

NEW TAXA OF *ALOPECURUS* (GRAMINEAE) FROM TURKEY

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ABSTRACT. Two new species of *Alopecurus* (Gramineae), *A. adanensis* M. Doğan and *A. anatolicus* M. Doğan, are described and illustrated from Anatolia. Two new subspecies, *A. utriculatus* Sol. subsp. *gaziantepicus* M. Doğan and *A. utriculatus* subsp. *malatyaensis* M. Doğan are also described from Turkey. A key for the subspecies of *A. utriculatus* Sol. is given.

As part of a world-wide study of the genus *Alopecurus*, the following new Turkish taxa are described; the work was carried out during a research visit to Edinburgh in 1987.

***Alopecurus adanensis* M. Doğan, sp. nov.** (Fig. 1).

Syn: *Alopecurus myosuroides* Hudson var. *latialatus* M. Doğan in Notes RBG Edinb. 40:509 (1983).

A. myosuroidi Hudson affinis a quo spiculis elliptico-urceolatis 4-4.5mm longis, ala \pm longa lataque (c.0.3-0.5mm lata) secus totam longitudinem carinae instructis recedit.

Gramen annuum. Culmi 30-57cm alti, erecti, caespitosi, crassi, laeves, glabrique, 2-3-nodosi. Vaginae glabrae, laeves, supremae inflatae, ad basem paniculae attingentes. Ligula usque ad 4mm longa, membranacea, obtusa. Foliorum laminae 9.5-18cm longae, 2-3mm latae, planae, lineares, acuminatae, laeves, glabrae. Panicula 6-10cm longa, 4-7mm lata, cylindrica, purpurascens. Spiculae 4-4.5mm longae, urceolatae, uniflorae, lateraliter compressae. Glumae 3.8-4.3mm longae, in parte inferiore tertia connatae, carinatae, secus totam longitudinem carinae ala lata (c.0.3-0.5mm lata), 3-nervosae. Lemma 4-4.5mm longum, acutum, in dimidiis inferiore connatum, 5-nervosum. Palea nulla. Stamina 3. Antherae 3-3.5mm longae, flavae.

Fl. 5. Roadside ditch, in ditch bed, dry on surface, nr. s.l.

Typus: [Turkey C₆ Adana]: Adana to Karatas, 5 miles S of Adana, nr. s.l., 1 v 1965, Coode & Jones 258 (holo. E).

Endemic. E Mediterranean element.

This species, based on the specimen collected from the province of Adana in Turkey by Coode & Jones, has been confused with *Alopecurus myosuroides* Hudson var. *tonsus* (Blanche ex Boiss.) R. Mill, a widespread annual growing in the lowlands of Turkey. Suspicion over its taxonomic status was raised by the author when he was revising the genus for the *Flora of Turkey* in which the new species was treated as the imperfectly known variety *A. myosuroides* Hudson var. *latialatus* M. Doğan.

No doubt, the species is a local endemic growing in ditches at sea-level in the Adana region. From its panicle shape and purple spikelet it may seem, at first glance, to be *A. myosuroides* var. *tonsus*, but when it is closely examined differences can easily be seen: spikelets shorter (4-4.5mm)

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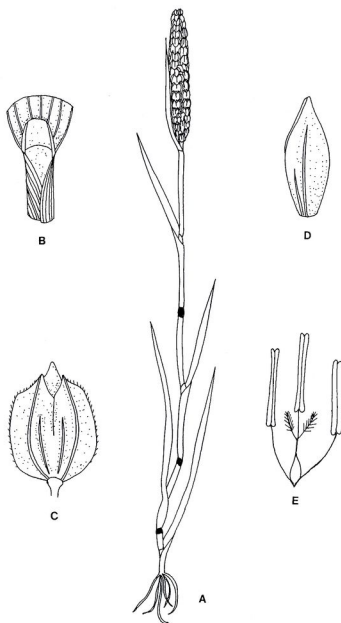


FIG. 1. *Alopecurus adanensis*: A, habit $\times \frac{1}{3}$; B, ligule $\times 2$; C, spikelet $\times 6$; D, lemma $\times 6$; E, ovary $\times 6$.

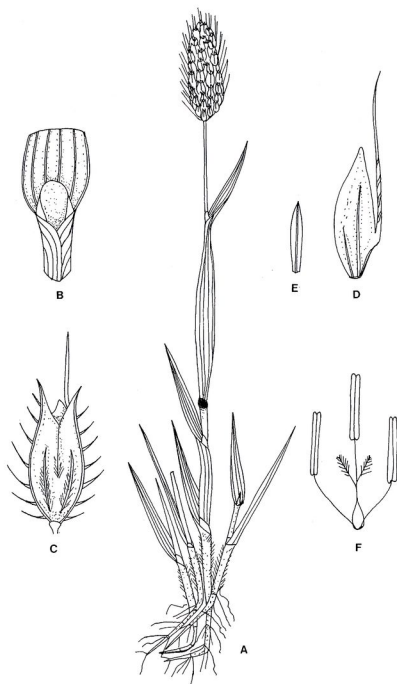


FIG. 2. *Alopecurus anatolicus*: A, habit $\times \frac{1}{2}$; B, ligule $\times 3$; C, spikelet $\times 6$; D, lemma $\times 6$; E, palea $\times 6$; F, ovary $\times 6$.

than *A. myosuroides*; glumes with wide wings (c.0.3–0.5mm wide) extending all the way along on the keel. The urceolate spikelet shape of *A. adanensis* and the long glume wings brings the species rather close to *A. nepalensis* Trin. ex Steudel which grows in Nepal, India, Himalaya and Pakistan, but geographically they are far distant. They are also morphologically different regarding spikelet length and panicle characters.

