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Anisotes tablensis (Acanthaceae), a New Species from Southwestern Madagascar

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Anisotes tablensis **is described as a new species from an arid region of southwestern Madagascar. It is one of seven species of the genus now known from Madagascar, and it differs from its Malagasy congeners by the following combination of characters: leaves coriaceous to subsucculent, sessile to subsessile, blades 4–23 mm long and 1.4–3 mm wide; bracteoles absent; calyx 6–7 mm long; and corolla externally pubescent with glandular and eglandular trichomes, the lobes of the lower lip 2.5–3.5 mm long. Some of these characters are shared with species from arid regions of southern Madagascar, whereas others are shared with species from less arid regions of northern Madagascar. The conservation status of this apparently rare species is assessed provisionally as Data Deficient.**

KEYWORDS: *Anisotes*, Madagascar, endemic species, conservation, pollen, floristics

Since Baden's (1981) revision of it, the Paleotropical genus *Anisotes* Nees has been the subject of several recent studies in Africa (Vollesen 2010, 2015), Madagascar (Daniel et al. 2007, 2013), and the Comoros Archipelago (Daniel 2014). Thirty species are currently recognized in the genus; they occur in mainland Africa (21), the Arabian Peninsula (1), Socotra (1), Madagascar (6), and the Comoros Archipelago (2). All six of the Malagasy species are endemic to that island nation, and most of them appear to be local in occurrence. A seventh locally endemic species is herewith added to the known flora of Madagascar. Although it is from an arid region in southern Madagascar, and shows significant affinities to the two other species of *Anisotes* known from nearby regions, the new species also shows some features in common with congeners from less arid regions in the northern part of the country.

Anisotes tablensis T.F. Daniel, sp. nov.

TYPE. MADAGASCAR: **Toliara**: La Table, ca. 20 km N [*sic*] of Toliara, slope and along ridge, 23°25′26″S, 043°46′03″E, 50–120 m, 19 May 2004 (flr), *Z. Rogers et al. 483* (holotype: K!; isotype: MO!). Figures 1, 3.

Divaricately branched shrubs to 4.5 dm tall. Young stems hexagonal, evenly and densely pubescent with a whitish, felt-like covering of antrorsely appressed eglandular trichomes to 0.1 mm long, epidermis not visible, trichomes soon ± restricted to troughs of internodes. Leaves sessile to subsessile, petioles (if present) to 2 mm long, coriaceous, blades oblong to oblanceolate, 4–23 mm long, 1.4–3 mm wide, 2.9–10.5 × longer than wide, gradually attenuate at base, rounded at apex, surfaces pubescent like young stems, margin flat. Inflorescence of axillary or terminal sessile short spikes (usually only 2 fertile bracts per spike) to 9 mm long (excluding corollas), distal

