A new species of the *Tricalysia atherura* group (Rubiaceae) from southwestern Cameroon

Bonaventure SONKÉ
Higher Teachers' Training College, The University of Yaoundé I,
P.O. Box 047, Yaoundé, Cameroun.
bsonke@uycdc.uninet.cm
Laboratoire de Botanique systématique et de Phytosociologie,
Université Libre de Bruxelles,
50 Av. F. Roosevelt, C.P. 169, 1050 Bruxelles, Belgique.

David KENFACK
Limbe Botanic Garden, P.O. Box 437, Limbe, Cameroun.
rhiannonct@aol.com

Elmar ROBBRECHT
National Botanic Garden,
Domein van Bouchout, B-1860 Meise, Belgique.
robbrecht@br.fgov.be

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ABSTRACT
A new species of *Tricalysia (*Rubiaceae) from Cameroon, *Tricalysia achoundongiana* Robbr., Sonké & Kenfack, is described and illustrated. The new species belongs to the *Tricalysia atherura* group in section *Tricalysia* and appears to be closely related to *T. pangolina* and *T. vadensis*.

MOTS CLÉS
Groupe de *Tricalysia atherura*,
Rubiaceae,
Parc National de Korup,
Cameroun.

RÉSUMÉ
Une nouvelle espèce du groupe Tricalysia atherura (Rubiaceae) du sud-ouest du Cameroun.
Une nouvelle espèce de *Tricalysia (*Rubiaceae) du Cameroun, *Tricalysia achoundongiana* Robbr., Sonké & Kenfack est décrite et illustrée ici. La nouvelle espèce appartient au groupe de *Tricalysia atherura* (section *Tricalysia)* et semble très proche de *T. pangolina* et de *T. vadensis*.

INTRODUCTION

The Korup National Park is a protected lowland rain forest area in the southwest of Cameroon. The park extends 04°54'–05°28'N and 08°42'–09°16'E and occupies a total of 125,900 hectares (GARTLAN 1989). The 50 ha Korup Forest Dynamics Plot was established in the park from 1997 to 1999, as a part of a world network of long-term biological and socio-economic research within tropical forest coordinated by the Center for Tropical Forest Science (CONDIT 1998). Field methods included tagging, mapping, identifying and measuring all stems of free-standing trees and shrubs with diameter at breast height (1.3 m) greater or equal to 1 cm. The aim of identifying to species every single of above 328,000 plant individuals led to some interesting botanical findings, despite previous works in this part of the park (NEWBERY & GARTLAN 1996; THOMAS & GEREAU 1993; GARTLAN et al. 1986). During the field work, one of us (DK) drew attention to a remarkable *Tricalysia* from the area. Subsequent collection of flowering and fruiting material from the park and its surroundings allowed a complete morphological examination, and comparison with herbarium specimens at SCA, YA, BR, K and WAG revealed that a new species was at hand, which is described and named in this paper. We dedicate the new species to Dr. ACHOUNDONG, director of the Cameroon National Herbarium, who has always advised and encouraged us (BS and DK).

When in fruit, *Tricalysia achoundongiana* is immediately identified as a member of the *Tricalysia atherura* group. This group of section *Tricalysia* can be recognized by the character combination fruits exceeding 15 mm in diameter and having ± sclerified walls / bracteoles opposite and fused to calyculi. Most species of the genus have the same bracteole type but smaller fruits with fleshy walls. The *Tricalysia atherura* group and its features are discussed at length in another current contribution (SONKÉ et al. 2002). The densely hairy twigs of *T. achoundongiana* compare with only two other members of the *Tricalysia atherura* group, *T. pangolina* and *T. vadensis.* The former differs from the new species by its long-pedicellate flowers and fruits, the latter by its 4-merous flowers and ribbed fruits. In addition, the calyx of *T. achoundongiana* withers in fruit and hence differs from all other species of the *Tricalysia atherura* group. According to ROBBRECHT's scheme (1987: 64, table 1) of the relationships in *Tricalysia* subgen. *Tricalysia*, *Tricalysia achoundongiana* takes a position intermediate between *T. pangolina* and *T. vadensis* (Fig. 1); it follows the trend of reduction (in flower size and merousness, and number of ovules) shown by *T. vadensis,* though in a less extreme way.

Tricalysia achoundongiana Robbr., Sonké & Kenfack, **sp. nov.**

Haec species subgeneris Tricalysiae *propter fructus cum parietibus scleroticis et bracteolas in calyculis cupularibus connatas nullo dubio* Tricalysia atherurae *et* T. vadensi *proxima; a priori floribus sessilis, a posteriori foliorum laminis cuneatis et floribus 5-6-meris differt.*

TYPUS. — *Sonké 2315*, Cameroon, Korup National Park, fl. 18 Nov. 1999 (holo-, BR!; iso-, BRLU!, K!, P!, SCA!, YA!).

