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Author: Hedrén, Mikael

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MIKAEL HEDRÉN

New species and combinations in *Acanthaceae* from Somalia

Abstract

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Six species from Somalia, *Barleria albomarginata, B. dentata, B. glaucobracteata, B. ilicifolia, Hypoestes cinerea* and *Justicia carnosa,* are described as new to science, *J. arenaria* is proposed as a new name for *J. ovalifolia* var. *psammophila* and the new combination *B. brevispina* is proposed for *B. linearifolia* var. *brevispina*.

Key words: *Barleria, Hypoestes, Justicia,* taxonomy, Horn of Africa region.

During revisional work in various genera of *Acanthaceae* for the Flora of Somalia project, six previously undescribed species were encountered. They are formally published here, along with a new name and a new combination at species level for taxa previously treated as varieties. The species are arranged in the same sequence as they have in the Flora (Hedrén in Thulin 2006).

Justicia arenaria Hedrén, **nom. & stat. nov.** ≡ *Justicia ovalifolia* var. *psammophila* Fiori in Boll. Soc. Bot. Ital. 1915: 57. 1915.
Holotype: Somalia, between Mogadishu and Gezira by the sea, 25.5.1913, *Paoli 61* (FT).

Justicia arenaria is known only from coastal sand dunes at 10-40 m altitude in southern Somalia. It is closely related to the widespread and variable *J. flava* (Vahl) Vahl, but differs by its almost orbicular, thick and somewhat succulent leaves. Progeny from *Hedberg 7143* (UPS) cultivated in the Botanical Garden of Uppsala University also developed suborbicular, thick and succulent leaves, showing that these characters are genetically determined.

The species has previously often been recognized as *Justicia ovalifolia* Fiori (e.g., by Cufodontis 1964: 973). The type material of *J. ovalifolia* is also from near Mogadishu in southern Somalia and has relatively broad, ovate leaves. However, the leaves are thin and herbaceous, and the material is no more than a modification of *J. flava*. The epithet *"psammophila"* cannot be used for the thick-leaved dune plant at species level because of the existence of *J. psammophila* Mildbr.

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Justicia carnosa Hedrén, **sp. nov.**
Holotype: Somalia, 2 km from Mogadishu airport on road to Gezira, 1°59'N, 45°15'E, 4.5.1990, *Thulin & Hedrén 7167* (UPS; isotypes FT, K).

Species nova *Justiciae debili* (Forssk.) Vahl affinis, a qua floribus minoribus corolla 5-7.7 mm longa et foliis rotundatis carnosis apice saepe emarginatis differt.

Perennial herb, branched from the base with ascending stems up to c. 15 cm tall and up to 3 mm in diameter at base; young *stems* greyish green, very densely pubescent with 0.15-0.3 mm long erect to slightly retrorse hairs, old stems greyish. *Leaves* green, veins not prominent, densely pubescent with 0.15-0.3 mm long, spreading hairs; *blade* succulent, obovate to orbicular, up to 10 × 12 mm, base attenuate to shortly attenuate, apex obtuse to emarginate; *petiole* up to 4 mm long. *Flowers* single or few together in sessile clusters in upper leaf axils, rarely opposite; *bracts* leaf-like, up to 5.5 × 5 mm, without long hairs along margins; *bracteoles* inconspicuous. *Calyx lobes* 5, narrowly triangular, with a thin yellowish margin, very densely pubescent with c. 0.1 mm long, erect, glandular and eglandular hairs, c. 3.5-3.8 × 0.3-0.5 mm in flower, up to 4.6 × 0.6 mm in fruit. *Corolla* pink with purplish markings at lower lip near throat, 5.7-7 mm long; tube up to 4-5.2 mm long; upper lip 2.6-4 mm long; lower lip 3-4 mm long and 4.2-6 mm wide. *Stamens* with free part of filaments 3.5-3.7 mm long; *anthers* greenish, 1.2-1.5 mm long, cells displaced by 0.2-0.3 mm, tail of lower cell c. 0.5 mm long. *Capsule* 2-seeded, up to 5.6 × 2.3 mm, greenish, densely pubescent with 0.2-0.3 mm long, slightly retrorse, eglandular hairs. *Seeds* blackish, smooth and flattened, up to 2.2 mm in diameter.

