Description of a new *Aloe* *(Asphodelaceae)* from the East-Coast of Madagascar: *Aloe johannis-bernardii*

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Fundamental preliminary remark: only the text in French language corresponds to the official botanical description of the species.

Introduction

"Here, for us, there are two seasons," said the old Malagasy from Tamatave, "The rainy season and the rainy season". The East Coast of Madagascar is indeed heavily watered all year round, by violent tropical thunderstorms in summer, and by finer, more but continuous rains, in winter.

Such a climate is an anathema to succulents which prefer dry and sunny areas. In fact there are few succulent plants, in particular a few *Aloe* along the east coast that survive because *Aloe* withstand humidity and the excess of water well, and their relative absence along large sections of this coast is, in my opinion, more due to the absence of rock massifs - their favourite habitat – rather than a too heavy rainfall. The oriental coast of Madagascar is indeed covered with wet forests, where *Aloe* [*A. leandrii* J. Bosser and *Aloe* of the *Lomatophyllum* group: *A. orientalis* (H. Perrier) Newton & Rowley, *A. peyrierasii* G. Cremers, *A. aurelienii* J-B. Castillon, *A. rosea* (H. Perrier) Newton & Rowley, *A. citrea* (A. Guillaumin) Newton & Rowley, *A. megalocarpa* J-J Lavranos set apart] do not grow; but as soon as a rocky limestone hill or a zone of bare granite is present, wherever we are: in the middle of the eastern rain forest, in the high mountains of the central high plateaux, or in the western savannas, there are many chances that *Aloe* are present. So, among others, hidden in the middle of wet forests, but always on bare cliffs are: *Aloe rodolphei* J-B. Castillon in the mountains surrounding Andapa, *Aloe bulbillifera* H. Perrier in the

massif of Manongarivo, *Aloe capitata* Baker on the cliffs of Mandraka, *Aloe ambositrae* J-P. Castillon on the verge of high plateaux near Ambositra, *Aloe charlotteae* J-B. Castillon of the mountainous chain of Andringintra, *Aloe bakeri* Scott-Elliot, *A. bernadettae* J-B. Castillon, *A. buchlohii* W. Rauh, *A. delphinensis* W. Rauh, *A. schomeri* W. Rauh, *A. steffaniana* W. Rauh, *A. werneri* J-B. Castillon on quartzite hills near Fort Dauphin.

The recent investigation of a small rocky hill, in the middle of a degraded forest of the Northeast coast and planted with coffee trees and vanilla, allowed the discovery of a new species I have the pleasure to describe here.

Aloe johannis-bernardii, J-P. Castillon, **Species nova.**

Locus typicus:
in rupibus quartziticis, apud urbem Antsirabe septemtrionem.

Typus: J-B. Castillon N ° 40, 25 Aprilis 2008, (Holotype, TAN); (Isotype, P); (Paratype: Marion Nicolls 638, Marojejy, 14 May 1987, MB, exemplo in Tsimbazazae herbario prope Antananarivo urbem deposito).

Diagnosis:
Floribus et racemis, *A. capitata* Baker varietatibusque affinis sed, ab istis speciebus, sequentibus characteribus praecipue differt: in situ habitu dissimile, planted caulescent and propagulas ferente; foliis loriformibus, 50cm longis, 4cm latis, canaliculatis; floreis bracteis minutis; racemo aequilongos pedicellos gerente; foliorum colors dissimile.

Etymology:
this plant was found by Jean-Bernard Castillon who described many species of *Aloe* from this big island; during his wanderings on the coast of Madagascar, in search of *A. peyrierasii*, *A. megalocarpa* and possible novelties. He incidentally found a natural location of this plant which he had seen previously growing between Sambava and north of Antsirabe.

Description
Plant stemless to slightly caulescent with offsets; stem when present is hidden, crawling, 4cm in diameter and 15-20 cm long; 11-15 leaves, green in the shade and red in full sun or green with reddish trails, without spots or marks, the lowest, ascending horizontally, the superior raised and a little folded up inward; leaf rather lorate, 50 cm long, 3 cm wide at the base widening at 4 cm a little higher and shrinking gradually towards the tip, very slightly rounded, with 3-4 small red spines; outer face reddish green, flat towards the base and canaliculate towards the tip; lower face convex, of the same colour; margin with whitish spines spaced out 1·5 cm on average. Inflorescence 50-70 cm long, in 1-3 clusters, mostly 2; main length about 30 cm, sterile bracts, peduncle absent; 1 triangular

Aloe johannis-bernardii : group of flowering plants in habitat, Madagascar (photo : J.P. Castillon).

multinerved bract at the base, 5 mm wide and 10 mm high, underlying every secondary peduncle; secondary peduncle 20-25 cm long, 3-6 mm thick, carrying 8-12 sterile, triangular, nerved bracts 4 mm high and 5 mm wide.

