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Notes on African plants

VARIOUS AUTHORS

COLCHICACEAE

FIRST RECORD OF *GLORIOSA SESSILIFLORA* IN ANGOLA

INTRODUCTION

The genus *Gloriosa* L. was proposed by Linnaeus in 1737 and validated in 1753 (Linnaeus 1753). The type species for the genus is *G. superba* L., described from a specimen collected in southwest India (Malabar, present-day Kerala and part of Tamil Nadu). During the next ± 260 years, a further 40 species of *Gloriosa* were described (IPNI 2012), although the majority were subsequently reduced to synonymy. The most recently described species of *Gloriosa* is *G. sessiliflora* Nordal & Bingham (Nordal & Bingham 1998), a paper where the generic delimitation between *Gloriosa* and *Littonia* Hook. was first questioned. The connivent tepals of *G. sessiliflora* are similar to those of *Littonia*, although the colour, shape and undulation of the tepals strongly resemble those of some forms of *G. superba* (Nordal & Bingham 1998). The slightly bent style of *G. sessiliflora* also appears to be an intermediate trait.

The genus *Littonia* (Hooker 1853) differs from *Gloriosa* in its straight, not bent style and connivent, not reflexed tepals (Nordal & Bingham 1998), but there are many similarities between the two genera. Both have tuberous corms (Buxbaum 1937; Dyer 1976; Thulin 1995; Demissew 1997; Nordenstam 1998), their leaves frequently develop tendril-like tips (Queva 1899; Dyer 1976; Thulin 1995; Demissew 1997; Nordenstam 1998) and colchicine occurs in both (Hegnauer 1963; Wildman & Pursey 1968; Raffauf 1970; Vinnersten & Larsson 2010). Queva (1899) also noted that crystals of calcium oxalate were lacking in both *Gloriosa* and *Littonia*. The pistils of *Gloriosa* and *Littonia* are generally tricarpellate and alike (Sterling 1975). Because of such a series of resemblances, most investigators have been inclined to treat these genera as being closely related and have placed them in the same tribe (e.g. Krause 1930; Hutchinson 1934, 1959; Buxbaum 1936; Nordenstam 1982, 1998). Recent molecular phylogenetic studies on family Colchicaceae using three non-coding sequences from cpDNA retrieved a well-supported clade (100% jacknife support) in which *Littonia* species were nested among *Gloriosa* species (Vinnersten & Reeves 2003). Consequently, the genus *Gloriosa* has been expanded by including *Littonia* (Vinnersten & Manning 2007), rendering it monophyletic. The genus Gloriosa (including *Littonia*) is now classified as a member of the tribe Colchiceae (Vinnersten & Manning 2007).

This paper reports on the presence of *G. sessiliflora* in the Bié Province, central Angola. *Gloriosa sessiliflora* was described as endemic to Western Zambia (Nordal & Bingham 1998). The second known set of specimens (*Bingham* 12717) were collected in 2003 in Lealui, in the vicinity of the type locality (Figure 1). During a taxonomic revision of the genus *Gloriosa* (Maroyi 2012), which started with examination of material in the National Herbarium of Zimbabwe (SRGH), it became clear that among material referred to *G. superba* L., was material matching the type of *G. sessiliflora* (Figure 2). Here I present an expanded description and distribution notes for *G. sessiliflora* and a photograph of the specimen collected in the Bié Province, central Angola.

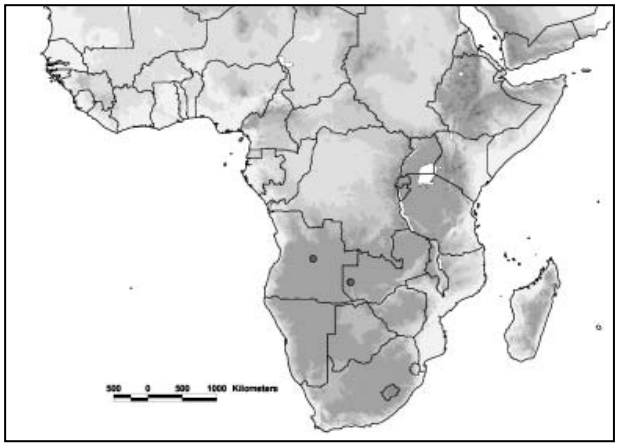

Figure 1.—Distribution of *Gloriosa sessiliflora* based on georeferenced herbarium specimens.