***Alopecurus anatolicus* M. Doğan, sp. nov.** (Fig. 2).

A. arundinaceo Poiret similis, a quo praesentia paleae, foliis in vivo vitreo-aquamarinis in sicco glaucescentibus differt.

Gramen perenne, rhizomatum. Culmi 15–33cm alti, crassi, erecti, laeves, glabrique, 2-nodoi. Vaginae in dimidio superiore glabrae, inferiore ciliatae, supremae inflatae. Ligula 2–4mm longa, obtusa, membranacea. Foliorum laminae 2–6cm longae, 2–6mm latae, planae, lineares, acuminatae, in vivo vitreo-aquamarinae in sicco \pm glaucae. Panicula 2.5–3cm longa, 0.7–1cm lata, late oblonga. Spiculae 5–7mm longae, ellipticae, uniflorae, lateraliter compressae. Glumae 3-nervosae, spiculae aequilongae, in $\frac{1}{2}$ inferiore connatae carinatae, carinis longe ciliatis, acuminatis. Lemma 4–5mm longum, 5-nervosum, acutum, dimio inferiore connatum; arista in medio dorsi inserta, ad 6.5mm longa, erecta, basem versis torta. Palea c.3mm longa, uninervosa. Stamina 3. Antherae as 3mm longa, flavae.

Fl. 4. Marshy ground, 1500m.

Typus: [Turkey B₆ Sivas]: Between Sivas-Tatlica, 1500m. 29 iv 1966, C. Tobey 1679 (holo. E).

Endemic. Irano-Tur. element.

This species, based on the specimen collected from the province of Sivas in Turkey by C. Tobey, has been confused with *Alopecurus arundinaceus* Poiret. Superficially, it does resemble *Alopecurus arundinaceus*, but there are some important morphological differences, such as the leaves bluish-metallic becoming glaucous when dried, and all the spikelets having paleas (c.3mm).

***Alopecurus utriculatus* Sol. subsp. *gaziantepicus* M. Doğan, subsp. nov.**

A. utriculato Sol. subsp. *utriculato* similis sed caule brevior (4–9cm alto), panícula spiculorum tantum 3–10 composita, spiculis valde purpurascens, brevibus (5–5.5mm longis) differt.

Fl. 4. Sandy limestone rock, 2800ft.

Typus: [Turkey C₆ Gaziantep]: Gaziantep, 2800ft, 19 iv 1935, E. K. Balls 2155 (holo. E).

Endemic. Irano-Tur. element.

This subspecies is based on E. K. Balls' single gathering, collected from the province of Gaziantep. It grows on limestone rock and varies from *A. utriculatus* subsp. *utriculatus* in its short stem (4–9cm), small panicle, number of spikelets (3–10), completely purple spikelet colour, and small spikelets (5–5.5mm long).

***Alopecurus utriculatus* Sol. subsp. *malatyaensis* M. Doğan, subsp. nov.**

A. utriculato Sol. subsp. *utriculato* affinis sed panícula obovata basem versus angustata, ad apicem \pm truncata recedit.

Fl. 5–5. On rocky limestone slopes, 1400m.

Typus: [Turkey B₆ Malatya]: Malatya-Maras, 40km from Malatya, 1400m, 9 vi 1960, *Stainton & Henderson* 5462 (holo. E).

IRAQ. [Sūlaimanya]; Pir Omar Gudrum (Pira Magrum), Agnew-Henris, 26 v 1961, *R. Wheeler Haines* (E).

Distributed in SE Anatolia and N Iraq. Irano-Tur. element.

This subspecies is based on Stainton & Henderson's specimen collected from Malatya in Turkey. It also grows on limestone rocks but greatly differs from *A. utriculatus* subsp. *utriculatus* in its obovate panicle which tapers to the base. This subspecies is also found in Iraq's Sūlaimanya province.

Previously, only two subspecies have been recognized in the total distribution range of *Alopecurus utriculatus* Sol. Since two more subspecies are described in this paper a new subspecies key is provided below.

KEY FOR THE SUBSPECIES OF ALOPECURUS UTRICULATUS SOL.

1. Glumes with a broad long wing on keel subsp. *anthoxanthoides*
1. Glumes almost wingless or with a rather narrow wing on upper half of keel 2
2. Spikelets 5–5.5mm, strongly purplish; panicle formed by 3–10 spikelets; stem 4–9cm subsp. *gaziantepicus*
2. Spikelets at least 6mm, pale or slightly purplish on margins of glumes; panicle formed by more than 10 spikelets, stem usually longer than 9cm 3
3. Panicle obovate, tapering to base; glumes acuminate subsp. *malatyaensis*
3. Panicle ovoid to broadly oblong, tapering to apex; glumes acute subsp. *utriculatus*

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