

# A remarkable new species of *Sterculia* (Sterculioideae, Malvaceae) from Madagascar

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## ABSTRACT

### KEY WORDS

Sterculioideae,  
Malvaceae,  
*Sterculia*,  
Madagascar.

*Sterculia cheekei* from north-eastern Madagascar is described and illustrated. It is remarkable in having palmately-compound leaves, a character that occurs only sporadically in this large, pantropical genus, and one that was previously unknown in Malagasy *Sterculia*.

## RÉSUMÉ

*Une nouvelle espèce remarquable de Sterculia (Sterculioideae, Malvaceae) de Madagascar.*

### MOTS CLÉS

Sterculioideae,  
Malvaceae,  
*Sterculia*,  
Madagascar.

*Sterculia cheekei* du nord-est de Madagascar est décrite et illustrée. Elle est remarquable par des feuilles composées-palmées, caractère que l'on trouve sporadiquement dans ce grand genre pantropical et qui n'était pas connu avant chez les *Sterculia* malgaches.

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The tree flora of Madagascar is estimated to include approximately 4220 species, 96% of which are endemic to the island (SCHATZ 2001). This is a rich flora and despite almost four centuries of botanical exploration, collectors continue to find new species of tree even in areas that are thought to be relatively well explored. Notable among these new species is a *Sterculia* with palmately-compound leaves. Previously, only

simple-leaved species of *Sterculia* were known from Madagascar (ARÈNES 1949, 1956, 1959; SCHATZ 2001).

## *Sterculia cheekei* Dorr, sp. nov.

*A S. comorensis* Baill. *foliis compositis palmatis, alabastriis costatis, androgynophoro basaliter expanso pubescentique statim diagnoscenda.*

TYPUS. — *R. Randrianaivo*, *J. Andriantiana*, *A. Ratodimanana*, *T. Ratafindrabeaza*, *H. Razafindrabe*, *M.* & *T. Rakoto* 732, Madagascar, Antsiranana, Fiv. Vohemar, Commune Fanambana, Fkt. Antserasera à 7 km W de Fanambana, 13°22'S [sphalm. pro 32°S], 049°57'E, 350 m, 10 Nov. 2001, fl. (♂) (holo-, US!; iso-, MO, P, TAN).

Tree, 15 m tall, 40 cm d.b.h. Twigs to *c.* 5 mm in diameter at apex (non-flushing), glabrescent but with scattered yellowish-brown stellate to scale-like hairs. Terminal bud conical to ovoid, 3–5 mm long. Leaves palmately compound; petioles 2.8–10.8 cm long, swollen apically (pulvinate), glabrous; stipules caducous; leaflets 5, sessile, blades obovate, ± asymmetrical, unequal in size, central leaflets 7.2–11 cm long, 2.8–3.7 cm wide, lateral leaflets 4–6.5 cm long, 1.7–2.6 cm wide, leaflet l/w 2.7, apex retuse, margin entire to ± undulate, base long attenuate, ± oblique, glabrous above and below, pinnately-nerved with 8–10 secondary nerves on each side of midrib, midrib slightly raised above, secondary nerves darker in color, midrib prominently raised below, secondary nerves faint. Inflorescences axillary panicles, borne erect, 2–6 per shoot, principal axes to 14 cm long, secondary axes to 6 cm long, tertiary axes to 2.5 cm long; bracts and bracteoles lanceolate to subulate, 4–5 mm long, 1–2 mm wide, velutinous, tardily deciduous; floral bud ovoid, *c.* 8 mm long, 5 mm in diameter, with stalks *c.* 2–3 mm long. Calyx rusty-brown velutinous within and without, the hairs stellate. Male flowers: calyx broadly funnel-shaped when open, tube 1–2 mm long, lobes triangular, 4.5–6 mm long, 3 mm wide, divided more than half-way, apex acute, not reflexed; sepal appendages absent; androgynophore 3.5–3.75 mm long, erect, slightly nodding apically, not expanded basally, glabrous except for a very few, scattered stellate hairs and a 0.5 mm tall ring of glandular tissue at base; stamens 15, subsessile, surrounding the rudimentary apocarpous gynoecium of 5 carpels, each carpel stellate-pubescent and with a minute, recurved stigma; ovules 2 per carpel. Perfect flowers: not known. Fruit and seed: not known. — Fig. 1.

HABITAT AND DISTRIBUTION. — Endemic to north-eastern Madagascar where the sole collec-

tion was made southwest of Vohemar in primary lowland rain forest (“forêt dense humide de basse altitude”); 350 m.

ETYMOLOGY. — The species is named in honor of Dr Martin CHEEK of Kew, specialist in West and Congolian Africa, Madagascar, Malvales and carnivorous plants. In 1985, on the first of his several visits to Madagascar, we made forays to the west and east, and explored the south of the island together.