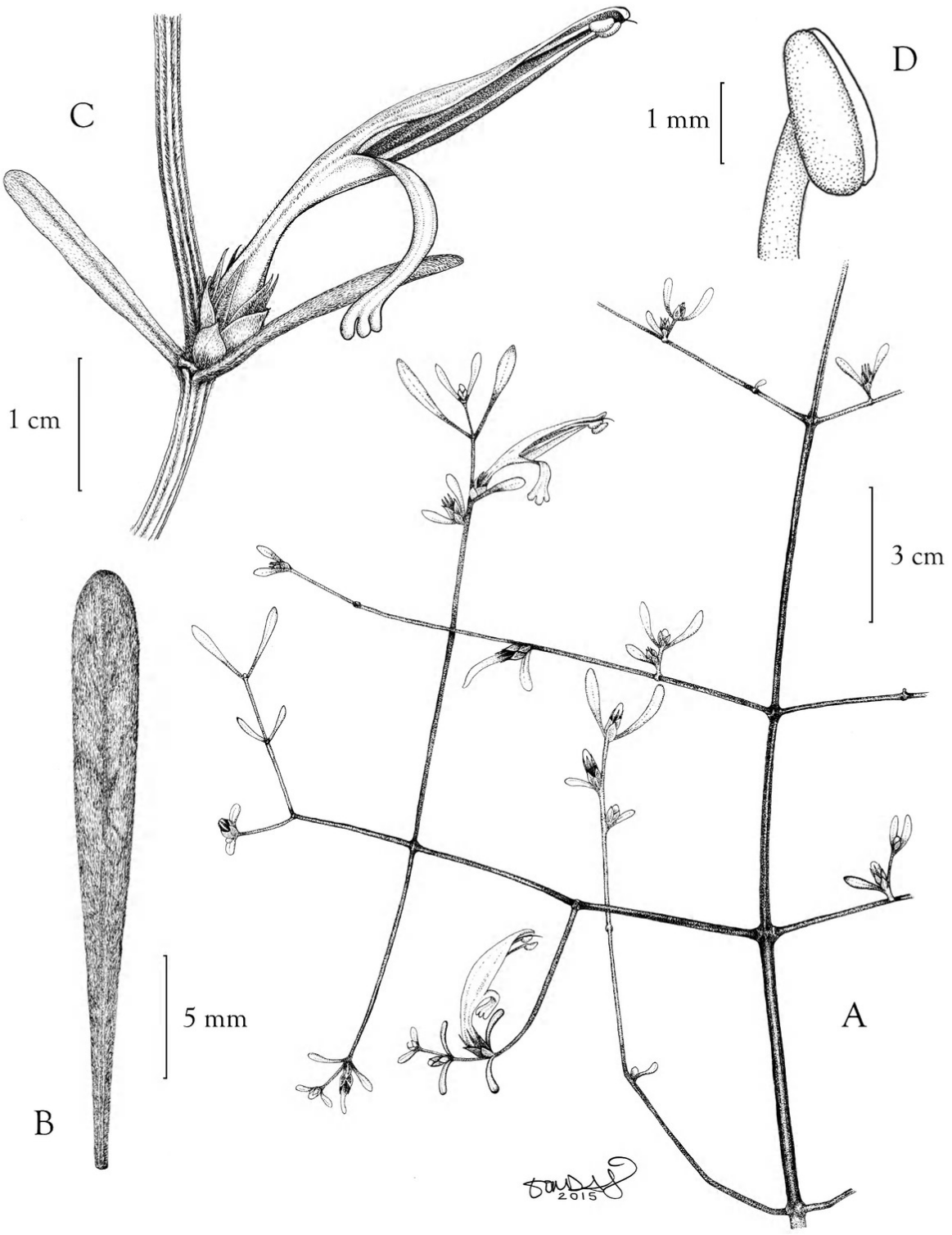

FIGURE 1. *Anisotes tablensis* (*Rogers et al. 483*). A. Habit. B. Leaf. C. Node with axillary inflorescence bearing a flower. D. Distal portion of stamen with anther. Drawn by Tom Davis.

bracts fertile, elliptic, 4.5–5 mm long, 3.6–4 mm wide, apex rounded to obtuse-truncate, abaxial surface puberulent with antrorsely appressed eglandular trichomes to 0.1 mm long and erect trichomes < 0.05 mm long, margin ± hyaline, proximal bracts sterile and smaller than distal ones. Bracteoles absent. Calyx 5-lobed, 6–7 mm long, lobes oblong-lanceolate, 5–6 mm long, 1–1.2 mm wide, abaxial surface pubescent like bracts (or with antrorsely-appressed eglandular trichomes few or absent). Corolla pinkish red, 27–35 mm long, externally pubescent with erect glandular and flexuose to retrorse eglandular trichomes 0.1–0.2 mm long, tube 12–15 mm long, corolla tube length: corolla length = 0.44–0.49, upper lip 17–21 mm long, lower lip 18–19 mm long with lobes 2.5–3.5 mm long. Stamens 20–23 mm long, filaments pubescent proximally with erect glandular trichomes 0.1–0.2 mm long, glabrous distally, thecae 2–2.3 mm long, glabrous, pollen 3-colporate, 6-pseudocolpate (the two pseudocolpi in one or more mesocolpia sometimes fused near one or both poles), 39–41 μm polar diameter (P), 26–30 μm equatorial diameter (E), P:E = 1.37–1.50. Style 28–32 mm long, glabrous, stigma equally 2-lobed, lobes 0.2 mm long. Capsule not seen.

Phenology.—Flowering: May.

Distribution and habitat.—Endemic to southwestern Madagascar (Toliara) where plants occur in the arid thornscrub on soils derived from decomposed coral (sometimes referred to as "coral rag scrub") at an elevation between 50 and 120 meters (Fig. 2).

