

José Ángel López Rodríguez & Pilar Catalán

Taxonomic identity of the Maghrebian grass *Festuca fontqueri* St-Yves

Abstract

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A taxonomic revision of *Festuca fontqueri* Saint-Yves, a species of *Festuca* Sect. *Bovinae* Fries [Subgenus *Schedonorus* (P. Beauv.) Peterm.] that has been repeatedly misnamed and misinterpreted in the literature, is provided here. Its taxonomic identity and nomenclatural status are established. A detailed description of the plant, based on updated morphoanatomical data from fresh and herbaria materials, is given. The species is distributed in the Rif and in the Atlas mountain ranges; its putative presence in Middle Asia could not be confirmed.

Nomenclatural vicissitudes and present taxonomic status of *Festuca fontqueri*

The plant was first described from the High Atlas Mountains by Litardière (1923: 337); who included it in Sect. *Ovinae* Ser. *Extravaginales* v. *Mixtae* Hackel and named the new taxon *Festuca yvesii*, after his colleague Saint-Yves. Seven years later, Saint-Yves (1930: 5), based on herbarium specimens collected by Font Quer in the Rif Mountains, described a new fescue of Sect. *Bovinae* Fries that was dedicated to its collector and named, therefore, *Festuca fontqueri*.

R. de Litardière noticed that the two taxa were the same and communicated it to Saint-Yves, as the second author recognized in a latter paper (Saint-Yves 1932: 139) although reaffirming the inclusion of the taxon in Sect. *Bovinae*. Finally, Litardière (1935: 266) agreed the fescue, with conduplicate innovation leaves, belonged to Sect. *Bovinae* and not to Sect. *Ovinae* Hackel as he previously supposed.

Before the forementioned studies of Litardière and Saint-Yves were published, Sennen & Pau in Sennen (1917: 250) described a new species of *Festuca* Sect. *Ovinae* Ser. *Intravaginales* Hackel from the Pyrénées; the plant was dedicated to Saint-Yves and named, consequently, *Festuca yvesii*. Years after, Litardière (1955: 143), following a revision of the paper by Sennen, detected the homonymy he did when naming the fescue of the Atlas Mountains and admitted that Saint-Yves' name, though later published, was the appropriate one for the taxon that grows in Morocco. More recently, Vigo i Bonada

(1983: 687), ignoring some of the above nomenclatural vicissitudes, proposed a new name for *Festuca yvesii* Litard., *Festuca litardierana*, which is superfluous.

The combination made by Romo in Greuter & Raus (1986: 115) for a Spanish taxon of *Festuca* subgen. *Festuca* sect. *Aulaxyper* Dumort. as *Festuca fontqueri*, based on *Festuca rubra* subsp. *font-queri* Litard. from Cardó, Tarragona province, in Candollea 10: 133, 1945, should be discarded as illegitimate.

Therefore, the correct name for the African fescue is:

Festuca fontqueri Saint-Yves, Cavanillesia, 3: 5 (1930), non (Litard.) Romo, Willdenowia 16 (1): 115 (1986)

= *Festuca yvesii* Litardière, Bull. Soc. Hist. Nat. Afrique du Nord, 14: 337 (1923), nom. illeg., non Sennen & Pau, Treb. Inst. Catal. Hist. Nat., 3: 250 (1917); *Festuca litardierana* Vigo i Bonada, Acta Bot. Barcinon., 35: 687 (1983).

We have lectotypified the material corresponding to both:

F. yvesii R. Lit., Bull. Soc. Hist. Nat. Afrique Nord, 14: 337 (1923).

Ind. loc.: Hab. in locis lapidosis porphyricis alpinis Atlantis Majoris, in valle Acif Ouenkrime (ditionis Reraya), ad alt. ca. 3050 m. Typus: Reraya: Hte. vallée de l'Acif Ouenkrime, rocallies porphyriques, 3050 m env. Herbarium G: One herbarium sheet with two labels, three photographs, and two complete specimens. Label 1: "Herbarium Saint-Yves" (printed). Label 2: "R. de Litardière // Voyage Botanique au Maroc (Juillet - Aout 1923) (printed) // Festuca yvesii R. Lit. sp. nov. // Reraya: Hte vallée del'acif Ouenkrime, // rocallies porphyriques, // 3050 m env. // 24 Juillet // R. de Litardière" (Litardière, in sched.). "antherae palea dimidia longiores // ovarium glabrum" (Saint-Yves, in sched.). Photograh I, vernation. Photo II and III, leaf blade in transverse section. We choose as lectotype the specimen on the left side.

Festuca fontqueri St-Yv., Cavanillesia 3: 5 (1930).

