov.*
Basionym: *Bulbophyllum inauditum* Schltr., Repert. Spec. Nov. Regni Veg., Beih. **1**: 815. 1913.

Diphyes incumbens (Schltr.) Szlach. & Rutk., *comb. nov.*
Basionym: *Bulbophyllum incumbens* Schltr., Repert. Spec. Nov. Regni Veg., Beih. **1**: 815. 1913.

Diphyes inversum (Schltr.) Szlach. & Rutk., *comb. nov.*
Basionym: *Bulbophyllum inversum* Schltr., Repert. Spec. Nov. Regni Veg., Beih. **1**: 806. 1913.

Diphyes kenejianum (Schltr.) Szlach. & Rutk., *comb. nov.*
Basionym: *Bulbophyllum kenejianum* Schltr., Repert. Spec. Nov. Regni Veg., Beih. **1**: 800. 1913.

Diphyes lichenoides (Schltr.) Szlach. & Rutk., *comb. nov.*
Basionym: *Bulbophyllum lichenoides* Schltr., Repert. Spec. Nov. Regni Veg., Beih. **1**: 808. 1913.

Diphyes loxophyllum (Schltr.) Szlach. & Rutk., *comb. nov.*
Basionym: *Bulbophyllum loxophyllum* Schltr., Repert. Spec. Nov. Regni Veg., Beih. **1**: 817. 1913.

Diphyes maboroense (Schltr.) Szlach. & Rutk., *comb. nov.*
Basionym: *Bulbophyllum maboroense* Schltr., Repert. Spec. Nov. Regni Veg., Beih. **1**: 809. 1913.

Diphyes membranaceum (Schltr.) Szlach. & Rutk., *comb. nov.*
Basionym: *Bulbophyllum membranaceum* Teijsm. & Binn., Ned. Kruidk. Arch. **3**: 397. 1855.

Diphyes microblepharon (Schltr.) Szlach. & Rutk., *comb. nov.*
Basionym: *Bulbophyllum microblepharon* Schltr., Repert. Spec. Nov. Regni Veg., Beih. **1**: 803. 1913.

Diphyes microdendron (Schltr.) Szlach. & Rutk., *comb. nov.*
Basionym: *Bulbophyllum microdendron* Schltr., Repert. Spec. Nov. Regni Veg., Beih. **1**: 821. 1913.

Diphyes montanum (Schltr.) Szlach. & Rutk., *comb. nov.*
Basionym: *Bulbophyllum montanum* Schltr., Repert. Spec. Nov. Regni Veg., Beih. **1**: 801. 1913.

Diphyes myrtillus (Schltr.) Szlach. & Rutk., *comb. nov.*
Basionym: *Bulbophyllum myrtillus* Schltr., Repert. Spec. Nov. Regni Veg., Beih. **1**: 821. 1913.

Diphyes navicula (Schltr.) Szlach. & Rutk., *comb. nov.*
Basionym: *Bulbophyllum navicula* Schltr., Repert. Spec. Nov. Regni Veg., Beih. **1**: 819. 1913.

Diphyes nigrilabium (Schltr.) Szlach. & Rutk., *comb. nov.*
Basionym: *Bulbophyllum nigrilabium* Schltr., Repert. Spec. Nov. Regni Veg., Beih. **1**: 800. 1913.

Diphyes oblanceolatum (Schltr.) Szlach. & Rutk., *comb. nov.*
Basionym: *Bulbophyllum oblanceolatum* Schltr., Repert. Spec. Nov. Regni Veg., Beih. **1**: 817, 1049. 1913.

Diphyes oligochaete (Schltr.) Szlach. & Rutk., *comb. nov.*
Basionym: *Bulbophyllum oligochaete* Schltr., Repert. Spec. Nov. Regni Veg., Beih. **1**: 819. 1913.

Diphyes plumula (Schltr.) Szlach. & Rutk., *comb. nov.*
Basionym: *Bulbophyllum plumula* Schltr., Repert. Spec. Nov. Regni Veg., Beih. **1**: 796. 1913.

Diphyes polyblepharon (Schltr.) Szlach. & Rutk., *comb. nov.*
Basionym: *Bulbophyllum polyblepharon* Schltr. in K.Schum. & Lauterb., Nachtr. Fl. Deutsch. Sudsee: 214. 1905.

Diphyes ptilotes (Schltr.) Szlach. & Rutk., *comb. nov.*
Basionym: *Bulbophyllum ptilotes* Schltr., Repert. Spec. Nov. Regni Veg., Beih. **1**: 797. 1913.

Diphyes punamense (Schltr.) Szlach. & Rutk., *comb. nov.*
Basionym: *Bulbophyllum punamense* Schltr., Repert. Spec. Nov. Regni Veg., Beih. **1**: 797. 1913.

Diphyes purpurascens (Bail) Szlach. & Rutk., *comb. nov.*
Basionym: *Bulbophyllum purpurascens* Bail, Proc. Roy. Soc. Queensl. **1**: 88. 1884, *non* Teijsm. & Binn., Natuurk. Tijdschr. Ned. Indie **24**: 308. 1862.

Diphyes quinquelobum (Schltr.) Szlach. & Rutk., *comb. nov.*
Basionym: *Bulbophyllum quinquelobum* Schltr., Repert. Spec. Nov. Regni Veg., Beih. **1**: 805. 1913.