REMARKS. — Compound-leaved species of *Sterculia* are relatively uncommon; seven species having previously been described in this pantropical genus of 100–150 species. In Africa, *S. murex* Hemsl. and *S. alexandri* Harv. are known from the southern tip of the continent. *Sterculia foetida* L., native to the Indian subcontinent, is the most familiar compound-leaved species since it is widely cultivated throughout the tropics. In Asia, *S. versicolor* Wall. is found in India and Myanmar and *S. pexa* Pierre appears to be restricted to Vietnam. In the Americas, *S. mexicana* R.Br. is found in Mexico and Central America, and *S. xolocotzii* T.Wendt & E. Taylor is endemic to southern Mexico. SCHUMANN (1895, 1905) placed all of the compound-leaved species that he knew in a series he called *Digitatae* K.Schum., but this is clearly an artificial group as are the other series he created, *Integreae* and *Lobatae*, to accommodate entire- and lobed-leaved species of *Sterculia*, respectively.

There is no world-wide revision of *Sterculia* and only a few regional monographs. Subsequent to SCHUMANN's (1895) revision of the African species, TANTRA (1976) revised the Malesian species and TAYLOR (1989) the neotropical ones. Both TANTRA and TAYLOR shied away from attempting to construct an infrageneric classification. This lack of a useful subdivision of *Sterculia* makes it difficult to place *S. cheekei*. The new species, however, is clearly not closely related to any of the other compound-leaved species. The African species with compound leaves, *S. alexandri* and *S. murex*, appear to be related to *S. foetida*, which has an obconical calyx tube (TANTRA 1976: fig. 4b). *Sterculia versicolor* has lanceolate, converging

