

Adiantum krameri (Pteridaceae), a new species from French Guiana

Author: Zimmer, Brigitte

Source: Willdenowia, 37(2) : 557-562

Published By: Botanic Garden and Botanical Museum Berlin (BGBM)

URL: <https://doi.org/10.3372/wi.37.37215>

BioOne Complete (complete.BioOne.org) is a full-text database of 200 subscribed and open-access titles in the biological, ecological, and environmental sciences published by nonprofit societies, associations, museums, institutions, and presses.

Your use of this PDF, the BioOne Complete website, and all posted and associated content indicates your acceptance of BioOne's Terms of Use, available at www.bioone.org/terms-of-use.

Usage of BioOne Complete content is strictly limited to personal, educational, and non - commercial use. Commercial inquiries or rights and permissions requests should be directed to the individual publisher as copyright holder.

BioOne sees sustainable scholarly publishing as an inherently collaborative enterprise connecting authors, nonprofit publishers, academic institutions, research libraries, and research funders in the common goal of maximizing access to critical research.

BRIGITTE ZIMMER

Adiantum krameri* (Pteridaceae), a new species from French Guiana*Abstract**

Zimmer, B.: *Adiantum krameri* (Pteridaceae), a new species from French Guiana. – Willdenowia 37: 557-562. – ISSN 0511-9618; © 2007 BGBM Berlin-Dahlem.
doi:10.3372/wi.37.37215 (available via <http://dx.doi.org/>)

Adiantum krameri is described as a species new to science and illustrated. It is endemic to French Guiana (NE South America) and clearly differs from *A. cordatum*, with which it has so far been confused.

Key words: ferns, *Adiantum cordatum*, NE South America.

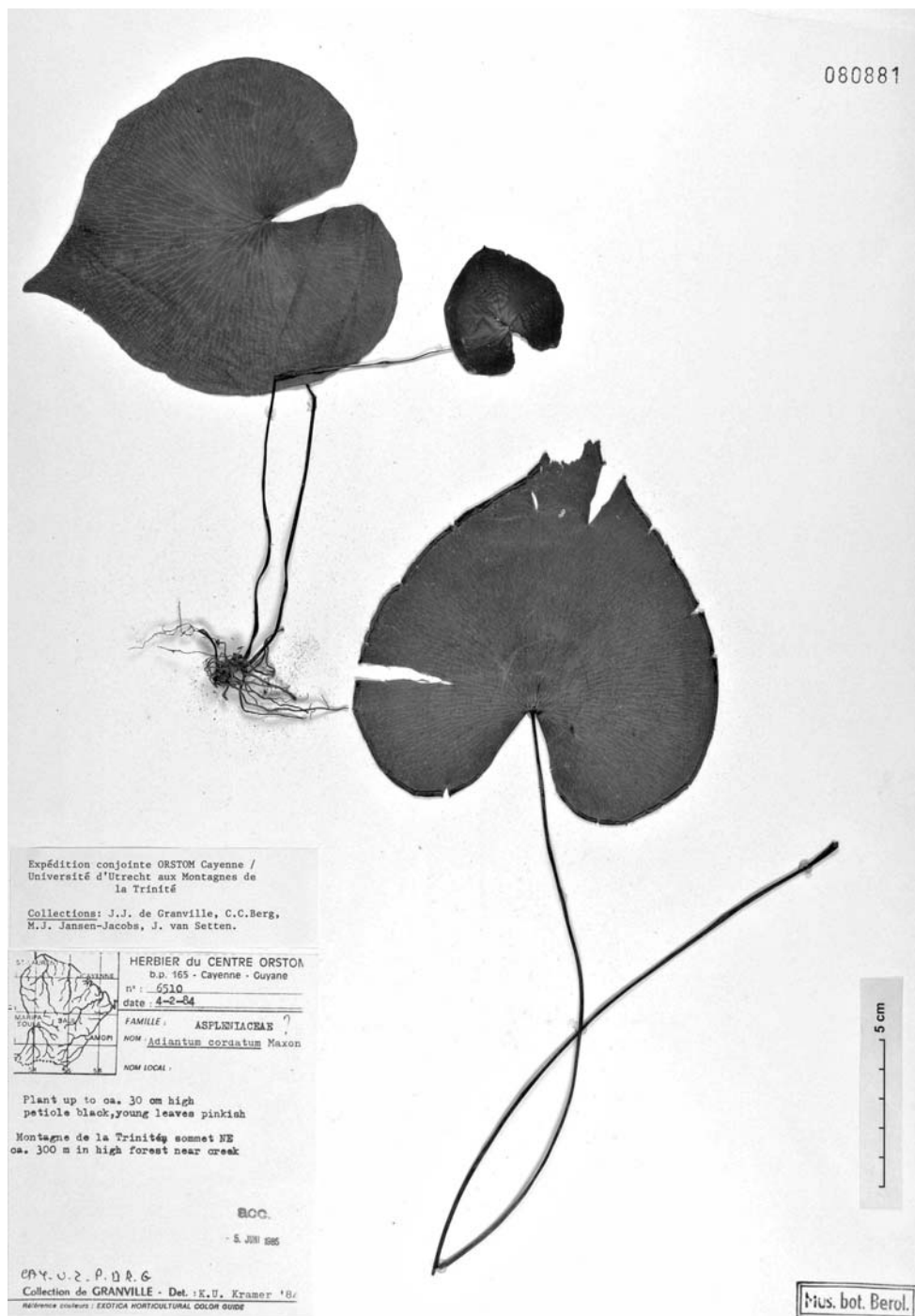
In my treatment of the *Adiantum petiolatum* group for Flora Mesoamericana (Zimmer 1995), I surmised that the French Guiana plants identified as *A. cordatum* Maxon did in fact belong to a different, undescribed species. *A. cordatum* was first mentioned as occurring in the centre of French Guiana by Kramer (1978) in his work on the pteridophytes of Suriname. Later a detailed description and drawings of that plant were provided (Cremers & Kramer 1985, Cremers 1997). At that time only collections from the vicinity of Saül were available. Meanwhile the same species has been recorded from further localities (Cremers & Hoff 1990, Cremers 1990). A careful study of several specimens has now confirmed my earlier hypothesis: the French Guiana plants differ from genuine *A. cordatum* in several features and are easy to separate from it. Therefore they are here described as a species new to science.