Inflorescence cylindrical to capitate 10 cm in diameter, 6-8 cm high only; main rachis 3-4 cm long, carrying 50-80 densely arranged flowers; presence of 2-5 flowers isolated at the base of the cluster and 1-3 flowers completely raised at the tip, as it is often the case in *Aloe capitata* and its varieties; the first flower buds to open are those of the tip; buds little raised or horizontal, yellow with greenish tip; opened flowers raised or mostly hanging, yellowish-cream. Flowers at the base obtusely rounded, green, rather clavate, rarely slightly campanulate, 25-27 mm long, 4 mm at the base, widening to 8mm and closing little towards the throat; triangular floral bracts 3 x 2-4 mm; pedicels light yellow or pink, more or less equal, 2·4 cm long, flowers isolated at the base of the cluster, having slightly shorter pedicels; tepals yellow, free external but coalescent at the base, 5 mm wide, 2·5 mm at the base, then widening to 5 mm and narrowing sharp blunt; inner tepals less coloured, almost equals; strands pale yellow, 2·5 cm; anthers yellow orange-coloured, 3 x 1·5 mm exerted from 1-3 mm, then included; style cream colour, with stigma at first inclusive then exerted, 1-4 mm; ovary green, conical, 5 mm high and 3 mm in diameter at the base. Fruit is a capsule.

Discussion

This Aloe was found on quartzite cliffs exposed to the sun in full degraded forest of the East coast at approximately 70 km North of Sambava and certainly belongs to the *Aloe*

Aloe johannis-bernardii : inflorescence (photo : J.P. Castillon).

capitata group indicated by the shape of clusters, the arrangement of flowers on the rachis, and the fact that the first buds to open are those of the tip; the little widened but long leaves are lorate and canaliculate and are reminiscent of *Aloe buchlohii* (which differs in the shape of the clusters, by the fact that the first opened flowers are those of the bottom, by the geographic distance and other characters); only for the leaves, we can put it completely apart from the other *Aloe* with flowers and clusters reminding one of those of *Aloe capitata.*

This *Aloe* has floral pedicels of equal length on a cluster quite like *A. rodolphei* but plants are totally different; *A. johannis-bernardii* also has some affinities with *Aloe mitsioana* J-B. Castillon but only for the offsets which it also produces. In the degraded vegetation, there remain *Streptocarpus* (Gesneriaceae), *Tristemma mauritianum*, *Dichaetanthera* sp and other *Gravesia* (Melastomataceae), some *Cynorkis* (Orchidaceae), *Erica* (formerly *Philippia*) Ericaceae and many intrusive kinds of secondary vegetation [Poaceae (*Bambusa*), Musaceae (*Ravenala*), Proteaceae (*Grevillea* with white flowers)].

The paratype (see above) shows that *Aloe johannis-bernardii* is also found in the massif of Marojejy.

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Aloe johannis-bernardii in habitat, Madagascar (photo : J.P. Castillon).

Aloe johannis-bernardii in habitat, Madagascar.
(photo : J.P. Castillon).

Aloe johannis-bernardii : closeup of flowers.
(photo : J.P. Castillon).

BIBLIOGRAPHICAL REFERENCES:

[1] J Bosser: " Adansonia, sér. 2, 8 (4), 1968 »
[2] J-B Castillon: « Bradleya 24/2006 p 67-72 ».
[3] J-B Castillon: " Cactus Aventures International N° 77, Janvier 2008, p 2-5".
[4] J-B Castillon: " Adansonia, sér 3, 2000, 22(1) ».
[5] J-B Castillon: « Cact World 26(2), June 2008".
[6] J-B Castillon: " Haseltonia, 13: 29-33. 2007".
[7] J-P Castillon: « Cact World 26(1), March 2008 ».
[8] G Cremers: " Adansonia, 15(4) : 500(1976) »
[9] J-J Lavranos: " Kuas, Heft 7, Juli 1998, 49 Jahrgang".
[10] McCoy & Rakouth & Lavranos : « Kuas, 59(2) Feb 2008 »
[11] L.E.Newton & G.D.Rowley: "Excelsa, 17: 61, 1997".
[12] H Perrier : *Lomatophyllum* in « Flore de Madagascar, H Humbert, 40ème Famille, Liliacées, 1968 ».
[13] H Perrier: "Mém.Soc.Linn.Normandie; 1; 1926".
[14] W.Rauh: " Kuas, Heft 3, März 2000, 51 Jahrgang".
[15] W.Rauh: " CSJ, vol 62, N° 5, 1990".
[16] G.W.Reynolds : "Les Aloes de Madagascar .Institut de Recherche Scientifique de Madagascar. Tananarive – Tsimbazaza. 1958."
[17] G.W.Reynolds: "The Aloes of Tropical Africa and Madagascar";The Trustees- The Aloes Book Fund; Po Box 234; Mbabane; Swaziland; September 1966.