Shrub up to 10 m tall; young twigs puberulous. Leaves with interpetiolar stipules triangular, fused at base, protruded into an awn up to 10 mm long, puberulous outside; petioles up to 12 mm long, puberulous; leaf-blades elliptic or lanceolate, 14-18.5 × 5-9 cm, glabrous except for the midrib puberulous above and beneath, papyraceous, base cuneate, apex acuminate, acumen 9-11 mm long; lateral nerves 5-6 on each side of the midrib; intersecondaries few, difficulty visible, parallel and ± perpendicular to lateral nerves.

Inflorescences 3-flowered, sessile, congested; bracts and bracteoles fused into cups ("calyculi"), sitting in one another, the upper ones embracing the ovaries; 1-2(-4)-toothed or truncate cups per flower, and a basal 4-toothed cup embracing the flower triplet; calyculi puberulous outside and covered with colleters inside. Flowers 5-6-merous, sessile. Calyx puberulous outside and covered with colleters inside, tube 2.5 mm long and 1.5 mm wide, with (4-)5-6 short triangular teeth. Corolla white, sparsely hairy in- and outside; tube c. 4 mm long; lobes c. 3.5 mm long, with

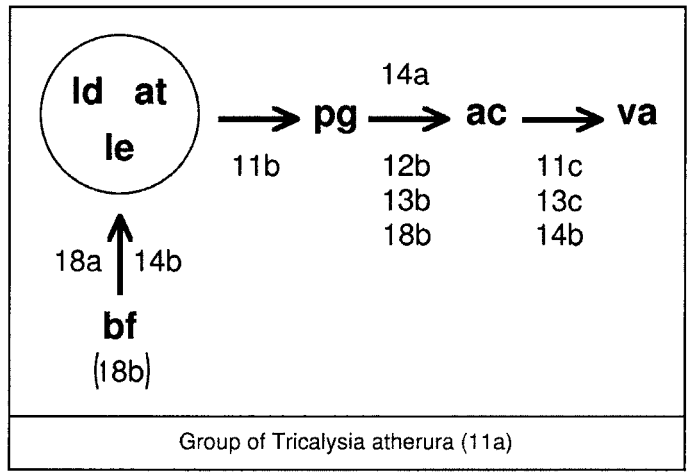

Fig. 1. — Modification of ROBBRECHT's (1987: table 1) scheme of relationships in the group of ***Tricalysia atherura***, including the newly described ***T. lejolyana*** (SONKÉ et al. 2002), **le** and ***T. achoundongiana***, **ac**. Two letter abbreviations of other species and numbering of characters corresponding to ROBBRECHT (1987): bf, ***T. biafrana*** - ld, ***T. lasiodelphys*** - at, ***T. atherura*** - pg, ***T. pangolina*** - va, ***T. vadensis*** / 11a, flowers pleiomerous - 11b, 5-6-merous - 11c, 4-merous; 12a, flowers large - 12b, small; 13a, ovules many - 13b, ovules 4 - 13c, 2 collateral; 14a, style and anthers hairy - 14b, glabrous; 18a, flowers on long pedicels - 18b, flowers sessile. The arrows represent postulated changes of states of characters.

triangular tip. Stamens attached to throat; anthers subsessile with their bases included, c. 3.3 mm long, each with a shortly triangular, hairy, apical, sterile appendage. Ovary pubescent, more densely than the calyx, with two 4-ovulate placentas; style pubescent, c. 5 mm long except its lobes 1 mm long. Fruits ± spherical, 1.8 cm in diameter, sparsely pubescent, colour at complete maturity unknown; calyx withered, leaving a conspicuous scar on top; seeds four, ± having the shape of a quarter of a sphere, up to 8 mm long, with long comma-shaped hilum; coat glossy, chestnut brown. — Fig. 2.

PARATYPES. — *Sainge & Mambo 277,* Cameroon, Korup National Park, 05°03'N, 08°53'E, fr., 21 Jan. 2000 (BR!, MO!, SCA!); *Thomas & Mambo 4239*, Cameroon, Mundemba town, 05°58'N, 08°55'E, fl., June-July 1984 (BR!, MO!, WAG!).

HABITAT. — The area in which *Tricalysia achoundongiana* occurs supports a closed-canopy evergreen forest with patches of secondary growth, classified by LETOUZEY (1985) as Atlantic-Biafran evergreen forests, rich in Caesalpiniaceae. This forest has a well-defined structure with a high degree of local endemism (e.g. THOMAS & GEREAU 1993; GEREAU & KENFACK 2000). The area lies at 50-100 m above sea level and is flat to gently undulating with numerous small creeks in shallow valleys. Using the mean elevation, slope angle and convexity, the Korup Forest Dynamics Plot was divided into seven habitat categories, namely riverside, low gully, high gully, low flat areas, bench, ridge top, steep slopes. The new species obviously avoids steep slopes and swampy areas, and seems to be associated to low flat areas, river banks and bench.

