

# Disentangling the history of Forsskål's “*Camellia*”

Mats Thulin

Thulin, M. 2016. Disentangling the history of Forsskål's “*Camellia*” – *Symbolae Botanicae Upsalienses* 38: 139–143. Uppsala. ISBN 978-91-554-9608-1.

*Camellia grandiflora* Forssk., published by Forsskål from Yemen in 1775, was an editorial error for *Ruellia grandiflora*, the plant being a member of Acanthaceae and not Theaceae. The mistake was soon discovered, but all names so far published to rectify the matter have been illegitimate. *Ruellia longiflora* Vahl, for example, is illegitimate as it is superfluous, and *R. grandiflora* (Forssk.) Pers. is a later homonym. The result is that this night-flowering shrub with long, narrow, white corollas in Yemen and Saudi Arabia is still, apart from the corrupted *C. grandiflora*, without a legitimate name. *Ruellia forsskaolii* Thulin, nom. nov., is here proposed as a replacement name for *C. grandiflora* Forssk., the name is lectotypified, and notes are provided on the distribution, habitat, variation and relationship of the species.

*Systematic Biology, EBC, Uppsala University, Norbyvägen 18D, SE-752 36 Uppsala, Sweden; mats.thulin@ebc.uu.se.*

## Introduction

One of the many species posthumously described by Peter Forsskål (1775) from Yemen in his pioneering *Flora Aegyptiaco-Arabica* is *Camellia grandiflora* Forssk. As the genus *Camellia* (Theaceae) is otherwise distributed in eastern Asia, its presence in Yemen would seem to be extremely unlikely. It was soon realized that *Camellia* was an editorial error for *Ruellia* L., and that Forsskål's plant is a member of Acanthaceae. The plant has been renamed, but only in unfortunate ways that have led to a situation where this plant, which is one of the most large-flowered members in the family and was described in detail by Forsskål, is still without a legitimate name after more than 240 years, apart from the corrupted *C. grandiflora*. The tangled history of Forsskål's “*Camellia*” is outlined here and a replacement name in *Ruellia* is proposed.

## Flora Aegyptiaco-Arabica and *Camellia grandiflora*

To understand how such a mistake as Forsskål's “*Camellia*” could happen, it is crucial to consider the history behind his *Flora Aegyptiaco-Arabica*. This work was published by an unknown editor 12 years after Forsskål's tragic death in Yemen in 1763, based on Forsskål's field notes. These were described as “more than 1800 scraps of paper” (Hepper & Fries 1994). The problems faced by the editor, when putting together the *Flora* from these notes, have led to numerous mistakes that have to be considered when dealing with botanical names published by Forsskål. The work is “lacking the ultimate correction from its author's hand” as Vahl (1790) mildly put it. The consequence is that Forsskål's work has given rise to numerous nomenclatural problems and controversies of various kinds, and it will no doubt continue to do so.

The detailed description of *Camellia grandiflora* provided by Forsskål (1775) includes statements such as “Folia opposita” and “Corolla alba, tubo cylindrico, 4-poll. limbo patente poll. 5-fido, sub-regulari” that immediately show that the plant cannot be a *Camellia*. It is out of the question that Forsskål had intended to place it in this genus, and the most likely explanation is that Forsskål’s hand-written “*Ruellia*” was misinterpreted by the editor. The provenance of the plant is given as “Ad Taæs in montibus”. Taæs (today’s Taizz) was visited by Forsskål and his fellow traveller Carsten Niebuhr in early April 1763, and later by all of his party from 13 to 28 June 1763 (Hepper & Fries 1994). This is also where he fell ill with his fatal “cold”, and on 11 July he died in Yerim along the way towards Sanaa. The collection of *C. grandiflora* was made during Forsskål’s first visit to Taizz.

### Treatment of *Camellia grandiflora* by subsequent authors

Vahl (1790) in his *Symbolae Botanicae* stated that Forsskål’s “*Camellia*” is an “errore editoris” for *Ruellia*, but he himself erred by citing Forsskål’s name as “*Camellia longiflora*”. Therefore, when transferring the name to *Ruellia*, he coined the superfluous name *Ruellia longiflora* Vahl, that is illegitimate under Art. 52.1 of the *International Code of Nomenclature for algae, fungi, and plants* (ICN) (McNeill et al. 2012). Vahl also provided a modified description of the species, as well as an illustration (Fig. 1).

