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# **On a New Genus of** Cytinaceae [1)]

by

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So far 6 species of the genus *Cytinus* are known: *C. hypocistis* L., *C. sanguineus* (THUNB.) HARMS, (= *C. dioicus* JUSS), *C. capensis* MARLOTH, *C. glandulosus* JUMELLE, *C. malagasicus* JUMELLE & PERRIER and *C. baroni* BAKER f. The first is a resident of the Mediterranean area, the second and third in South Africa and the latter 3 species in Madagascar.

BAKER, [2)] the first who had examined and diagnosed *C. baroni*, left however *C. baroni* arranged separately from the remaining species in a special subgenus *Botryocytinus* because of its peculiar structure. But later other researchers gave under eight on this difference, and HARMS [3)] like SOLMS LAUBACH [4)] left all *Cytinus* species arranged in two sections; in the first section *Eucytinus C. hypocystis* and *C. capensis*, in the second section *Hypolepis C. sanguineus*, *C. malagasicus, C. glandulosus* and *C. Baroni*.

*C. Baroni*, which was hardly examined by anybody after BAKER's first description, had been found again in November 1912 by PERRIER DE LA BATHIE, [5)] this specimen by the kindly sympathetic consideration of Mr. Prof Dr. JUMELLE in Marseille has arrived in my hands.

I examined this gift of a male flower and arrived to the conclusion that difference between *C. baroni* and other *Cytinus* species are so remarkable that one must create a special genus for *C. baroni.* When Professor JUMELLE did not consent, regardless of my suggestion, on the establishment of a new genus for this species, we would like to carry this out here through our hands. Mr. Prof, Dr., NAKAI at the Imperial University in Tokyo accorded me friendship, not only by giving me a detailed criticism and acknowledgment of this fact but also by the following Latin diagnosis of the new genus for which I am indebted to him.

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1) This writing is a part of my *Mitrastemon* research, which is accomplished partially with financial aid of the Imperial Academy. Here I also wish to take this opportunity to express a devoted thanks for it.

2) BAKER, E. G. 1888. On a new species of *Cytinus* from Madagascar, constituting a new section of that genus. (Jour. Linn. Soc., Bot. 24).

3) HARMS, H. 1935. Rafflesiaceae (ENGLER-PRANTL Nat. Pfl. Fam. 2 Aufl. 16b).

4) SOLMS-LAUBACH, H. Graf zu. 1901. Rafflesiaceae ENGLERS Das Pflanzenreich, IV, 75).

5) JUMELLE, H. 1923. Le *Cytinus* de Madagascar (Compt. Rend. Acad. Sc. Paris, 177).

*Botryocytinus* (BAKER fil.) WATANABE, n.g.
*Cytinus* subgenus *Botryocytinus* BAKER fil. in Jour, Linn, Soc, Bot, 24, 465-469, t, XIX, 1888.

Genus perdistinctum, ex *Cytino* caule 1-flore, flore masculo pistillo destituto, staminibus tubum formantibus, placentis nunquam ramosis, ovulis sessilibus bene dignosendum.

Planta dioica, parasitica in ramis *Hamamelidacearum* et *Rubiacearum.* Caulis brevissimus foliis squamosis imbricatis obtectus. Perigonii segmenta 6 imbricata. In flore masculo pistillum nullum; stamina monadelpha circ. 11 in tubum connata, connectivo conduplicato in quaque margine longitudine antherarum loculi, juventute valvis medio conniventibus bilocularibus instructo apice apiculato-acutissimo. Archisporae cum pollinibus 4 et maturitate 4-sporatae nuquam in sporis 4 sejunctae. Specimen plantae faemineae non vidi. Vide descriptionem et figuras a BAKER in Journ. Linn. Soc. Bot. 24, 465-469, t. XIX, 1888.

Genus monotypic (Type: *B. baroni*) endemic to Madagascar.