Distribution and habitat. – Known only from the type collection from southern Somalia, where it grows on open coastal dunes with white sand at c. 5-10 m altitude.

Justicia carnosa belongs to *J.* sect. *Monechma,* which is characterized by its usually 2-seeded capsules with smooth, flattened seeds. Two further members of the section are present in Somalia, the perennial *J. debilis* (Forssk.) Vahl and the annual *J. bracteata* (Hochst.) Zarb.

Justicia debilis and other perennial members of the section are closely related to each other and may be regarded as a complex, within which several more or less well differentiated, allopatric regional populations may be distinguished, some of which may be recognized as full species, such as *J. carnosa*. All members of the complex are protandrous with stamens bending out of the corolla at the female stage (Hedrén 1989: 31). The species in the complex differ mainly in habit, plant size, corolla size and in the indumentum of the bracts. *J. debilis* in a strict sense is characterized by its herbaceous leaves with obtuse to acute apex, flowers with 9-11 mm long corolla, discrete axillary spike-like inflorescences and bracts usually with a dense, whitish indumentum of up to c. 1 mm long, thin (c. 0.03 mm wide), patent hairs along the margin. In Somalia it is restricted to the northern provinces and it sometimes approaches *J. carnosa* in having few-flowered inflorescences and non-ciliate bracts. However, *J. carnosa* is still distinct by its rounded, succulent leaves, often emarginate at the apex, and by its small flowers with the corolla only 5.7-7 mm long.

Justicia bracteata differs from *J. carnosa* by being an annual weed of cultivated and disturbed areas and is characterized by having autogamous flowers arranged in many-flowered axillary spikes, which may be lax, branched at lower nodes and confluent, forming a compound spike in the upper part of the stem, and by having bracts with a conspicuous whitish indumentum of up to 2 mm long, thick (c. 0.05-0.1 mm wide), patent hairs along the margin.

Hypoestes cinerea Hedrén, **sp. nov.**
Holotype: Somalia, Mudug Region, 15 km N of Hobyo on road to Jirriiban, 5°27'N, 48°32'E, 28.5.1989, *Thulin & Abdi Dahir 6647* (UPS; isotype K).

Species nova *Hypoesti forskaolii* (Vahl) R. Br. affinis, a qua indumento cinereo densissimo pilis brevibus appressis et foliis late ovatis differt.