***Adiantum krameri* B. Zimmer, sp. nov.**

Holotype: French Guiana, Montagne de la Trinité, sommet NE, in high forest near creek, c. 300 m, 4.2.1984, *Granville & al.* 6510 (B 20-80881!; isotypes: BR, CAY!, G, NY, P, U, Z!) – Fig. 1-2.

Ab affini *Adianto cordato* quocum hucusque confusum differt foliorum lamina late ovata (10-22 × 10-18 cm), latitudine aequilonga vel sublongiore (nec sesquilongiore), membranacea, costa prope basin tantum obvia, in facie adaxiali striis longitudinalibus haud notata.

Plants terrestrial. *Rhizome* short-creeping, 3-5 mm in diameter, nodose from old pseudopodia, with several 0.5-1 mm thick rhizoids; rhizome scales reddish brown, concolourous to irregularly semi-clathrate, narrowly triangular to linear-lanceolate, often slightly denticulate. *Leaves* usually simple, 30-70 cm long, very occasionally pinnate with 1(-2) pairs of pinnae, petiole 20-52 cm

Fig. 1. *Adiantum krameri* – holotype.

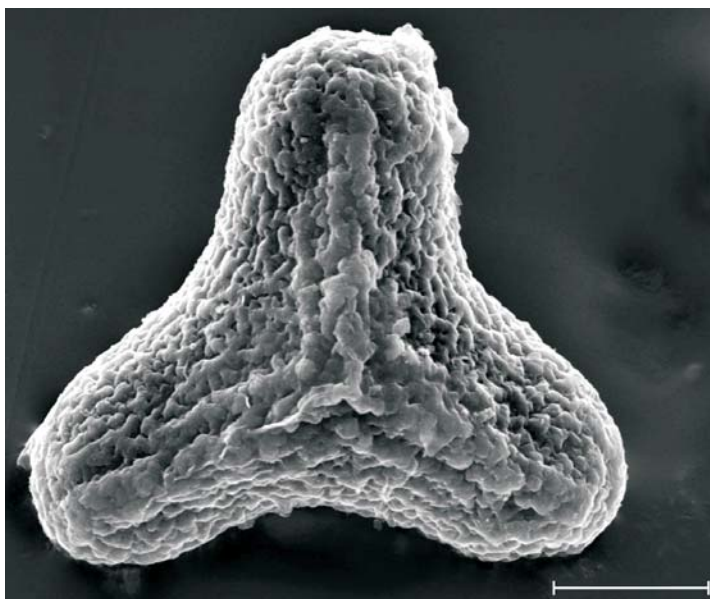


Fig. 2. *Adiantum krameri* – scanning electron micrograph of a spore from the holotype. – Scale bar: 10 μ m.