*Botryocytinus baroni* has, contrary to *Cytinus*, a terminal flower, and the peduncle or stalk carries many scale leaves. These terminal flowers, after BAKER, [occur] in groups, as the name *Botryocytinus* means. But the issue is that this circumstance is not as important, as BAKER attached to it value, because e.g. the stalks of *Cytinus Hypocistis* frequently occur in groups as Fig. 2, B. But the fact that the BAKER description “they (flowers) grow in clusters of three of four, and each cluster is surrounded by numerous orbicular scale-leaves, .... it (flower) occurs in clusters, each containing 3-4 flowers” as well as SOLMS SOLMS-LAUBACH “ramis ternis vel quaternis squamosis flore unico terminatis” is somewhat ambiguously expressed, which led HARMS to a wrong idea, such that he wrote “numerous bracts form an involucre of 3-4 flowers around the glomerule”.

Indeed it is clear from the BAKER illustration and figure explanation, as well as from my available the specimen, that each flower is provided on the stalk and around the stalk base with several scale leaves and a calyculus (Fig. 1, A B C), and accordingly each pedicel issues directly from the host bark. But because 3-4 each of these flowers develops in groups, BAKER came to the opinion that these 3-4 flowers belong to a raceme, whose common stalk is missing. In BAKER’s opinion we must regard the floral cushion in the host cortex as stems, which cannot be harmonized with the general view of the *Cytinus* body. Therefore I am of the opinion that an extramatrical part of *Botryocytinus* is a normal stem with a terminal flower.