DISTRIBUTION. — The new species here described is endemic of the Lower Guinea Domain of the Guineo-Congolian Region, which is the centre of diversity of the genus *Tricalysia* and of the *Tricalysia atherura* group (ROBBRECHT 1987, fig. 11).

CONSERVATION STATUS. — The species is widely distributed in the southern part of the Korup National Park, as shown by a field inventory in the 50 hectares Plot, but is not yet sufficiently documented by collections. Despite of past intensive botanical surveys of Cameroon coastal forest, the new species is known so far only from Korup and surrounding areas. This

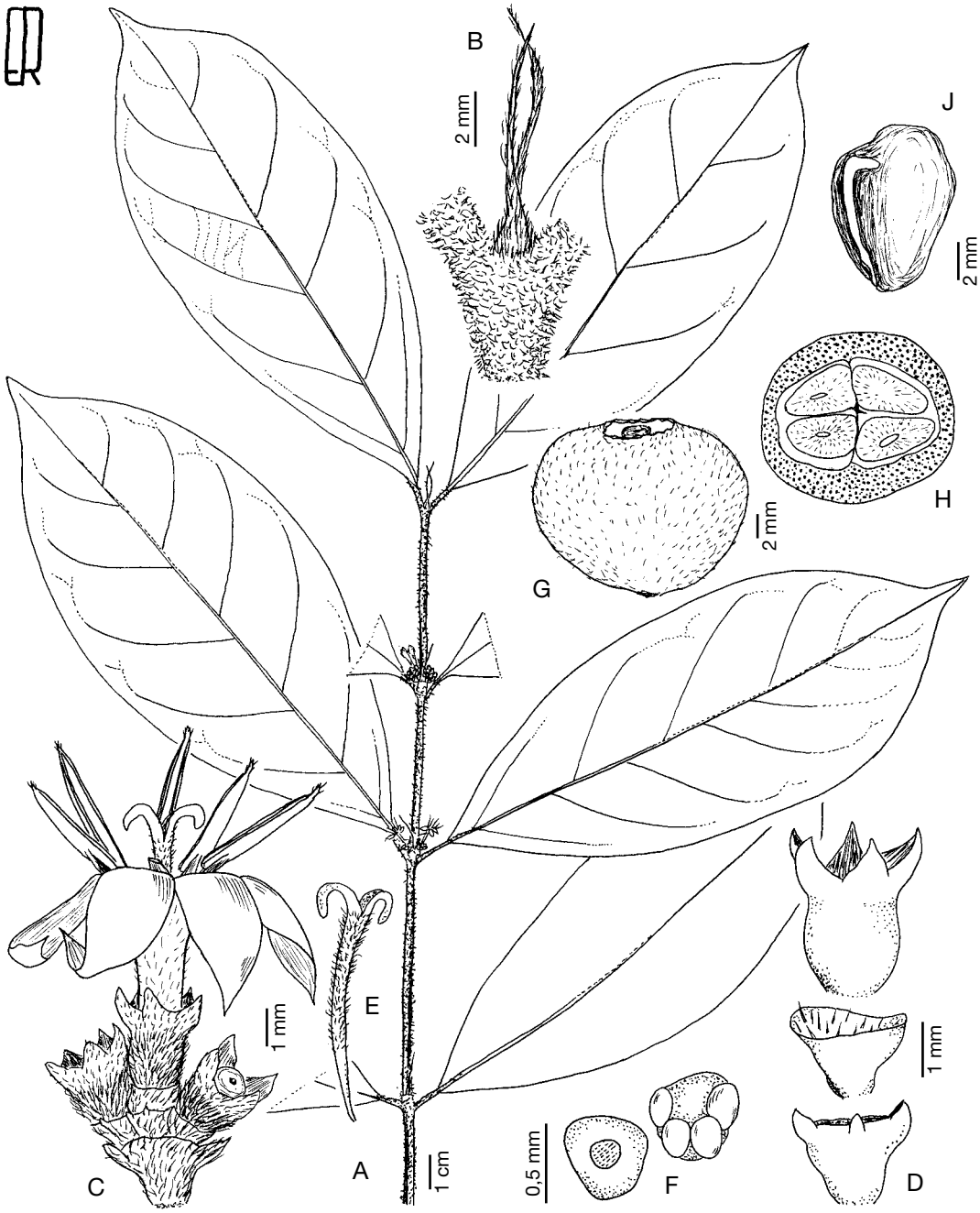

Fig. 2. — ***Tricalysia achoundongiana*** Robbr., Sonké & Kenfack: **A**, habit of a flowering twig; **B**, pair of interpetiolar stipules at twig apex; **C**, inflorescence (two corollas fallen off); **D**, ovary crowned by calyx and the two calyculi of the central flower in C laid open (hairiness not depicted, except for the colleters inside the upper calyculus); **E**, style; **F**, two views of a placenta; **G**, fruit; **H**, its cross section; **J**, seed.

area is less than 20,000 km^2. Thus *T. achoundongiana*, following the Red Data criteria of IUCN (2001), should be classified as "VU B".

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