long, 1½-2 × as long as the lamina, shiny, dark reddish brown, adaxially canaliculate with hair-like scales in the groove; costa dark brown like the petiole abaxially for 1.2-2.6 cm, becoming indistinct in the distal half of the lamina; lamina horizontal, grey-green, membranaceous, glabrescent above and sparingly scaly below when adult, in simple leaves ovate-orbicular, 10-22 × 10-18 cm, scarcely longer than broad, the base deeply and narrowly cordate, often with overlapping lobes, the apex acuminate; when fronds pinnate, pinnae similar to each other, alternate, borne on 0.7-1.4 cm long stalks, with an obliquely truncate base; young leaves pinkish, sterile margins entire; venation reticulate, evident on both sides, with 5-7-seriate, elongate areoles decreasing in size toward the margin and apex; adaxial surface lacking idioblastic streaks. *Sori* continuous on either side of the lamina, extending from outside the basal sinus almost to the tip; false indusia membranous, glabrous; sporangial annulus of 14-18 thickened cells. *Spores* trilete, c. 40-45 μ m in diameter (Fig. 2).

Eponymy. – The species is named in honour of Prof. Dr Karl Ulrich Kramer (1928-94), a dedicated, excellent pteridologist who loved to share his broad knowledge with students, fellow scientists and everyone interested in ferns.

Distribution and habitat. – Endemic to central French Guiana and known till now from the following three main areas (Fig. 3): Saül region (Monts La Fumée, Les Eaux-Clares, Carbet Maïs, Pic Matécho); Montagnes de la Trinité; Les Nouragues. Infrequent, terrestrial, growing in moist lowland tropical rainforests, often in deep shade, on sandy to clayey soil and granite outcrops, between 140 and 400 m above sea level.

Additional specimens known (data partly supplied by M. Boudrie, G. Cremers & R. Moran). – FRENCH GUIANA: Saül, = Circuit ORSTOM “Montagne la Fumée” P.K.3, forêt dense, 18.10.1972, *Granville B-4602* (CAY [2 sheets]!, P, U, Z!); Saül, = Circuit ORSTOM des Monts “La Fumée”, P.K.3., forêt sur pente. 14.1.1974, *Granville 2017* (CAY!, P); Saül, Layon Est sur le tracé ORSTOM sur La Montagne La Fumée, à 2,4 km, 28.10.1976, *Granville B-5388* (CAY!, P, Z!); Saül, circuit La Fumée, 14.9.1978, *Prévost 301* (CAY!); Saül, forêt sur colline à 3,5 km environ au Nord de Carbet Maïs (20 km Est de Saül), 9.7.1979, *Granville 3072* (CAY [3 sheets]!, NY,

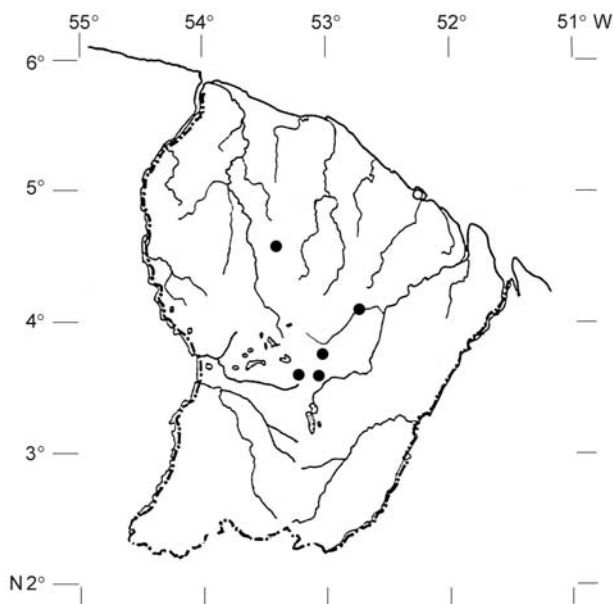


Fig. 3. The known distribution of *Adiantum krameri* from French Guiana.