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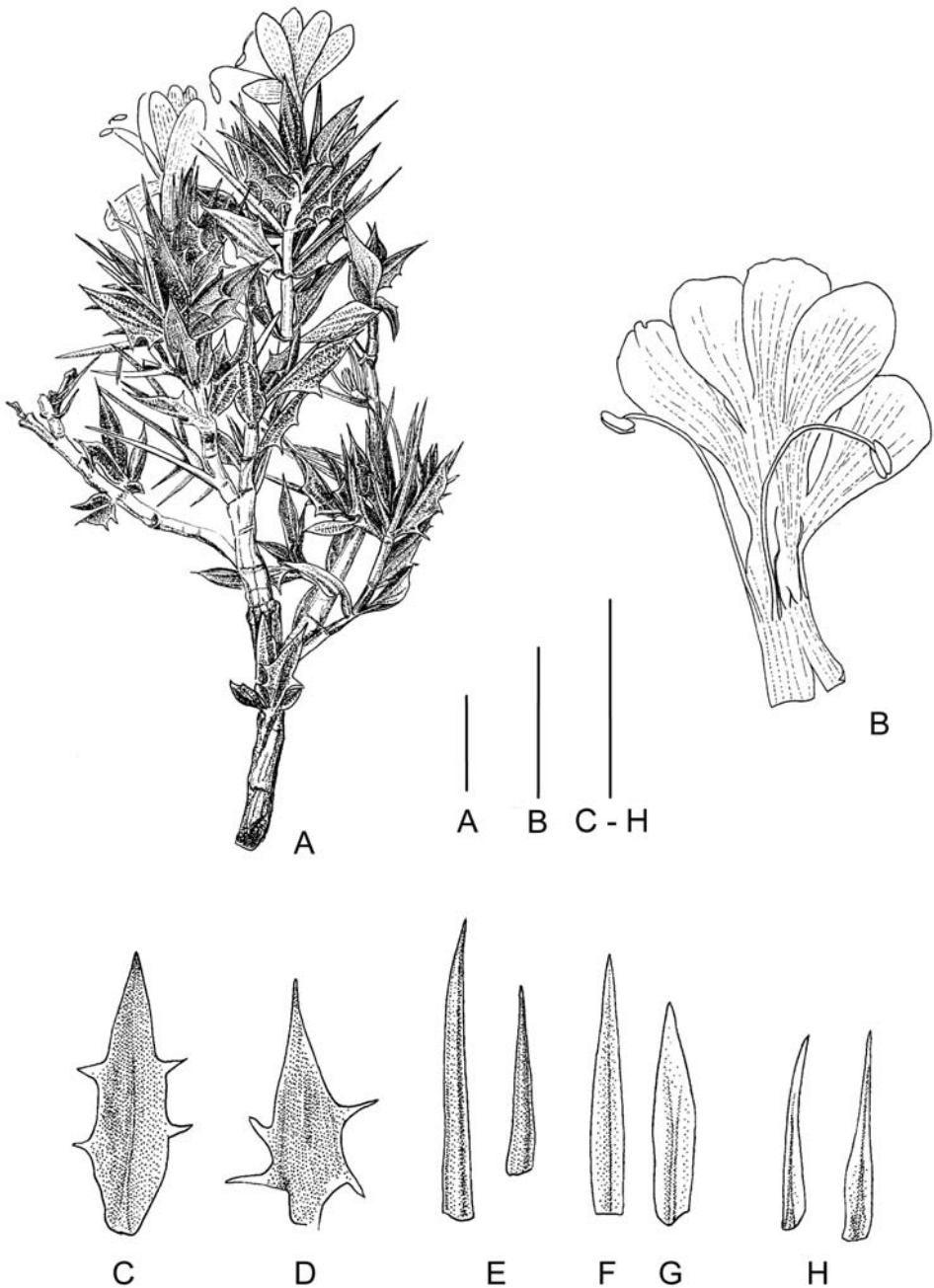


Fig. 1. *Barleria dentata* – A: portion of flowering plant; B: corolla opened out; C: leaf; D: bract; E: bracteoles; F: upper calyx lobe; G: lower calyx lobe; H: lateral calyx lobes. – All drawn after *Thulin & al. 10115* (UPS).

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Perennial herb or shrublet, 25-30 cm tall, sparsely branched with ascending stems; vegetative parts bluish grey with a very dense indumentum of appressed, c. 0.1 mm long, eglandular hairs. *Leaf blades* ovate, up to 15-21 × 10-15 mm, apex obtuse, base shortly attenuate; *petiole* c. 1-2 mm long. *Flowers* in 3-6 cm long, unidirectional, olive green spikes (zig-zag monochasia) clustered in upper parts of stems; inflorescence leaves densely pubescent with c. 0.3 mm long, spreading, eglandular and glandular hairs; *bracts* narrowly oblanceolate, obtuse, green, with indumentum as inflorescence leaves, fused for about half their length, 7-9 mm long; *bracteoles* linear-lanceolate, acute, c. 7.3 mm long. *Calyx lobes* narrowly triangular-subulate, thin, hyaline with green veins, partly connate, c. 7 × 0.7 mm in flower. *Corolla* purple, c. 20 mm long; tube narrowly cylindrical, twisted, somewhat widened in the upper portion, c. 11 mm long; larger lip c. 9 × 5.5 mm; smaller lip entire, acuminate, c. 7.3 mm long. *Stamens* with the free part c. 7.3 mm long, fused to the corolla tube for 10.5 mm at the base; *anthers* 1-celled, purplish, c. 1.5 mm long. *Style* c. 14.5 mm long; *stigma lobes* equal, c. 0.3 mm long; *ovary* c. 4.5 mm, densely pubescent with c. 0.3 mm long erect to somewhat retrorse hairs in the upper part. *Capsule* c. 8 × 1.8-2.2 mm, densely pubescent with c. 0.2 mm long patent hairs, sterile in lower third. *Seeds* black, shining, c. 2 mm in diameter.