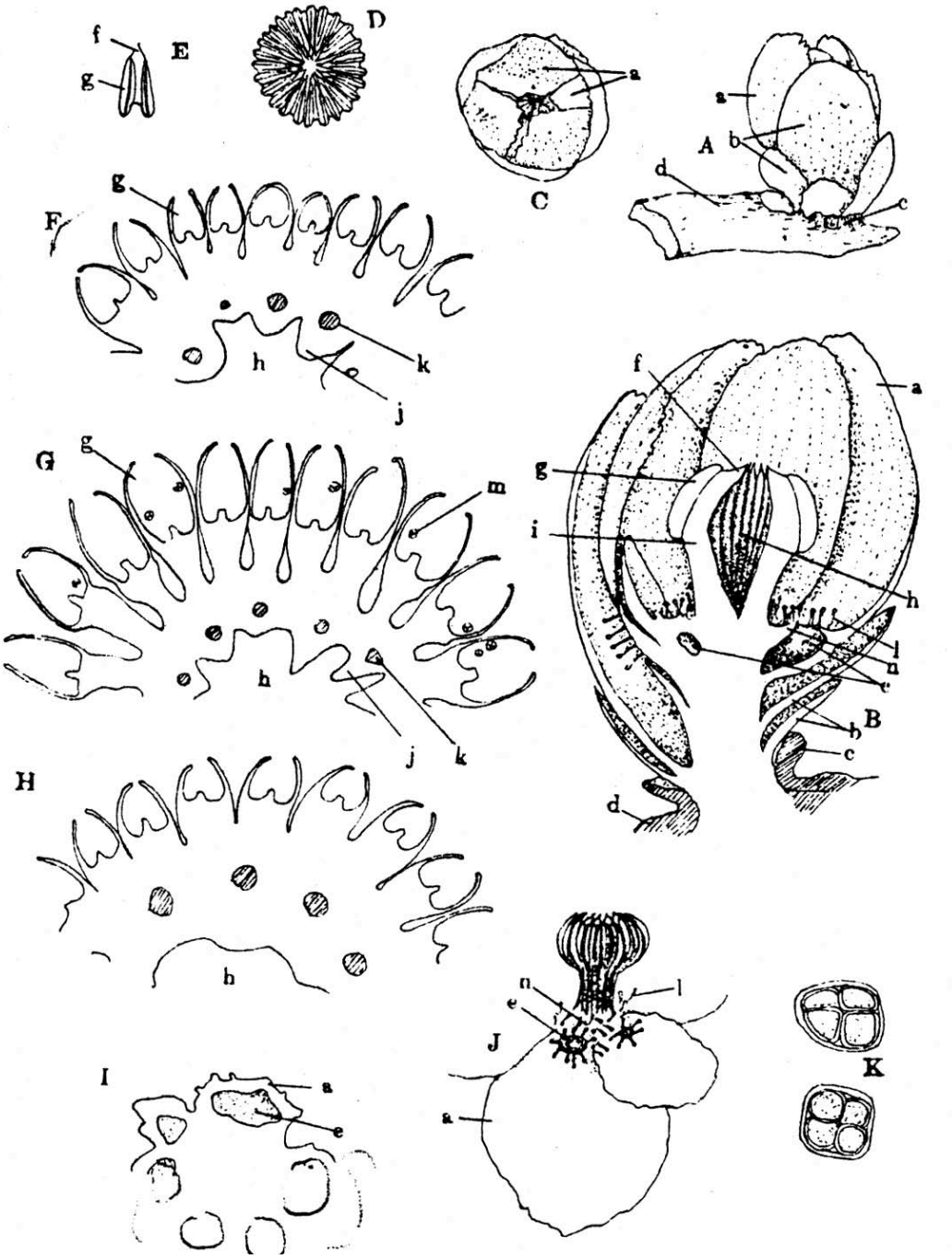


Fig. 1. Male flower of *Botryocytinus Baroni.* A. complete picture, B. the same in median [longitudinal] section, C. the same seen from above, D, androecial tube seen from above, E. one anther, F, G, H. a part of the androecial tube in cross section (F. apical, G. middle, H. basal part of the anther-region), I. cross section of the receptacle, J. receptacle seen from above, K. pollen. a. perigone, b. scale leaves, c. calyculus [here means basal cup], d. host bark, e. chamber of the perigone axil, f. connective process, g. theca, h, chamber of the androecial tube, i androecial tube, j. connective, k. vascular tissue strand, I. glandular hair, m. pollen-tetrad, n, receptacle. A, C. x 2/3, B, D.1 x 5/3, E. x 2, F, G, H. x 9, J. x 1, K. x 166.