Diphyes rarum (Schltr.) Szlach. & Rutk., *comb. nov.*
Basionym: *Bulbophyllum rarum* Schltr., Repert. Spec. Nov. Regni Veg., Beih. **1**: 807. 1913.

Diphyes recurviflorum (J.J.Sm.) Szlach. & Rutk., *comb. nov.*
Basionym: *Bulbophyllum recurviflorum* J.J.Sm., Ic. Bogor.: t. 118B. 1903.

Diphyes renipetalum (Schltr.) Szlach. & Rutk., *comb. nov.*
Basionym: *Bulbophyllum renipetalum* Schltr., Repert. Spec. Nov. Regni Veg., Beih. **1**: 818. 1913.

Diphyes rhopaloblepharon (Schltr.) Szlach. & Rutk., *comb. nov.*
Basionym: *Bulbophyllum rhopaloblepharon* Schltr., Repert. Spec. Nov. Regni Veg., Beih. **1**: 811. 1913.

Diphyes scopula (Schltr.) Szlach. & Rutk., *comb. nov.*
Basionym: *Bulbophyllum scopula* Schltr., Repert. Spec. Nov. Regni Veg., Beih. **1**: 805. 1913.

Diphyes schillerianum (Rehb.f.) Szlach. & Rutk., *comb. nov.*

Basionym: *Bulbophyllum schillerianum* Rehb.f. in Otto, Hamburg. Garten Blumenzeit. **16**: 423. 1860.

Diphyes serpens (Schltr.) Szlach. & Rutk., *comb. nov.*

Basionym: *Bulbophyllum serpens* Schltr., Repert. Spec. Nov. Regni Veg., Beih. **1**: 804. 1913.

Diphyes serrulatum (Schltr.) Szlach. & Rutk., *comb. nov.*

Basionym: *Bulbophyllum serrulatum* Schltr. in K. Schum. & Lauterb., Nachtr. Fl. Deutsch. Sudsee: 216. 1905.

Diphyes stenochilum (Schltr.) Szlach. & Rutk., *comb. nov.*

Basionym: *Bulbophyllum stenochilum* Schltr., Repert. Spec. Nov. Regni Veg., Beih. **1**: 823. 1913.

Diphyes tenompokense (Schltr.) Szlach. & Rutk., *comb. nov.*

Basionym: *Bulbophyllum tenompokense* J.J.Sm., Repert. Spec. Nov. Regni Veg. **36**: 116. 1934.

Diphyes tentaculiferum (Schltr.) Szlach. & Rutk., *comb. nov.*

Basionym: *Bulbophyllum tentaculiferum* Schltr., Repert. Spec. Nov. Regni Veg., Beih. **1**: 782. 1913.

Diphyes tortuosa Blume

Bijdr. Fl. Ned. Ind. **310**: t. 311. 1825.

Diphyes triandrum (Schltr.) Szlach. & Rutk., *comb. nov.*

Basionym: *Bulbophyllum triandrum* Schltr., Repert. Spec. Nov. Regni Veg., Beih. **1**: 810. 1913.

Diphyes unguilabium (Schltr.) Szlach. & Rutk., *comb. nov.*

Basionym: *Bulbophyllum unguilabium* Schltr., Repert. Spec. Nov. Regni Veg., Beih. **1**: 812. 1913.

Diphyes unicaudatum (Schltr.) Szlach. & Rutk., *comb. nov.*

Basionym: *Bulbophyllum unicaudatum* Schltr., Repert. Spec. Nov. Regni Veg., Beih. **1**: 816. 1913.

Diphyes vaccinioides (Schltr.) Szlach. & Rutk., *comb. nov.*

Basionym: *Bulbophyllum vaccinioides* Schltr., Repert. Spec. Nov. Regni Veg., Beih. **1**: 820. 1913.

Diphyes verruculatum (Schltr.) Szlach. & Rutk., *comb. nov.*

Basionym: *Bulbophyllum verruculatum* Schltr., Repert. Spec. Nov. Regni Veg., Beih. **1**: 811. 1913.

Diphyes xanthotes (Schltr.) Szlach. & Rutk., *comb. nov.*

Basionym: *Bulbophyllum xanthotes* Schltr., Repert. Spec. Nov. Regni Veg., Beih. **1**: 799. 1913.

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LITERATURE CITED

- BLUME C. L. 1825. Bijdragen tot de Flora van nederlandsch Indie. – Batavia: 310-319.
- COMBER J. B. 1990. Orchids of Java. Bentham-Moxon Trust, Kew: 407 pp.
- SEIDEFADEN G. 1979. Orchid Genera in Thailand. VIII. *Bulbophyllum* Thouars. – Dansk Bot. Arkiv 33(3): 1-228.
- SEIDEFADEN G., WOOD J. J. 1992. The orchids of Pennisular Malaysia and Singapore. Olsen and Olsen, Fredensborg: 779 pp.
- VERMEULEN J.J. 1991. *Bulbophyllum*. In: P.J. Cribb (ed.), Orchids of Borneo. 2: 1-304. Bentham-Moxon Trust, Kew and Toihaan Publ. Co, Kota Kinabalu.