Additional specimens seen. – Somalia: Mudug Region: Cutline, 4 km from the sea, 5°58'N, 48°54'E, 28.5.1979, *Gillett, Hemming & Watson 22147* (K); 7 km SW Hobyo, 12.7.1987, *Wieland 4725* (K).

Distribution and habitat. – Known only from the coastal strip around Hobyo in central Somalia, where it is locally common in grassland on sand at 25-30 m altitude.

Hypoestes cinerea is apparently closely related to the variable *H. forskaolii* (Vahl) R. Br., which is widespread in much of tropical and southern Africa, and in tropical Arabia. However, it differs from all forms of *H. forskaolii* by having a bluish grey colour from a very dense indumentum of short, appressed hairs, and by its broadly ovate leaves. Broad-leaved forms of *H. forskaolii* tend to be glabrous or almost so, and forms from Somalia that somewhat approach *H. cinerea* in their indumentum have considerably narrower leaves.

Barleria dentata Hedrén, **sp. nov.**
Holotype: Somalia, Bari Region, 20 km SE of Ufeyn, 10°31'N, 49°50'E, 3.1.2000, *Thulin, Abdi Dahir & Ahmed Osman 10115* (UPS; isotypes FT, K). – Fig. 1.

Species nova a *Barleria acanthoide* Vahl foliis grosse dentatis et calyce non scarioso lobis externis lanceolatis differt.

Shrub up to 40-50 cm tall, much branched, almost completely glabrous, occasionally with a few c. 0.3 mm long hairs at nodes, etc.; young *stems* greyish green, old stems grey. *Leaf blades* with coarse, spine-like teeth, narrowly lanceolate with white margin, greyish green on both sides, up to 13-15 × 6-7 mm including up to 3-5 mm long apical tooth and 1-2 pairs of up to 1.5 mm long lateral teeth, apex mucronate, base attenuate; *petiole* indistinct. *Flowers* solitary or in short scorpioid cymes in leaf axils; *bracts* leaf-like; *bracteoles* unequal, mostly transformed into up to 17 mm long spines, occasionally with a few short lateral spines. *Calyx* not scarious; 2 outer lobes similar, narrowly lanceolate, up to 13 mm long, with 3-4 mm long apical spine, sometimes with few short sublateral teeth; 2 inner lobes narrowly lanceolate, transformed into spines, up to 8 mm long. *Corolla* white, turning blue on drying, c. 20 mm long; tube c. 9 mm long. *Stamens* 2, with 2-celled anthers; *staminodes* 3. Ripe *capsules* not seen.

Additional specimens seen. – Somalia: Bari Region: 10°31'N, 49°51'E, *Beckett 575* (K); between Bosaso and Iskushuban, 10°27'N, 49°47'E, *Gillett 23051* (K); 42 km on road from Iskushuban to Bosaso, 26.11.1985, *Thulin & Warfa 5567* (K, UPS); near Scusciuban, *Hemming 1845* (K); ibid., *Popov 57/12* (K).

Distribution and habitat. – Known only from northeastern Somalia, where it grows on semidesert alluvial plains at 300-440 m altitude.