Conservation assessment.—Because *A. tablensis* is known from a single, relatively recent collection from a population that was not observed during this study, it is difficult to assess its conservation status according to IUCN (2014) guidelines. Based on IUCN criteria for the threatened categories, *A. tablensis* likely has both EOO and AOO (criteria B1 and B2) sufficient for Critically Endangered status, but only one (i.e., one known location; i.e., criterion Ba) of two conditions required for assessment in that category. The only known collection does not occur in a locality that is protected. Lacking further data, this apparently rare species must be provisionally assessed as Data Deficient.

Anisotes tablensis is known only from the type collection. It is the third species of the genus known from the dry regions of southwestern Madagascar. The geographic coordinates given on the

Figure 2. La Table in southwestern Madagascar (looking westward toward Mozambique Channel), habitat of *Anisotes tablensis*. Photo by the author.

label of the type are about 2 km southwest of the prominent local mesa-like physiographic feature known as La Table (Fig. 2), from which the epithet is derived. La Table (23°24′32.40″S, 43°46′51.73″E) is a well-known collecting locale in a region of Tertiary limestone about 12 km southeast of the city of Toliara (Tulear) and home to a large number of Acanthaceae. It is also a popular birdwatching site where several rare birds, including the Red-shouldered Vanga (*Calicalicus rufocarpalis*) and Verreaux's Coua *(Coua verreauxi*), are often observed. Given its accessibility, it is surprising that undescribed species are still being found on its slopes and ridge. Two other species of *Anisotes*, *A. divaricatus* T. F. Daniel, Mbola, Almeda & Phillipson and *A. madagascariensis* R. Ben., occur in nearby regions (Daniel et al. 2007), but neither is known from the vicinity of La Table. These three species can be distinguished by the following key:

1a. Leaves sessile to subsessile, petioles (if present) to 2 mm long, blades 1.4–3 mm wide, length:width = 2.9–10.5; calyx 6–7 mm long; corolla externally pubescent with glandular and eglandular trichomes throughout, lobes of lower lip 2.5–3.5 mm long . . . . . *A. tablensis*

1b. Leaves petiolate, petioles to 12 mm long, blades 4.5–38 mm wide, length:width = 0.7–2.7; calyx 1.3–3.5 mm long; corolla externally glabrous or occasionally with a few eglandular trichomes proximally, lobes of lower lip 8–14 mm long 2

2a. Leaf blades broadly ovate to ovate-elliptic to elliptic to broadly elliptic, 14–45 mm long; margin of calyx lobes ± densely ciliate; corolla with internal surface conspicuously lighter in color than external surface, corolla tube 9–15 mm long, corolla tube:corolla = 0.23–0.38, upper lip 20–35 mm long and distally whitish to pinkish along margin, lower lip spirally coiled, 18–28 mm long, lobes 12–14 mm long; stamens 26–33 mm long; capsule pubescent with flexuose to antrorse eglandular trichomes 0.05–0.1 mm long . . . . . *A. madagascariensis*

2b. Leaf blades broadly obovate to subcircular to obcordate to obdeltate to oblate, 5–14 mm long; margin of calyx lobes eciliate to sparsely ciliate; corolla with internal surface not conspicuously lighter in color than external surface, corolla tube 14–20 mm long, corolla tube:corolla = 0.46–0.56, upper lip (11–) 14–18 mm long and lacking a pale margin distally, lower lip recurved to reflexed (not spirally coiled), 11–19 mm long, lobes 8–12 mm long; stamens 15–18.5 mm long; capsule ± rugose-granulate but lacking noticeable eglandular trichomes . . *A. divaricatus*

All three of the species of *Anisotes* from southern Madagascar lack bracteoles and have coriaceous to subsucculent leaves, bracts lacking reticulate venation (or with venation not evident), and similar 3-aperturate pollen. They would appear to pertain to Baden's section *Spiciflori* (Baden 1981; Daniel et al. 2007). Pollen of *A. tablensis* (Fig. 3) greatly resembles that of both *A. madagascariensis* and *A. divaricatus* from southern Madagascar, except for its somewhat smaller polar diameter (39–41 vs. 62.5–7 μm). The four species from northern Madagascar (*A. hygroscopicus* T. F. Daniel, R. Letsara & Martín-Bravo, *A. perplexus* T. F. Daniel, R. Letsara & Martín-Bravo, *A. subcoriaceus* T. F. Daniel, R. Letsara & Martín-Bravo, and *A. venosus* T. F. Daniel, R. Letsara & Martín-Bravo; Daniel et al. 2013) show greater diversity in pollen shape and sculpturing (varying from 2- to 3-aperturate) and have membranous to subcoriaceous leaves, bracteoles, and bracts with reticulate venation evident. *Anisotes tablensis* shows greater similarities to those four species than to the other two southern ones in the following characteristics: calyx length, external pubescence of the corolla, and length of lobes of the lower lip.