Vahl’s mistake was noted by Persoon (1806), who made the combination *Ruellia grandiflora* (Forssk.) Pers. based on Forsskål’s *Camellia*, and this could have been a happy end to the story. However, as Poirlet (1804), two years earlier, had published the name *Ruellia grandiflora* Poir. for a species from “Guadeloupe” in the Caribbean, Persoon’s combination is a later homonym and therefore also illegitimate (Art. 53.1 of the ICN, McNeill et al. 2012). Incidentally, Persoon (1806) also published a *Ruellia longiflora* Pers., a later

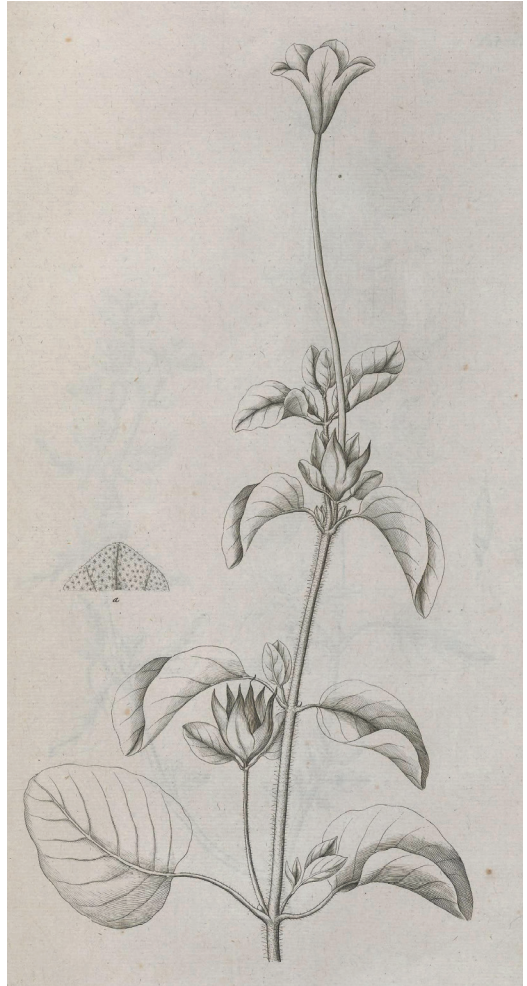


Fig. 1. *Ruellia forskaalii* [as *R. longiflora*], from Vahl (1790: Tab. 15); detail shows leaf apex with stellate hairs.

homonym of *R. longiflora* Vahl, but what he actually intended to refer to was *Ruellia longifolia* Rich., a name that he apparently unintentionally misspelt.

Later in the 19th century, Nees (1847) published *Dipteracanthus longiflorus* Nees, citing the illegitimate *Ruellia longiflora* Vahl and “*Camellia longiflora* Forssk.” in synonymy. Nees’s name is also illegitimate, as he did not use *Camellia grandiflora* as basionym. Nees (1847) also published a *Dipteracanthus grandiflorus* Nees from South America, thereby

blocking any future transfer of the name *Camellia grandiflora* to *Dipteracanthus* Nees. *Dipteracanthus* is a segregate from *Ruellia* with numerous species. Some years later, Oersted (1855) segregated *Solaenacanthus* Oerst., based on *Dipteracanthus longiflorus* Nees, pointing particularly to the extremely long and narrow corolla tube of this plant. However, Oersted did not formally transfer *D. longiflorus* to *Solaenacanthus*, and the citation of "*S. longiflorus* (Vahl) Oerst." as the type of *Solaenacanthus* in *Index Nominum Genericorum* (Farr et al. 1979) is therefore erroneous. The combination *S. longiflorus* (Vahl) Müll.Berol. (Müller 1858: 639) was made a few years after Oersted's paper (as "*Solenacanthus longiflorus* Örd."), but is also illegitimate because the original basionym *Camellia grandiflora* was not used.

Bentham (1876), as well as Lindau (1895), used a wide circumscription of *Ruellia* citing, among others, *Dipteracanthus* and *Solaenacanthus* (as "*Solenacanthus*") in synonymy. Since then, *Ruellia* has been treated in a wide sense by most authors (Tripp et al. 2013), notable exceptions being Bremekamp & Nannenga-Bremekamp (1948) and Barker (1986), who recognized *Dipteracanthus* and various other segregate genera.