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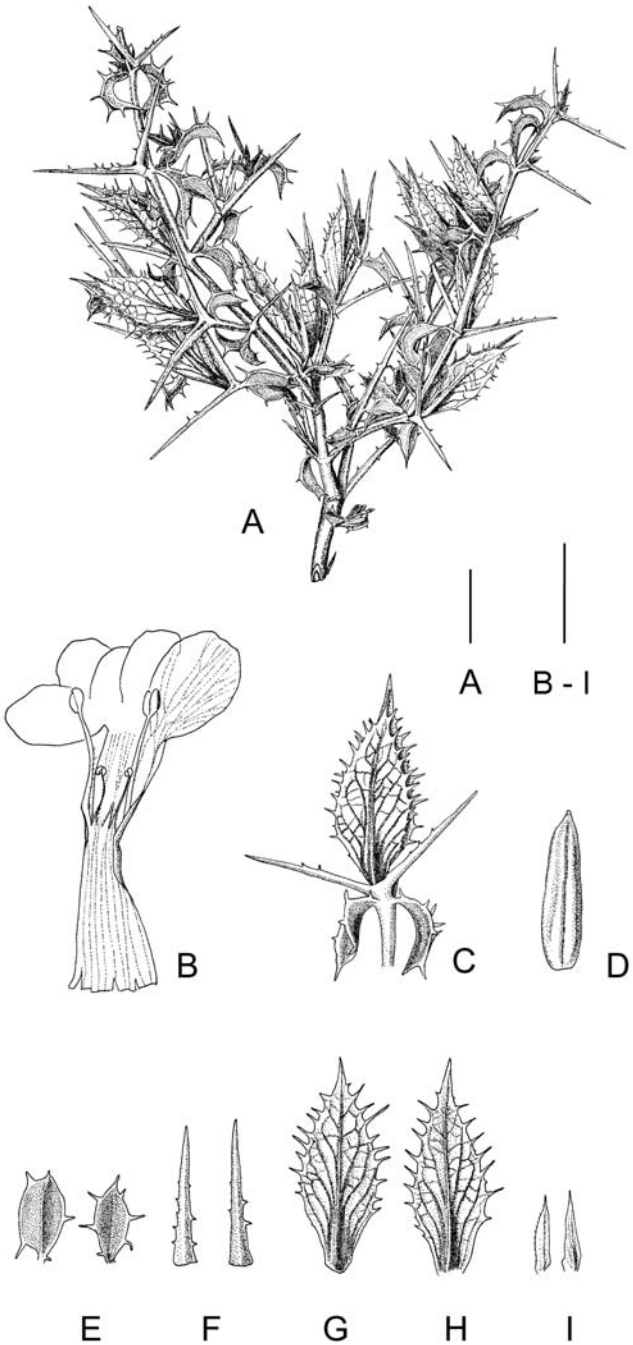


Fig. 2. *Barleria albomarginata* – A: portion of flowering plant; B: corolla opened out; C: bracts, bracteoles and calyx; D: capsule; E: bracts; F: bracteoles; G: lower calyx lobe; H: upper calyx lobe; I: lateral calyx lobes. – All drawn after *Thulin & al. 10173* (UPS).

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The available material is very homogeneous and distinct. *Barleria dentata* is probably related to *B. acanthoides* Vahl, but differs clearly in the leaves with coarsely dentate margins and in the non-scarious calyx with narrowly lanceolate outer lobes. In *B. acanthoides* the leaves are entire and the calyx is scarious with ovate outer lobes. *B. dentata* is somewhat similar to *B. albomarginata* Hedrén in the dentation of the leaves, but is clearly distinct in the non-scarious calyx with narrowly lanceolate outer lobes, and by having white flowers often arranged in axillary scorpioid cymes.

Barleria albomarginata Hedrén, **sp. nov.**
Holotype: Somalia, Bari Region, Cal Miskaat, N of Dasan in Dal lo'ad area, 11°13'N, 49°49'E, 7.1.2000, *Thulin, Abdi Dahir & Ahmed Osman 10173* (UPS; isotype K). – Fig. 2.

Species nova *Barleriae paolii* Fiori affinis, a qua foliis albomarginatis dentatis differt.

Shrub up to 50-60 cm tall, much branched; young *stems* green, densely pubescent with c. 0.2 mm long, patent to spreading hairs, old stems greyish. *Leaves,* including those of axillary shoots, ovate with conspicuous white margin, pungent, up to 10-15 × 7-10 mm, including up to 2 mm long apical spine and 2-4 pairs of equally long lateral spines, green above, paler beneath, moderately pubescent with somewhat antrorse, up to 0.2 mm long hairs mostly at veins and margins, base attenuate; *cystoliths* in tandem pairs, each up to 0.2 mm long; *petiole* indistinct, up to c. 2 mm long. *Flowers* solitary in leaf axils; *bracts* leaf-like; *bracteoles* with no or reduced lamina, transformed into up to 20-28 mm long spines with about 3-4 pairs of c. 1-1.5 mm long lateral spines. *Calyx* scarious; 2 outer lobes similar, whitish with prominent green veins, lanceolate to narrowly ovate, up to 18-20 × 5-11 mm long, margin with apical spine and several pairs of lateral thin spines up to c. 1.5 mm long; 2 inner lobes narrowly triangular-lanceolate, up to c. 6 mm long. *Corolla* blue, rarely white and turning blue on drying, 26-39 mm long; tube 19-24 mm long. *Stamens* 4, with 2-celled anthers; *staminode* 1. *Style* c. 33 mm long. *Capsule* 4-seeded with a short beak, up to 12 mm long, glabrous.

