

# A new species of *Pantadenia* Gagnep. (Euphorbiaceae) from Madagascar

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Rabevohitra R. & McPherson G. 2012. — A new species of *Pantadenia* Gagnep. (Euphorbiaceae) from Madagascar. *Adansonia*, sér. 3, 34 (1): 77-81. <http://dx.doi.org/10.5252/a2012n1a9>

## KEY WORDS

Euphorbiaceae,  
*Pantadenia*,  
*Parapantadenia*,  
Madagascar,  
new species.

## ABSTRACT

A new species of *Pantadenia* Gagnep. from Madagascar is described; it resembles the other previously known Madagascan species (*Pantadenia chauvetiae* (Leandri) G.L.Webster) in ovary and fruit morphology, but differs from it in its arborescent habit, narrower and less pubescent leaves, glabrous and minutely bracteate inflorescence, and glabrous and typically 4-merous calyx.

## RÉSUMÉ

*Nouvelle espèce de Pantadenia Gagnep. (Euphorbiaceae) originaire de Madagascar.* Une nouvelle espèce de *Pantadenia* Gagnep. de Madagascar est décrite; elle ressemble à l'autre espèce malgache (*Pantadenia chauvetiae* (Leandri) G.L.Webster), connue du point de vue de la morphologie de l'ovaire et du fruit, mais en diffère par son port arborescent, ses feuilles plus étroites et moins pubescentes, son inflorescence glabre à bractées minuscules, ainsi que par son calice glabre typiquement 4-mère.

## MOTS CLÉS

Euphorbiaceae,  
*Pantadenia*,  
*Parapantadenia*,  
Madagascar,  
espèce nouvelle.

## INTRODUCTION

A new species closely resembling *Pantadenia chauvetiae* (Leandri) G.L. Webster (Euphorbiaceae, Crotonoideae) and first collected in 1980 is here described from Madagascar. In addition to the characters that the two species have in common as members of the tribe Codieae, they share such unusual features as leaves with bead-like glands abaxially, petals and anthers with distal glands, and inflorescences that are terminal and leaf-opposed, as well as a 1-2-locular ovary that develops into an indehiscent fruit. The new species, however, differs from *P. chauvetiae* in leaf and floral features, as well as in distribution, habit, and habitat, as detailed below.

## SYSTEMATICS

Order MALPIGHIALES Martius

Family EUPHORBIACEAE Juss.

Genus *Pantadenia* Gagnep.

*Pantadenia gervaisii*

R. Rabev. & McPherson, sp. nov.

(Fig. 1)

*A congeneribus speciebus madagascariensis sylvae orientalis combinatione habitus arborescentis, cum foliis angustis (longitudo > 2 × latitudo) non nisi basi pubescentibus, inflorescentiis parvis glabris, bracteis minutis, calycibus glabris plerumque tetrameris, ovariis bilocularis, et fructibus rotundatis drupaceis distinguenda.*

**TYPUS.** — Madagascar. Prov. Toamasina, Forêt d'Anivoala, au PK 8 de la route de Vatomaniry, 9.XII.1980, fleurs ♂, collected by R. Rabevohitra, J.P. Abraham & E. Rakotoarivelo, *Service Forestier 32091* (holo-, P! sheet P00461001; iso-, TEF!).

**PARATYPI.** — Madagascar. Prov. Toamasina, forêt ombrophile d'Anivoala, sur les basses collines de l'est, sur sol sablo-argileux, fr., 20.III.1981, collected by R. Rabevohitra, J. P. Abraham & E. Rakotoarivelo, *Service Forestier 32121* (P!; TEF!). — Forêt d'Anivoala, à 8 km d'Antsampanana, sur la route de Vatomaniry, district de Brickaville, fleurs ♀, juv. fr., 9.XII.1982, *Service Forestier 32383*; *Service Forestier 32386* (P!; TEF!); fleurs ♂, 9.XII.1982, *Service Forestier 32388* (P!; TEF!).

## DESCRIPTION

Dioecious trees up to 10 m tall and 15-20 cm d.b.h. (diameter at breast height); bark smooth, light-coloured; twigs lenticellate, dark on drying. Petioles 10-20(-24) mm long, canaliculate adaxially. Blades ovate, lanceolate, or sometimes elliptic; 5.2-11 cm long, 2.5-5 cm wide; base rounded to shallowly cordate; apex acuminate, often abruptly so, the acumens *c.* 10-15 mm long; margin entire; veins 3 or 5 from the base, with 2-3 additional pinnately arranged pairs of veins distally, the tertiary venation reticulate and clearly visible on both sides; surfaces glabrous except for hairs in the abaxial axils of the basal veins, the abaxial surface paler than the adaxial on drying, bearing protruding bead-like glands; texture chartaceous. Stipules narrowly triangular, up to 0.5 mm long, apparently sometimes bearing 1-2 glands, caducous. Inflorescences racemiform, appearing terminal and leaf-opposed, glabrous, the staminate 2.5-5 cm long and 10-15 flowered, the pistillate 1.4-3 cm long, 3-6 flowered. Staminate flowers: pedicels 4-6 mm long, glabrous, arising from the primary inflorescence axis via a reduced glabrous segment up to 0.5 mm long; bracts minute; calyx of 4 (or rarely 5) whitish sepals *c.* 2.5 mm long, *c.* 2 mm wide, glabrous; corolla of usually 3 petals 1-1.5 mm long, white, each one bearing 3-10 glands marginally, sometimes with a few laminar glands as well; disk interstaminal, of sinuous lobes distributed around and between the outer filaments and resembling a brain coral, the central portion somewhat pubescent; staminodes morphologically intermediate between the petals and the stamens sometimes present; stamens 25-29, the filaments free, *c.* 1.5 mm long, the anthers curved into a horseshoe-shape, dorsifixed, the connective bearing an apical gland; pistillode absent or perhaps represented by the pubescent central portion of the disk. Pistillate flowers: pedicels 3-6 mm long, glabrous; bracts minute; calyx (persistent in fruit) and corolla as in the staminate flowers; disk annular; ovary bilocular, globose, *c.* 1.5 mm in diameter, pubescent; stigmas 2, bifid nearly to base, each branch *c.* 1.5 mm long. Infructescences one- to few-fruited; peduncle 5-7 mm long. Fruit indehiscent, thinly fleshy, 11-