Blatter (1921) realized that the name *Ruellia longiflora* Vahl had been published by mistake ("per errorem") and made the new combination *Ruellia grandiflora* (Forssk.) Blatter. By doing this he made another mistake as *R. grandiflora* (Forssk.) Pers. already existed. Blatter's combination is therefore just an isonym of no nomenclatural status, as stated in Art. 6.1, Note 2, of the ICN (McNeill et al. 2012). Christensen (1922), apparently unaware of Blatter's action, continued to treat the species as *Ruellia longiflora* Vahl, and this was also the name used by Schwartz (1939), who cited Blatter's combination in synonymy.

In more recent decades, almost all authors have used the name *Ruellia grandiflora* for the species, but with varying authorship. Collett (1985, 1999), who first recorded the species

also from Saudi Arabia, Hepper & Friis (1994) and Wood (1997), attributed this combination to (Forssk.) Blatter, whereas Heller & Heyn (1987) attributed it to (Forssk.) Pers. Miller & Morris (1988: 335) listed "*R. longiflora* Vahl" from Oman, but the material seen from Oman under this name is *R. discifolia* Oliv.

### Other early collections

Forsskål's plant was long known only from his original material from near Taizz. It was later collected during Schweinfurth's journey in Yemen "in memoriam divi Forskali" in 1889 (Schwartz 1939), when two collections were made of "*Ruellia longiflora* Vahl": Schweinfurth 355 from "Jebel Bura" and Schweinfurth 1087 from "Uossil" in the Haraz Mts, both north of Forsskål's original locality. However, in 1837 Botta had already made a collection from "Jebel Ras", also north of Forsskål's original locality, which has remained unpublished until now (material in P, see below). Botta was the first to note that the plant is night-flowering.

### The current situation and a solution to the problem

The current situation is thus that no legitimate name exists for Forsskål's "*Camellia*" except for the original *C. grandiflora*, since both *Ruellia grandiflora* and *R. longiflora* (as well as *Dipteracanthus longiflorus* and *Solaenacanthus longiflorus*) are illegitimate. Some kind of nomenclatural action is needed, and one possibility would be conservation of *R. grandiflora* (Forssk.) Pers. from 1806 against *R. grandiflora* Poir. from 1804. Poiret's name seems hardly ever to have been used since its publication, but type material present in P [P00650142] indicates that it belongs to the species complex around *R. tuberosa* L., and it could possibly be the oldest name available for some member of that complex. Also, use of the name *R. grandiflora* (Forssk.) Pers. (or the isonym *R. grandiflora* (Forssk.) Blatter) is quite limited, simply because the species has been rarely collected and is fairly local.

Under these circumstances conservation of Persoon's combination does not seem realistic. The alternative, to conserve *R. longiflora* Vahl, would not be meaningful, as this name has not been used for more than 75 years. The solution proposed here, is that Forsskål's "*Camellia*" is given a replacement name that commemorates its discoverer. *Ruellia forsskaolii* is formally established below, along with its synonymy and a lectotypification. Also, information about the distribution, habitat, variation and relationship of the species is provided.

### ***Ruellia forsskaolii* Thulin, *nom. nov.***

*Camellia grandiflora* Forssk., Fl. Aeg.-Arab.: 126 (1775) – *Ruellia longiflora* Vahl, Symb. Bot. 1: 45, Tab. 15 (1790), *nom. illeg. superfl.* – *R. grandiflora* (Forssk.) Pers., Syn. Pl. 2: 175 (1806), *nom. illeg.*, non Poir. in Lam., Encycl. Méth. Bot. 6: 340 (1804) – *Dipteracanthus longiflorus* Nees in DC., Prodr. 11: 117 (1847), *nom. illeg. superfl.* – *Solaenacanthus longiflorus* (Vahl) Müll.Berol., Ann. Bot. Syst. 5: 639 (1858), *nom. illeg. superfl.* – Type: Yemen, "Ad Taæs in montibus", Apr 1763, Forsskål 1041 (C [C10001908] lectotype, designated here).

Three sheets of *Camellia grandiflora* are present in C, Forsskål 1041, 1042 [C10001909] and 1043 [C10001910], and there is also a specimen in BM [BM000950019]. Forsskål 1041 is the basis for Vahl's illustration (Fig. 1), and is here selected as the lectotype.

### **Distribution and habitat**

*Ruellia forsskaolii* is known from the south-eastern corner of Saudia Arabia and from north Yemen, where it is more widespread. It occurs in stony or rocky places, often along wadis, at altitudes between 400 and 1860 m.