Additional specimens seen. – SOMALIA: without precise locality, *Drake-Brockman 518* (K). – WOQOOYI GALBEED REGION: Ga-an Libah, *Bally 11705* (K). – SANAAG REGION: Dayaha, 15 mls WSW Erigavo, *Bally 11191* (K); 15 km N Erigavo, 10°47'N, 47°24'E, *Hemming & Watson 3211* (K); Karin Hora Tiro, 10°57'N, 48°44'E, *Newbould 950* (K); Kar Karin Xagarod, 10°58'N, 48°52'E, 9-11.1.1995, *Thulin, Abdi Dahir & Abdisalam Hassan 8961* (UPS). – BARI REGION: Assah, 11°20'N, 49°49'E, *Newbould 1072* (K); Cal Miskaat, between Toh and Bahaya area, 11°18'-11°24'N, 49°49'-49°50'E, 26.11.1986, *Thulin & Warfa 6060* (UPS).

Distribution and habitat. – Widespread along the escarpment of northern Somalia, where it grows in evergreen bushland with *Buxus, Juniperus, Olea, Pistacia,* etc., in stony or rocky places on limestone at 1350-1950 m altitude.

The available material is very uniform. *Barleria albomarginata* is probably related to *B. paolii* Fiori in southern Somalia, Ethiopia and Kenya, but differs in its dentate leaves with white margin (not entire with green margin). It resembles *B. dentata* in the leaves, but differs from this by its scarious calyx and by always having solitary flowers. For differences to *B. ilicifolia,* see under the next species.

Barleria ilicifolia Hedrén, **sp. nov.**
Holotype: Somalia, Woqooyi Galbeed Region, Dukasia NW of Borama on road to Djibouti, 4.10.1954, *Bally 9950* (K). – Fig. 3.

Species nova *Barleriae albomarginatae* Hedrén arte affinis, a qua corolla alba multo longiore et calyce lobis externis majoribus bene distincta.

Shrub up to 45 cm tall, much branched from the base; young *stems* green, moderately densely pubescent with c. 0.2 mm long patent to spreading hairs, old stems greyish. *Leaves* including those

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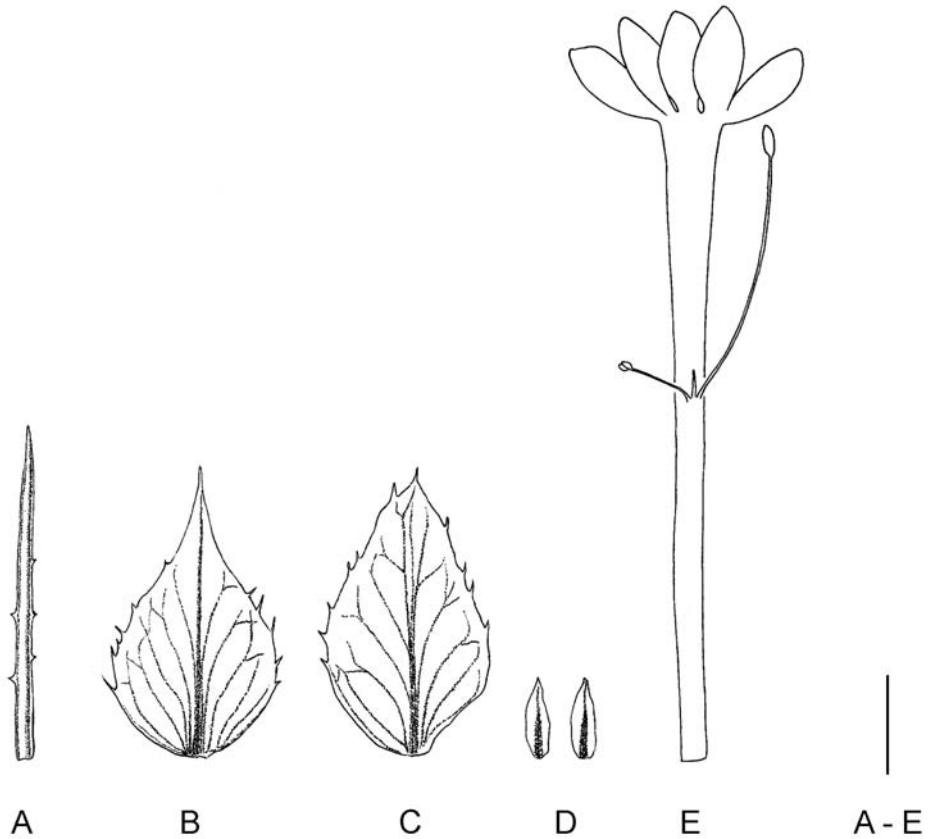