FIG. 1. — *Pantadenia gervaisii* R.Rabev. & McPherson, sp. nov., *Service Forestier* 32383: **A**, flowering branch; **B**, pistillate flower (one sepal removed).

14 mm long, the single-seeded ones subglobose, rounded distally, 10-11 mm in diameter, the double-seeded ones biglobose, slightly notched distally, 15-18 mm wide, glabrous, smooth. Seeds 1 or 2 per fruit, 11-12 mm long, *c.* 10 mm wide, smooth, uniformly brown.

#### DISTRIBUTION AND ECOLOGY

*Pantadenia gervaisii* sp. nov. is currently known from one lowland (*c.* 25 m elevation) rainforest on sandy clay soils in east-central Madagascar (approximately 19°02'S, 48°56'E).

#### ETYMOLOGY

The species is dedicated to the late Mr Gervais Andrianirina, Ingénieur de Classe Exceptionnelle des Eaux et Forêts, who worked for 15 years in the Faritany de Toamasina and who was the first author's Chef de Département, before becoming the Directeur des Services d'Appui à la Recherche at FOFIFA.

#### CONSERVATION STATUS

Although the new species has been collected only at the type locality, we consider it Endangered (IUCN 2001), given the extreme fragmentation of its habitat and the ongoing threat of forest clearing.

#### DISCUSSION

The new species differs most obviously from the other Madagascan species, *P. chauvetiae*, in its arborescent habit, its narrower leaves pubescent only near the base of the lamina, its glabrous, minutely bracteate inflorescence, its glabrous, typically 4-merous calyx, its more rounded fruits, and in its habitat and distribution (lowland, eastern slope rainforest). *Pantadenia chauvetiae*, on the other hand, is of smaller stature (3-5 m) and has broader leaves (length > 2 × width) that are pubescent abaxially over most of the surface (although often glabrescent except along the midrib), pubescent and more conspicuously bracteate inflorescences, 5-merous and pubescent calyces, and ovoid fruits. It grows in dry forests near the west-coast city of Morondava.

Both species contrast in ovary locule number and fruit dehiscence with *P. adenanthera* Gagnep.,

the type species, which is native to Southeast Asia. *Pantadenia chauvetiae* was originally considered (Capuron 1972) to be unilocular but fruiting specimens collected since its publication demonstrate that the ovary can be bilocular, which is how both Webster (1994) and Radcliffe-Smith (2001) characterize it. Capuron (1972) used the locule number and fruit type of his new taxon as diagnostic characters for the new genus *Parapantadenia*, contrasting it with the monotypic Southeast Asian *Pantadenia*, which he considered different only in having a 3-locular ovary and a dehiscent fruit. Radcliffe-Smith (2001) retained the two genera on the same basis, and Pattharahirantricin & Van Welzen (2007) have recently treated *Pantadenia* as a monotypic genus of mainland Southeast Asia. Webster (1994), however, considered *Parapantadenia* a synonym of *Pantadenia*, emphasizing the "peculiar indumentum and inflorescence" that they share, and that position is taken here, as it was by Schatz (2001). Other widely accepted (and distributed) genera in which the number of locules and the fruit type vary as they do in *Pantadenia* sensu lato include *Baccaurea*, *Croton*, *Flueggea*, *Homalanthus*, *Jatropha*, *Omphalea* and *Phyllanthus* (Radcliffe-Smith 2001).

#### Acknowledgements

The authors thank the curators of the herbaria in Paris and Antananarivo for access to their collections, as well as Fred Keusenkothen, Mary Merello, and David Bogler, all of MO, for the preparation of the figure. The authors also want to thank Valéry Malécot and an anonymous reviewer for their improvements of the first version of the manuscript.

#### REFERENCES

- CAPURON R. 1972. — Contribution à l'étude de la flore forestière de Madagascar. *Adansonia*, sér. 3, 12: 205-211.  
 IUCN. 2001. — *IUCN Red List Categories and Criteria, Version 3.1*. IUCN Species Survival Commission, IUCN, Gland and Cambridge, United Kingdom, ii + 30 p.  
 PATTHARAHIRANTRICIN N. & VAN WELZEN P. C. 2007. —

- Pantadenia*, in SANTISUK T. & LARSEN K. (eds), *Flora of Thailand*. Vol. 8. *Euphorbiaceae*. The Forest Herbarium, National Park, Wildlife and Plant Conservation Department, Bangkok: 465-466.
- RADCLIFFE-SMITH A. 2001. — *Genera Euphorbiacearum*. Royal Botanic Gardens, Kew, 455 p.
- SCHATZ G. E. 2001. — *Generic Tree Flora of Madagascar*. Royal Botanic Garden, Kew; Missouri Botanical Garden, St Louis, 477 p.
- WEBSTER G. 1994. — Synopsis of the genera and supra-generic taxa of Euphorbiaceae. *Annals of the Missouri Botanical Garden* 81: 49.

*Submitted on 4 October 2010;  
accepted on 29 July 2011.*