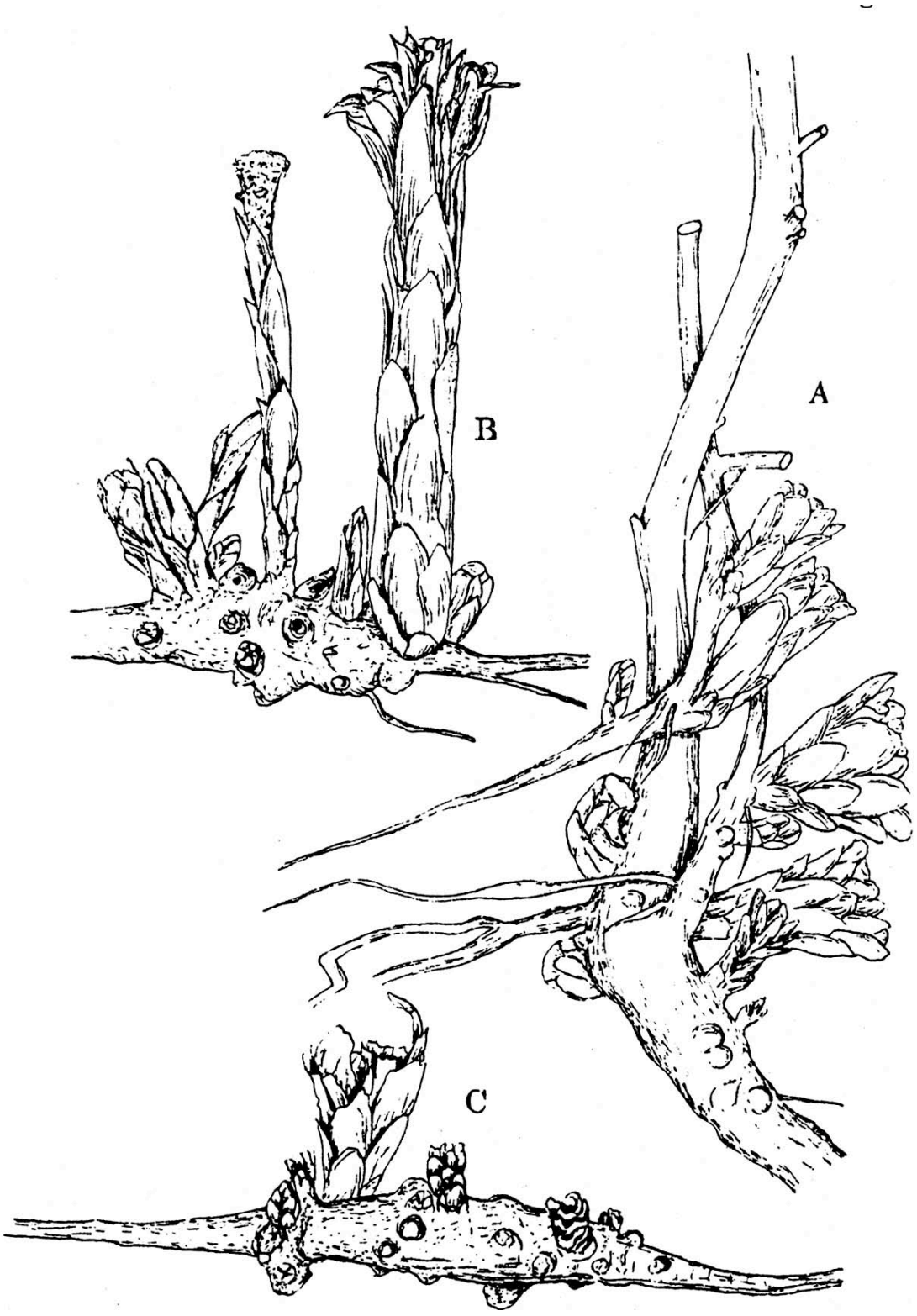


Fig. 2. *Cytinus hypocistis* on the host root. This illustration depicts materials which were also kindly given to me by Mr. Professor JUMELLE. x 2/3.

While BAKER had regarded the structure of the androecial column as a scooped out gynoecial vestige upon which the anthers are adhered, I must in fact maintain that in the male flower the gynoecium is completely missing and that the anthers bear a tube that is the androecial tube, because in the cross section of this tube one can unmistakably notice that vascular tissue strands (ring tracheid strands) (Fig. l, FGH k) of this tube pull through in the form of a ring, one strand per two thecae accordingly, (Fig, 1, FGH), and that in the inner surface of the tube one longitudinal border of each vascular tissue strand runs accordingly (Fig. 1, FGII j). From this fact we must conclude that this tube resulted from lateral fusion of filaments and connectives of the androecium, as this is also the case with *Mitrastemon*, [1] *Pilostyles aethiopica* [2] and *P. holzii* [3].

BAKER could not find connective processes, but the specimens available to us possesses a connective process on an anther (Fig. 1, f).

In the region of the receptacle one can see in cross sections 6 concavities on that, which are shown as perigone scales in median sections of flowers as the axillary cavities (Fig. 1, BIJ e). Since spadiceous glandular hairs (Fig. 1, BJ l) are plentifully present on the receptacle, I assume that these cavities are the repositories of the nectar, which becomes seperate from the glandular hair.

As the BAKER illustration the female flowers of *Botryocytinus* does not possess an exactly inferior (approximately approaching intermediate) ovary such as *Cytinus hypocistis* etc., as I show in another place. [4]

The lamella-like placenta, which also branches out with *C. hypocistis* [5] and *C. sanguineus* [6], is with *Botryocytinus* smooth and not provided with lateral ramifications. From *C. capensis* [7] and *C. malagasicus* [8] only male flowers are well-known, and J. JUMELLE [9] does not report on the placentae of *C. glandulosus*.

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1) Makino, T (1911) *Mitrastemon*. *Bot. Mag. Tokyo* **25**, 251-257.
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3) Engler, A. 1911. Engler's Bot. Jahrb. **46**, 293
4) Watanabe, K. 1936. Morphologisch-biologische Studien über die Gattung *Mitrastemon*. (Journ. Jap. Bot. **12**).
5) Le Maout et Decaisne. 1868. Traité de Botanique, 478-480; Arcangeli, G. 1876, Studi sul *Cytinus Hypocistis* (Atti, congr. intern. Bot. Tenuto in Firenze, 1874).
6) Hooker, W. J. 1841. Icones Plant. t. CCCXXXVI.
7) Marloth, R. 1911. Trans. Roy. Soc. South Africa. **2**, 237-238.
8) Jumelle, H. et H. Perrier de la Bathie. 1915. Ann. Fac. Sci. Marseille, **23**, fasc. 2, 35-38, t. IV.
9) l.c.