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18. CRIBB, Phillip, Laurent GAUTIER, Sonia TRIGUI & Louis NUSBAUMER:

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Introduction

Didymoplexis verrucosa J. Stewart & Hennessy and *Hetaeria heterosepala* (Rchb. f.) Summerh., two orchid species hitherto only known from Africa, are newly reported from Madagascar. *Didymoplexis verrucosa* was discovered by Jean-Philippe Castillon near Bekopaka in the Tsingy de Bemaraha in western Madagascar. It is the second species of the palaeotropical genus *Didymoplexis* Griff. to be recorded from Madagascar. *Hetaeria heterosepala* was collected during an inventory of the upper part of Montagne d'Ambre in northern Madagascar (TRIGUI, 2010). It represents the first record for Madagascar of this paleotropical genus of ca. 30 species.

Didymoplexis verrucosa J. Stewart & Hennessy in Amer. Orchid Soc. Bull. 49: 841. 1980 (Fig. 1).

Typus: SOUTH AFRICA: KwaZulu-Natal Province, Mtunzini Distr.: Farm "Twinstreams", 15.VIII.1978, *Garland s.n.* (holo-: NU [NU0015603-0]; iso-: E, K [000242 212], PRE [PRE0633590-0], S [G-G-6945]).

Herb, holomycotrophic, glabrous, leafless. *Tuber* elongate, moniliform, branching, up to 90 mm long, 20 mm in diam. *Scape* erect, 10-15 cm tall, bearing two sheathing cataphylls at the base, 8- to 12-flowered; bracts spreading, ovate to triangular-ovate, 1-2 mm long. *Flowers* non-resupinate, white, 10-13 mm across; pedicel and ovary 10-16 mm long; sepals and petals connate into a short tube at the base; dorsal sepal oblong, obtuse or rounded at the tip, 6-8 × 3-4 mm, connate for 1-2 mm with the petals; lateral sepal similar but connate for 1 mm or less to the dorsal sepal; petals oblong, obtuse or rounded, 5-6 × 2-4 mm; lip erect-spreading, free, shortly clawed, transversely triangular, 3-lobed at apex, 5-6 × 8-9 mm; callus of two lines of small warts from base to tip, with a fleshy yellow ligule on the claw; column straight, 4 mm long. *Capsule* narrowly ovoid-elliptic, 20 mm long, 10 mm in diam., pedicel extending erect to 100-200 mm as the capsule develops.

Distribution and ecology. – South Africa (N KwaZulu-Natal) and western Madagascar. In coastal forest on sand in South Africa and in forest on *tsingy* (eroded limestone) in Madagascar; 0-100 m.

Observations. – Jean-Philippe Castillon recently sent a photograph to Kew of a distinctive white holomycotrophic orchid, from Bekopaka in the Tsingy de Bemaraha in western Madagascar (Fig. 1), in which the flower and lip morphology was clearly visible. It proved to be *Didymoplexis verrucosa*, an orchid originally described by STEWART & HENNESSY (1980) from a plant collected in KwaZulu-Natal in South Africa from coastal forest on sand. Unfortunately, no material of it was preserved as the photographer was on a holiday trip.

Hetaeria heterosepala (Rchb. f.) Summerh. in Bull. Misc. Inform. Kew 5: 207. 1934.

= *Cheirostylis heterosepala* Rchb. f., Otia Bot. Hamburg: 110. 1881. = *Zeuxine heterosepala* (Rchb. f.) Geerinck in Bull. Jard. Bot. Natl. Belg. 50: 120. 1980.

Typus: CAMEROON: Cameroon Mountains, 3000 f. [915 m], XI.1862, *Mann 2130* p. p. (holo-: K [K000106606]; iso-: W).