Fig. 3. *Barleria ilicifolia* – A: bracteole; B: upper calyx lobe; C: lower calyx lobe; D: lateral calyx lobes; E: corolla opened out. – All drawn after *Bally 9950* (K).

of axillary shoots ovate with conspicuous white margin, pungent, crenate, up to 20 × 10 mm, including an up to 2 mm long apical spine and 2-4 pairs of equally long lateral spines, green above, paler beneath, glabrous except for some appressed, c. 0.2 mm long hairs along veins, base attenuate; *cystoliths* in tandem pairs, each up to 0.2 mm long; *petiole* indistinct, up to c. 0.15 mm long. *Flowers* solitary in leaf axils; *bracts* leaf-like; *bracteoles* with no or reduced lamina, transformed into up to 40 mm long spines with about 2-4 pairs of lateral teeth. *Calyx* scarious; outer lobes similar, whitish with prominent green veins, ovate, up to 35 × 20 mm, upper with apex extending into a fine spine, lower with 1 or 2 bristle-like teeth at apex; margin with bristle-like teeth c. 1 mm long; inner lobes lanceolate, up to c. 6 mm long. *Corolla* white, turning blue on drying, 77-100 mm long; tube 64-90 mm. *Stamens* 4, with 2-celled anthers, inserted at about 40 mm from the base of the corolla tube, longer ones c. 27 mm long with anther c. 2.5 mm long, shorter ones up to c. 6 mm long, included in the tube; *staminode* 1, c. 2 mm long. *Style* c. 33 mm long. *Capsule* not seen.

Distribution and habitat. – Known only from the type collection from northwestern Somalia, where it grows on rocky limestone slopes at c. 1460 m altitude.

Barleria ilicifolia is closely related to *B. albomarginata,* with which it agrees in the dentate leaves with white margin. However, it differs markedly in the white (not blue) and 77-100 mm

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(not 26-39 mm) long corolla, and in the larger (up to 35 × 20 mm not up to 18-20 × 5-11 mm) outer calyx lobes.

Barleria brevispina (Fiori) Hedrén, **comb. & stat. nov.** ≡ *Barleria linearifolia* var. *brevispina* Fiori in Chiovenda, Res. Sci. Somalia Ital.: 139. 1916.
Holotype: Somalia, Bay Region, between Uenèio and Butiài, 30.7.1913, *Paoli 793* (FT).

Barleria brevispina is found in *Acacia-Commiphora* bushland, scrubland, *Sporobolus ruspolianus* grassland, etc., usually on rocky or sandy ground, at 130-1200 m altitude. It is widespread in Somalia and is also known from eastern Ethiopia and northern Kenya.