P, Z [2 sheets]!; Saül, sous bois de forêt primaire, 9.3.1985, *Aumeeruddy 56* (CAY!, Z!); Saül, 3°37'N, 53°12'W, near Eaux Claires along the Sentier Botanique, non-flooded moist forest, c. 200-400 m, 2.11.1990, *Mori & al. 21529* (CAY!, NY); Saül, La Fumée W, lowland tropical rainforest, 3°37'N, 53°13'W, 11.1990, *Mori 21669* (NY); Saül, Eau Claire, near Saül, vicinity of granitic outcrops, 200 m, 13-15.10.1993, *van der Werff & al. 12986* (CAY, MO [2 sheets] photo!, NY); Saül, Pic Matécho, bord de crique, 14.12.2000, *Hequet 972* (CAY); Montagnes de la Trinité, sommet nord, forêt de terre ferme, sous bois sur pente forte, 10.1.1984, *Granville & al. 5848* (CAY!); Montagnes de la Trinité, zone sud, bassin de la Mana, forêt sur pente, pied de falaises au sud du massif, 300 m, 11.1.1998, *Granville & Crozier 13494* (B!, CAY, K, NY, P, U, US); Station des Nouragues – Bassin de l'Arataye, 4°3'N, 52°42'W, vers le petit Plateau, forêt primaire, 30 m, 15.8.1990, *Sabatier 3497* (CAY!); Station des Nouragues - Bassin de l'Approuague - Arataye, 4°3'N, 52°42'W, forêt de pente de basse altitude, sous-bois humide dans un petit thalweg, sur sol sablo-argileux et affleurements granitiques, 130 m, 23.2.1991, *Granville 11165* (B!, BR, CAY [2 sheets]!, G, MO, NY [2 sheets], P, U, US, Z); Station des Nouragues, 12.3.1996, *Solano K297* (CAY).

Delimitation. – *Adiantum krameri* was up till now mistaken for *A. cordatum* Maxon (1931), described from Panama (Lectotype [designated by Zimmer 1995]: *Pittier 4297*, US 670422!; isolectotypes: US 670423! and US 67421!, see Fig. 4). *A. cordatum* does not occur in the Guianas, but only in Panama. It can be easily distinguished from *A. krameri* by the costa remaining distinct almost to the tip of the lamina, which is narrowly ovate, about twice as long as broad, lighter green and indistinctly veined abaxially, with parallel running idioblastic streaks adaxially. All material from French Guiana identified as *A. cordatum* or *A. sp. aff. cordatum* pertains to the new species, as do the illustrations in Cremers & Kramer (1985: 3) and in Cremers (1997: 146). As *A. krameri* has a very distinctive look and is not easily recognized as an *Adiantum* species, additional, unidentified specimens collected at other localities, perhaps even from the neighbouring Suriname, might well exist.



Fig. 4. *Adiantum cordatum* – isotype (US, Pittier 4297).

Acknowledgements

Particular thanks are due to Werner Greuter for his assistance with the Latin diagnosis and fruitful discussions. I am grateful to Michel Boudrie and George Cremers for their careful and competent reviewing of the manuscript, and the curators of CAY, US and Z for providing specimens for study. Furthermore I thank Monika Lüchow (scanning electron microscopy), Nora Schirmer (digital photography), Ingo Haas and Angela Lautsch for technical assistance. Digital photography was funded by the friends of the Botanical Garden and Botanical Museum.

References

- Cremers, G. 1991: Studies on the flora of the Guianas 48. Modes de repartition des ptéridophytes de Guyane française. – *Compt. Rend. Séances Soc. Biogéogr.* **66**: 27-42.
- 1997: *Adiantum* Linnaeus. – Pp. 138-147 in: Mori S. A., Cremers G., Gracie C., de Granville J.-J., Hoff M. & Mitchell J. D. (ed.), *Guide to the vascular plants of central French Guiana. 1. Pteridophytes, gymnosperms and monocotyledons.* – *Mem. New York Bot. Gard.* **76**.
- & Hoff, M. 1990: Inventaire taxonomique des plantes de la Guyane française I. – Les ptéridophytes. – *Invent. Faune Flore. Mus. Nat. Hist. Nat., Secr. Faune Flore, Paris.* **54**.
- & Kramer, K. U. 1985: Studies on the flora of the Guianas 10. Ptéridophytes nouveaux pour la Guyane française I. – *Proc. Kon. Ned. Akad. Wetensch. C* **88**: 1-14.
- Kramer, K. U. 1954: A contribution to the fern flora of French Guiana. – *Acta Bot. Neerl.* **3**: 481-494.
- 1978: The pteridophytes of Suriname. – *Uitgaven Natuurwetensch. Studiekring Suriname Ned. Antillen* **93**: 1-198.
- Zimmer, B. 1995: 2. Grupo de *Adiantum petiolatum*. – Pp. 110-113 in: Davidse, G., Sousa, S. M. & Knapp, S. (ed.), *Flora mesoamericana* **1**. – México.

Address of the author:

Brigitte Zimmer, Botanischer Garten und Botanisches Museum Berlin-Dahlem, Freie Universität Berlin, Königin-Luise-Str. 6-8, D-14195 Berlin, Germany; e-mail: b.zimmer@bgbm.org.