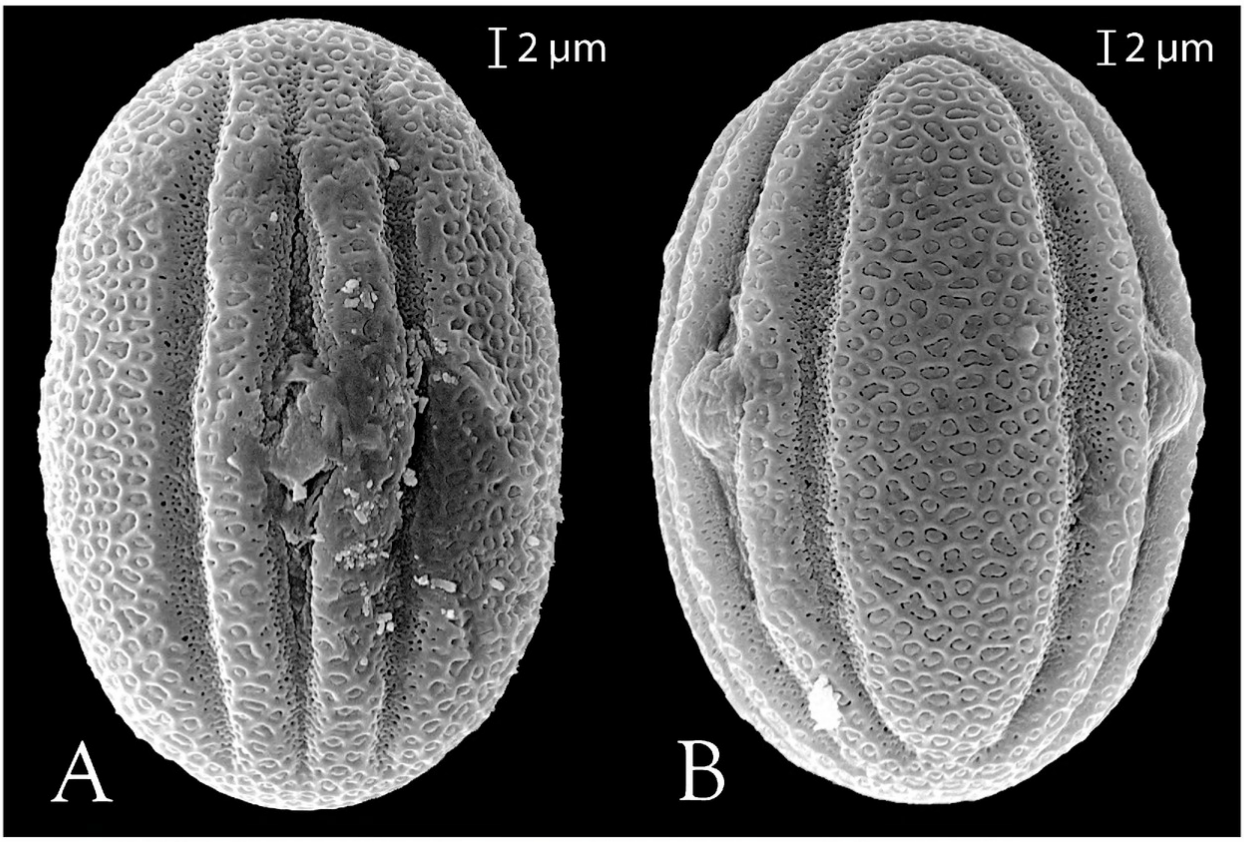

FIGURE 3. Pollen of *Anisotes tablensis* (*Rogers et al. 483*). A. Apertural view. B. Interapertural view.

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