### **Notes**

*Ruellia forsskaolii* is a stellate-hairy shrub or subshrub up to 1.5 m tall. The flowers are white or creamy white, have a sweet scent and open at night. According to *Collette* 1472, the flowers open at 10 pm and are wilted and brown by 5 am. The corolla is normally around 10 cm long, but variation is considerable.

The longest corollas are about 13 cm long (*Collette* 7104), whereas the shortest are 7–8 cm.

On the Arabian Peninsula, the only species that can be confused with *Ruellia forsskaolii* are *R. discifolia* and *R. heterotricha* Deflers. *Ruellia discifolia* is also stellate-hairy and night-flowering with long (up to 8 cm) narrow white corollas, but differs from *R. forsskaolii* by its linear calyx lobes that are free to the base (not ovate-elliptic and connate below). *Ruellia discifolia* is known from Yemen, Oman, Ethiopia, Somalia and Kenya. Its distribution in Yemen is confined to the Hadramaut Region and does not overlap with that of *R. forsskaolii*. *Ruellia heterotricha* has stellate hairs mixed with simple eglandular and glandular hairs, and has wide calyx lobes, but differs from *R. forsskaolii* by a smaller (about 5 cm long) pinkish corolla, and calyx lobes that are free almost to the base. It is confined to southern Yemen (Abyan and Hadramaut Regions).

In Africa, *Ruellia bignoniiflora* S.Moore and *R. amabilis* S.Moore have white corollas 10 cm or more long. Both extend northwards into southern Ethiopia (Ensermu 2006). They are easily separated from *R. forsskaolii* by lacking stellate hairs. The stellate-hairy *R. nocturna* Hedrén (Hedrén 1993, 2006) from bushland on sand at low altitudes in central and southern Somalia seems to be a close relative of *R. forsskaolii*. It is a night-flowering shrub, 1–2 m tall, with narrow white corollas c. 7 cm long. It differs from *R. forsskaolii* by an indumentum of short stellate hairs only (not mixed with long non-stellate hairs) and by its calyx lobes that are united for half or more of their lengths (calyx divided to about 2/3 in *R. forsskaolii*).

### **Collections seen**

**Saudi Arabia.** Raidah escarpment NW of Abha, near Wadi Harala, 16 Apr 1989, *Collette* 7104 (E, K); Bir Al Qurhan, headwaters of Bani Malik, near Jabal Fayfa, 31 Oct 1988, *Collette* 6839 (E, K); Asir, Wadi Manfah, 50 km NNW of Najran, 28 Apr 1979, *Collette* 1472 (K).



**Yemen.** Upper part of Wadi Labdah c. 10 km SE of At Tur, 17 Nov 1982, *King* 154 (E); Kuhlan to Hajjah road, 27 Mar 1981, *Miller & Long* 3258 (E); Uossil, 5 Feb 1889, *Schweinfurth* 1087 (K); escarpment between Sanaa and Hodeidah, 13 Sep 1962, *Popov* 7/7 (BM); Jebel Bura, 7 Jan 1889, *Schweinfurth* 355 (P); Mashrapa, Wadi Rima, 3 Jul 1975, *Wood* Y/75/414 (BM); near Sawadiya, 67 km S of Rada, 4 Sep 1962, *Popov* P6/1 (BM); Jebel Ras, Oct 1837, *Botta* s.n. (P); Taizz, near old airport W of town, 23 Oct 1975, *Hepper* 6023 (K); 10 km W of Taizz on Mocha road, 14 Sep 1978, *Miller* 35 (E, K).

**Saudi Arabia or Yemen.** Without precise locality, 1904, *Wahab* 78 (E).

## Acknowledgements

The curators of BM, C, E, K, P and UPS are thanked for access to herbarium material and/or images. I am also grateful to Iain Darbyshire for comments on the manuscript.