TAXONOMY

Gloriosa sessiliflora *Nordal & Bingham*, in Kew Bulletin 53: 479–482 (1998). TYPE: Zambia, Western Province. Mongu District, Bulozi floodplain, ± 2 km W of Lealui, 1 000 m, 9 Dec. 1995, *Bingham & Luwiika 10752* (K, holo.; MRSC, O, WAG!, iso.).

Perennial herb, corm tuberous, 2-pronged, L or V-shaped, covered with brown tunics, 50 mm long, 10–20 mm in diameter; roots fibrous. *Stem* erect, up to 1 000 mm tall, simple at flowering but later branching from below inflorescence, with numerous whorled leaves in upper two-thirds. *Leaves* sessile, entire, base sheathing stem with tubular sheath protracted or not protracted into leaf blade, blade lanceolate with cirrhose apex with prominent midrib, 70–130 × 15–25 mm wide. *Flowers* suberect to slightly spreading, sessile, 2–8 per stem, solitary or paired in leaf axils near stem apex, funnel-shaped, tepals connate at base into short tube up to 4 mm long, glabrous, narrowly ovate, slightly undu-

late, 35–40 × 10–15 mm long, with prominent midrib, yellowish orange near base but reddish distally, nectariferous, obscurely saccate and pouched at base often with white hairs. *Stamen* filaments filiform, 16–31 mm long, yellowish, anthers 6 mm long, orange, versatile, dehiscence latrorse. *Ovary* oblong, 5–9 × 2–4 mm wide; style slightly bent, suberect, 23–26 mm long, stigma 3-branched, branches 3 mm long. *Fruits and seeds* not seen.

Diagnosis: *G. sessiliflora* is distinguished from all other *Gloriosa* species by the sessile, suberect or slightly

Figure 2.—*Gloriosa sessiliflora, Meudes dos Santos 1968* (SRGH). Photograph: L.J.G. van der Maesen.

spreading flowers, all other species having pendulous flowers on long pedicels.

Distribution and ecology: *Gloriosa sessiliflora* is now known from three collections, extending its western distribution limit in Bulozi floodplain, Zambia to the Bié Province, central Angola (Figure 1). In western Zambia, *G. sessiliflora* grows in open woodland, about 1 000 m altitude. It has been recorded in *Syzygium* forest, flood plain termite mounds, and sand banks with riverine forest in Zambia. In Angola, it has been recorded in sandy soils. Mature flowers have been collected between October and December.

IUCN conservation status: IUCN conservation status of *G. sessiliflora* was assessed using herbarium specimen data. According to Rivers *et al.* (2011) and Willis *et al.* (2003), herbarium data can be used to determine IUCN categories of threat using criterion B (geographic range) and the number of locations as criterion D2 (small or restricted populations). According to Schatz (2000), herbarium specimens and their associated locality information must be accepted as sufficient for performing provisional IUCN conservation assessment on poorly known species. To qualify as threatened, a species must be assessed as CR, EN or VU (Willis *et al.* 2003). *G. sessiliflora* is represented by less than five accessions from both Angola and Zambia, mainly from unprotected areas. The lack of collections of *G. sessiliflora* in Angola since the first collection in the Bié Province in 1965 justifies the inclusion of the species in the IUCN Red List of threatened species in Angola. It is probable that because of severe urban transformations in the Bié Province, the species no longer exists there. Therefore, the vulnerable (VU D2) status is recommended for the species. Previously, the species was categorized as vulnerable, VU D2 (Bingham & Smith 2002), mainly because it was only known from the type locality, characterized by very small and restricted population. The taxon might be transferred to a lower category if more populations are found.

Specimens examined

ANGOLA.—(no grid): Bié Province, 6 Oct. 1965 (fl.), *Meudes dos Santos* 1968 (SRGH).

ZAMBIA.—(no grid): Western Province. Mongu District, Bulozi floodplain, Lealui, 1 022 m, 1 Dec. 2003, *Bingham* 12717 (K).

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