Herb, perennial up to 20 cm tall. *Rhizome* fleshy, creeping, 3-4 mm in diam., rooting at the nodes. *Leaves* ovate, acute, 2.2-4.5 × 1-1.8 cm; petiole and sheath 8-12 mm long. *Inflorescence* densely racemose, 2-6 cm long, up to 20-flowered; bracts lanceolate, acuminate, 5-7 mm long, almost as long as the ovary. *Flowers* usually non-resupinate, with green sepals and white petals and lip; dorsal sepal elliptic, obtuse, 4-5 × 1.7-2.5 mm, adnate to the petals to form a hood over the column; lateral sepals obliquely ovate, similar to dorsal sepal; petals obliquely oblong-elliptic, 4-4.5 × 1.5 mm; lip bipartite, 3.5-5 × 3-3.5 mm; basal part saccate, bearing 2 recurved, hooked calli at the base within; the apical lobe transversely oblong, emarginate, apiculate; column 2.5 mm long, with two linear, acute to obtuse, porrect arms at apex.

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Fig. 1. – *Didymoplexis verrucosa* J. Stewart & Hennessy. First observation in Madagascar.
[Photo: J.-P. Castillon]

Distribution and ecology. – West, Central and East Tropical Africa and Northern Madagascar. This species occurs on forest floor in deep shade in dense wet forest; around 990 m in Madagascar.

Specimens examined. – **MADAGASCAR. Prov. Antsiranana, DIANA Region:** Montagne d'Ambre, versants est, alt. 990 m, 10.V.2008, *Trigui, Razanajatovo & Ramandimbimanana* 390 (G, TEF, K, P, MO, WAG).

Observations. – A terrestrial orchid (*Trigui & al.* 390) collected on Montagne d'Ambre in northern Madagascar proved to be a new record of *Hetaeria heterosepala*, previously known only from Tropical Africa where it ranges from Liberia to Cameroon and across the Democratic Republic of the Congo to North-east Tanzania. It could only be confused with species of *Cheirostylis* or *Zeuxine*, both of which are also characterised

by non-resupinate flowers and a column that lacks the long apical arms. These genera are also each represented by a single species in Madagascar.

An annotated list of orchid species shared between mainland Africa and Madagascar is provided (Table 1). With the two new records, the total number of shared species amounts to 40, representing about 4.6% of the Malagasy orchid flora (862 species according to CALLMANDER & al., 2011). Looking at their distribution, 95% of them occur in East Africa; 50% occur in southern Africa and 45% are distributed as far as West Africa. Some species also occur in the Comoros, the Mascarenes or the Seychelles. The two new Malagasy species records presented in this note illustrate very different cases: *Didymoplexis verrucosa* has a very restricted range in hot dry parts of South

Africa and western Madagascar, where it grows on quite different substrates, whereas *Hetaeria heterosepala* occurs in moist forest throughout a large part of West, Central and East Africa, and a single known locality in northern Madagascar.

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Table 1. – Orchid species distributed in both mainland Africa and Madagascar (based on HERMANS & al., 2007; CRIBB & HERMANS, 2009; and further contributions); WA, CA, EA and SA: West, Central, East and southern Africa, respectively.