## References

- Barker, R.M. 1986. A taxonomic revision of Australian Acanthaceae. *J. Adelaide Bot. Gard.* 9: 1–286.
- Bentham, G. 1876. Acanthaceae. In: Bentham, G. & Hooker, J.D. (eds), *Genera plantarum* vol. 2, pp. 1060–1122. Reeve & Co., London.
- Blatter, E. 1921. Flora Arabica. *Rec. Bot. Surv. India* 8(2): 124–282.
- Bremekamp, C.E.B. & Nannenga-Bremekamp, N.E. 1948. A preliminary survey of the Ruellinae (Acanthaceae) of the Malay archipelago and New Guinea. *Verh. Kon. Ned. Akad. Wetensch., Afd. Natuurk., Tweede Sect.* 45(1): 1–39.
- Christensen, C. 1922. Index to Pehr Forsskål: Flora Aegyptiaco-Arabica 1775, with a revision of Herbarium Forsskål. *Dansk Bot. Ark.* 4(3): 1–54.
- Collenette, S. 1985. *An illustrated guide to the flowers of Saudi Arabia*. Scorpion Publishing, London.
- Collenette, S. 1999. *Wildflowers of Saudi Arabia*. National Commission for Wildlife Conservation and Development, Riyadh.
- Ensermu Kelbessa. 2006. Acanthaceae. In: Hedberg, I., Ensermu Kelbessa, Edwards, S., Sebsebe Demissew & Persson, E. (eds), *Flora of Ethiopia and Eritrea* vol. 5, pp. 345–495. Addis Ababa and Uppsala.
- Farr, E.R., Leussink, J.A. & Staffeu, F.A. (eds) 1979. *Index Nominum Genericorum (Plantarum)* vol. 1–3. Regnum Veg. vols 100–102.
- Forsskål, P. 1775. *Flora Aegyptiaco-Arabica*. Møller, Copenhagen.
- Hedré, M. 1993. *Ruellia nocturna* sp. nov. (Acanthaceae) from central Somalia. *Nord. J. Bot.* 13: 511–513.
- Hedré, M. 2006. *Ruellia*. In: Thulin, M. (ed.), *Flora of Somalia* vol. 3, pp. 392–396. Royal Botanic Gardens, Kew.
- Heller, D. & Heyn, C.C. 1987. *Conspectus Florae Orientalis* vol. 4. Israel Academy of Sciences and Humanities, Jerusalem.
- Hepper, F.N. & Friis, I. 1997. *The plants of Pehr Forsskål's Flora Aegyptiaco-Arabica*. Royal Botanic Gardens, Kew.
- Lindau, G. 1895. Acanthaceae. In: Engler, A. (ed.), *Die Natürlichen Pflanzenfamilien* vol. IV.3b, pp. 274–354. Engelmann, Leipzig.
- McNeill, J., Barrie, F.R., Buck, W.R., Demoulin, V., Greuter, W., Hawksworth, D.L., Herendeen, P.L., Knapp, S., Marhold, K., Prado, J., Prud'Homme van Reine, W.F., Smith, G.F., Wiersema, J.H. & Turland, N.J. (eds) 2012. *International Code of Nomenclature for algae, fungi, and plants (Melbourne Code): Adopted by the Eighteenth International Botanical Congress Melbourne, Australia, July 2011*. Regnum Veg. vol. 154.
- Miller, A.G. & Morris, M. 1988. *Plants of Dhofar - the southern region of Oman: traditional, economic and medicinal uses*. Office for Conservation of the Environment, Oman.
- Müller, K. 1858. Synopsis Plantarum Phanerogamicarum novarum omnium per annos 1851, 1852, 1853, 1854, 1855 descriptarum. *Ann. Bot. Syst.* 5.
- Nees ab Esenbeck, C.G. 1847. Acanthaceae. In: de Candolle, A. (ed.), *Prodromus systematis naturalis regni vegetabilis* vol. 11, pp. 46–519. Masson, Paris.
- Oersted, A.S. 1855. Mexico og Centralamerikas Acanthaceer. *Vitensk. Meddel. Dansk Naturhist. Foren. Kjøbenhavn* 1854: 113–181.
- Persoon, C.H. 1806. *Synopsis Plantarum* vol. 2(1). Tübingen.
- Poiret, J.L.M. 1804. *Encyclopédie Méthodique. Botanique* vol. 6(1). Paris and Liège.
- Schwartz, O. 1939. Flora des tropischen Arabien. *Mitt. Inst. Allg. Bot. Hamburg* 10.
- Tripp, E.A., Daniel, T.F., Fatimah, S. & McDade, L.A. 2013. Phylogenetic relationships within Ruellieae (Acanthaceae) and a revised classification. *Int. J. Plant Sci.* 174: 97–137.
- Vahl, M. 1790. *Symbolae Botanicae, sive plantarum tam earum quas in itinere imprimis orientali collegit Petrus Forskål* vol. 1. Copenhagen.
- Wood, J.R.I. 1997. *A handbook of the Yemen Flora*. Royal Botanic Gardens, Kew.