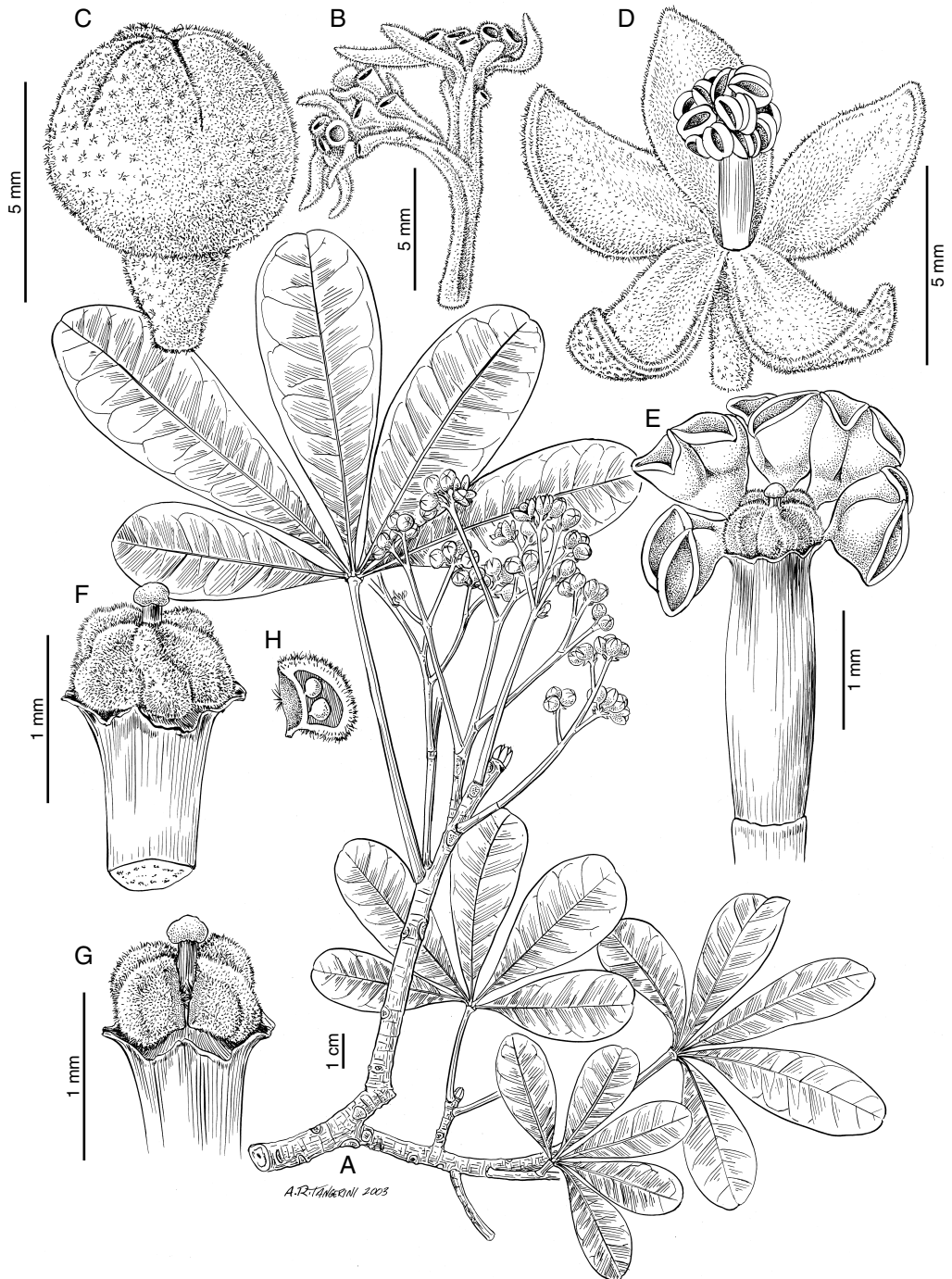


FIG. 1. – *Sterculia cheekei* Dorr: **A**, habit; **B**, inflorescence detail showing bracts and bracteoles; **C**, ovoid floral bud; **D**, male flower; **E**, male flower with calyx and several anthers removed revealing the rudimentary apocarpous gynoecium; **F**, rudimentary gynoecium with 5 carpels; **G**, rudimentary gynoecium with one carpel removed showing attachment of carpels to central column; **H**, section through a carpel showing the position of the 2 ovules. Drawn by Alice TANGERINI from the holotype.

calyx lobes (TANTRA 1976: fig. 4a, c, f), which are only seen in other Asian species. In *S. pexa* only male flowers are known and these have 12 stamens surrounding 5 sterile and glabrous carpels. The neotropical species *S. mexicana* and *S. xolocotzii* are considered by TAYLOR (1989) to form a monophyletic group united by their floral morphology and indumentum, including narrow calyx tubes and long, linear sepal lobes that are reflexed. Among the simple-leaved species from Madagascar and the Comoro Islands, *S. cheekei* appears to be most similar to *S. comorensis* Baill., which also has an ovoid floral bud and calyx lobes divided more than halfway. In the latter species, however, the floral bud is costate and the androgynophore is expanded and pubescent basally.

In the *Flore de Madagascar et des Comores*, ARÈNES (1959) recognized eight species of *Sterculia*; five of them endemic to Madagascar, two to the Comoro Islands. KOSTERMANS (1960: 245) quickly reduced two of these eight to synonymy. Citing unpublished observations of René CAPURON, he (1960: 245) argued that *S. heritiformis* Arènes, thought by ARÈNES (1959) to be endemic to the Comoro Islands, was based on a mixture of the leaves of *Heritiera littoralis* Dryand. and the flowers of *Firmiana colorata* (Roxb.) R.Br. In the same paper, KOSTERMANS (1960: 245) made the Malagasy endemic *S. ankaranensis* Arènes the basionym of his combination *Hildegardia ankaranensis* (Arènes) Kosterm. Later, TANTRA (1976: 50) suggested that *S. richardiana* Baill., the sole non-endemic Malagasy species accepted by ARÈNES (1959), might be a synonym of *S. ceramica* R.Br., which is native to Malesia and the Philippines, but he refrained from formally proposing this synonymy. Comparison of ARÈNES' (1959) circumscription of the former with material in the U.S. National Herbarium (US) of the latter convinces me that *S. richardiana* is, in fact, a synonym of *S. ceramica*. Recently, SCHATZ (2001: 253) stated that there were four Malagasy species, perhaps three of them endemic. Adding the species here described, I would recognize five species native to Madagascar: *S. capuronii* Arènes, *S. cheekei*, *S. humblotiana* Baill., *S. perrieri* Arènes, and *S. tavia* Baill. All five of them appear to be ende-

mic. In the Comoro Islands, *S. comorensis* is native to Moheli and *S. foetida* is cultivated in Mayotte (*C. Mas* 357, MO, P), at least. There are no species of *Sterculia* native to the Mascarene Islands (FRIEDMANN 1987), but several paleotropical species have been cultivated in the gardens of La Réunion and Mauritius. FRIEDMANN (1987: 1) lists *S. coccinea* var. *hamiltonii* (Kuntze) I.G.M. Tantra, *S. foetida*, and *S. macrophylla* Vent. *Sterculia chapelieri* Baill., described from Madagascar, can be excluded from the genus on the basis of its fleshy, single-seeded fruits (ARÈNES 1956), but its correct placement is uncertain. The identity of *S. mada-gascariensis* R.Br., a name overlooked by ARÈNES (1949, 1956, 1959), currently is being investigated.

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