Species	Comments
1. <i>Acampe pachyglossa</i> Rchb. f.	EA, SA, also Comoros and Seychelles
2. <i>Angraecopsis parviflora</i> (Thouars) Schltr.	CA, EA, also Mascarenes
3. <i>Angraecum eburneum</i> Bory	Subsp. <i>eburneum</i> also Comoros, Mascarenes and Seychelles; subsp. <i>superbum</i> (Thouars) H. Perrier also Comoros and Seychelles; var. <i>giryamae</i> (Rendle) Senghas & P. J. Cribb in EA
4. <i>Brachycorythis pleistophylla</i> Rchb. f.	WA, CA, EA
5. <i>Brownleea parviflora</i> Lindl.	WA, CA, EA
6. <i>Bulbophyllum longiflorum</i> Thouars	EA, also Comoros, Seychelles, Mascarenes, Tropical Asia and the SW Pacific islands
7. <i>Calanthe sylvatica</i> (Thouars) Lindl.	EA, SA, also Comoros, Seychelles and Mascarenes
8. <i>Cheirostylis nuda</i> (Thouars) Ormerod	EA, SA, also Comoros and Mascarenes
9. <i>Corymborkis corymbis</i> Thouars	EA, SA, also Mascarenes
10. <i>Didymoplexis verrucosa</i> J. Stewart & Hennessy	SA
11. <i>Disa caffra</i> Bolus	EA, SA
12. <i>Disa brevicornis</i> (Lindl.) Bolus	SA (cf. SIEDER & STÜTZ, 2001)
13. <i>Disperis anthoceros</i> Rchb. f.	var. <i>humbertii</i> (H. Perrier) la Croix endemic to Madagascar; var. <i>anthoceros</i> WA, CA, EA (absent from Madagascar)
14. <i>Eulophia clitellifera</i> (Rchb. f.) Bolus	WA, CA, EA, SA
15. <i>Eulophia cucullata</i> (Sw.) Steud.	WA, CA, EA, SA
16. <i>Eulophia hians</i> var. <i>nutans</i> (Sond.) S. Thomas	EA, SA
17. <i>Eulophia livingstoniana</i> (Rchb. f.) Summerh.	EA, SA, also Comoros
18. <i>Habenaria cirrhata</i> (Lindl.) Rchb. f.	WA, CA, EA, also Comoros
19. <i>Habenaria clareae</i> Hermans	EA
20. <i>Hetaeria heterosepala</i> (Rchb. f.) Summerh.	WA, CA, EA
21. <i>Liparis caespitosa</i> (Lam.) Lindl.	EA, also Comoros, Mascarenes, Tropical Asia and SW Pacific islands
22. <i>Microcoelia aphylla</i> (Thouars) Summerh.	EA, also Comoros and Mascarenes
23. <i>Microcoelia exilis</i> Lindl.	WA, CA, EA, SA
24. <i>Microcoelia physophora</i> (Rchb. f.) Summerh.	EA
25. <i>Nervilia bicarinata</i> (Blume) Schltr.	WA, CA, EA, SA, also Comoros, Mascarenes and Tropical Asia
26. <i>Nervilia kotschyi</i> (Rchb. f.) Schltr.	Var. <i>kotschyi</i> in WA, CA, EA, also Comoros; var. <i>purpurata</i> (Rchb. f. & Sond.) Borge Pett. in EA, SA
27. <i>Nervilia lilacea</i> Jum. & H. Perrier	EA, SA; see NUSBAUMER & al. (2011)
28. <i>Nervilia petraea</i> (Sw.) Summerh.	WA, CA, EA
29. <i>Nervilia renschiana</i> (Rchb. f.) Schltr.	EA, SA
30. <i>Nervilia simplex</i> (Thouars) Schltr.	WA, CA, EA, SA, also Tropical Asia to Australia
31. <i>Oberonia disticha</i> (Lam.) Schltr.	EA, SA, also Comoros and Mascarenes
32. <i>Oeceoclades decaryana</i> (H. Perrier) Garay & P. Taylor	EA, SA, possibly Australia
33. <i>Oeceoclades lonchophylla</i> (Rchb. f.) Garay & P. Taylor	EA, also Comoros
34. <i>Oeceoclades maculata</i> (Lindl.) Lindl.	WA, CA, EA, also Mascarenes and Tropical America
35. <i>Oeceoclades pulchra</i> (Thouars) P. J. Cribb & M. A. Clem.	WA, CA, EA, also Mascarenes, and across to SW Pacific. (cited as <i>Eulophia pulchra</i> in HERMANS & al., 2007)
36. <i>Platycoryne pervillei</i> Rchb. f.	EA
37. <i>Polystachya concreta</i> (Jacq.) Garay & H. R. Sweet	WA, CA, EA, also Comoros, Mascarenes and Tropical Asia and America
38. <i>Polystachya cultriformis</i> (Thouars) Spreng.	WA, CA, EA, SA, also Comoros, Mascarenes and Seychelles
39. <i>Polystachya fusiformis</i> (Thouars) Lindl.	WA, CA, EA, SA, also Mascarenes and Seychelles (unconfirmed)
40. <i>Satyrium trinerve</i> Lindl.	WA, CA, EA, SA