The species is clearly distinct from *Barleria linearifolia* Rendle, a species distributed in central and southern Somalia, Ethiopia and Kenya, by its up to 10-13 mm long spines on a common stalk up to 3 mm long (spines and common stalk longer in *B. linearifolia*), but is variable in size and shape of leaves and floral parts. Plants from northern Somalia are low with relatively short leaves, corolla up to c. 25 mm long and calyx up to c. 11 mm long. Most plants from central and southern Somalia are more slender and tall with leaves up to 95 mm long, corolla up to 40 mm long and calyx up to 23 mm long, but there are also plants with an intermediate appearance. Collections from Kenya and Ethiopia agree with the southern form. *B. brevispina* R. Br. is a nomen nudum without any nomenclatural status.

Barleria glaucobracteata Hedrén, **sp. nov.**
Holotype: Somalia, Gedo Region, 7-8 km S of Luuq, 1988, *Somali Medicinal Plant Project SMP 210* (UPS; isotype K).

Species nova a *Barleria linearifolia* Rendle bracteis cinereis, bracteolis linearibus margine hispidis et nodis inflorescentiarum multifloris differt.

Pungent *subshrub* up to 15-30 cm tall, much branched from the base; *stems* almost glabrous to finely pubescent with c. 0.15 mm long, patent hairs. *Leaf blades* narrowly oblanceolate, up to 45-70 × 11-17 mm, green above, paler beneath, with a sparse to fairly dense indumentum of up to c. 0.8 mm long, appressed hairs, apex mucronate with weak spine up to c. 2 mm long, base attenuate; *cystoliths* in tandem pairs, each up to 0.15-0.3 mm long; *petiole* indistinct, up to c. 10 mm long. *Axillary spines* 4 in each leaf axil, up to 16-30 mm long, on up to c. 2-10 mm long common stalk. *Inflorescence* dense, composed of contracted upper nodes with up to 3-flowered axillary cymes; *bracts* leaf-like, gradually more narrow and bluish white towards the apex of the stem, up to 32 × 8 mm; *bracteoles* bluish white, transformed into spines with almost no lamina, up to 28 mm long, with up to c. 0.5 mm long, somewhat antrorse, bristle-like hairs along margins and c. 0.3 mm long, patent, glandular hairs. *Calyx* soft, glabrous, bluish white; outer lobes ± equal, narrowly ovate-linear, up to 15 × 2.7 mm with a narrow linear portion for about half the length; inner lobes lanceolate-linear, c. 13 × 1.3 mm. *Corolla* white, 23-34 mm long; lobes subequal, c. 10-14 × 6-9 mm; tube 11-17 mm long. *Stamens* 4, fused to tube for 5-10 mm at the base, 2 exserted stamens with free part up to c. 14-23 mm, 2 included stamens with free part c. 2-3 mm long; short staminodal trace present. *Capsule* not seen.

Additional specimens seen. – Somalia: Gedo Region: 20 km on road between Garbaharrey and Qansaxdheere, 5.6.1989, *Thulin & Bashir Mohamed 6918* (K, UPS); 54 km S of Garba Harre on Bardera road 2°53'N, 42°17'E, *Gillett & Hemming 24772* (K); 17 km from Luuq bridge, 3°40'N, 42°30'E, *Hemming & Desmukh JESS 270* (K); 16.5 km from Luuq bridge, 3°40'N, 42°30'E, *Hemming & Desmukh JESS 323* (K).

Distribution and habitat. – Known only from southwestern Somalia, where it grows in *Acacia-Commiphora* bushland, open shrubland, on limestone ridges, gypseous limestone slopes, or in reddish stony soil over limestone at 150-300 m altitude.

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Barleria glaucobracteata is related to the more widespread *B. linearifolia* (see above), but differs by having inflorescences with more than one flower per node, bluish white bracts and linear bracteoles with bristle-like hairs along the margin. A collection from central Somalia, *Gillett, Hemming & Watson 22097* (K) from 23 km S of Jeriban at 7°01'N, 48°52'E, appears to be related to this species, but differs by having shorter leaves (up to c. 2.5 cm long), bracts and bracteoles, all with few bristle-like hairs and densely dotted with sessile glands on the lower surface towards the base, and broader calyx lobes with a more distinctly delineated spine in the upper half. More material is needed.

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Address of the author:
Mikael Hedrén, Department of Ecology, Plant Ecology and Systematics, Lund University, Sölvegatan 37, SE-223 62 Lund, Sweden; e-mail: mikael.hedren@ekol.lu.se

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