Ind. loc.: Imperium Maroccanum: in saxosis arenaceis montis Tidiguin (Atlante Riphaeo), ad 2400 m. alt. Typus: Hab. in saxosis arenaceis montis Tidiguin (Atlante Riphaeo), ad 2400 m. Herbarium G: One herbarium sheet with two labels, and two specimens (the left one with a single panicle; the right one with seven panicles). Label 1: "Herbarium Delessert" (printed). Label 2: "Dr. Font Quer – Iter maroccanum, 1929 // 41. Festuca Font-Queri St-Yv., sp. nova // Hab. in saxosis arenaceis montis Tidiguin (Atlante Riphaeo), ad 2400 m. alt.; 17julii // Det. Saint-Yves" (printed). We choose as lectotype the specimen on the right side.

Saint-Yves also described a variety *lipskii* of *Festuca fontqueri*, based on one incomplete and poorly represented specimen of a plant from Middle Asia (Buchara: Schechrjsals, 6700', leg. Lipsky, 3 Jun 1896, in Herb. Hort. Bot. Petrop.) (cf. Saint-Yves 1930: 6-7). We could not examine the specimen of var. *lipskii* Saint-Yves in the Herbarium Petrop. (LE) as there are no traces of any specimen of this taxon in LE (Tzvelev, in litt.). Moreover, there are no citations of this variety, nor of the species, in a recent accurate revision of *Festuca* for Middle Asia (see Alexeev 1978). The material of var. *lipskii* studied by Saint-Yves is neither present in G (Charpin, in litt.). Therefore, we conclude that *Festuca fontqueri* Saint-Yves, as presently known, is confined to the Magreb.

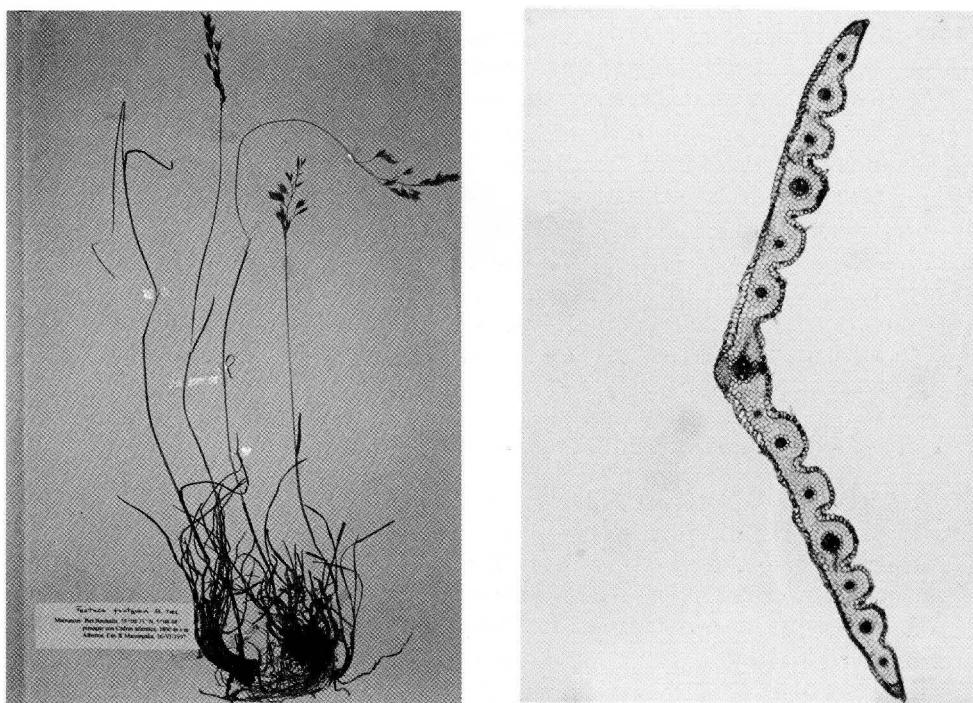


Fig. 1. *Festuca fontqueri* from Jbel Bouhalla, Maroc: **a**, habit; **b**, leaf blade section.

Morphoanatomical study

The following description of *Festuca fontqueri*, that further completes those by Litardière and Saint-Yves, is based on updated morphoanatomical analyses of fresh and herbaria (BC, G, MA, SEV) materials. The microanatomical data of epidermises are given here for the first time.

Habit (Fig. 1a). — Plant of 20-51 cm height; innovations extravaginal. Leaf sheath closed up to 1/2 of its length or more. Panicle 3-10 cm, with 6-8 nodes and 8-25 spikelets. Spikelet 6.5-8.2 mm length; 4-6-flowered. Glumes slightly unequal; lower glume 3-4 mm length, (1)-3-nerved; upper glume 3.5-5 mm length; 3-nerved, lateral nerves coalescent with the midrib. Lemma 4.3-5.5 mm length, scarcely bidentate at apex; awn subapical, 1.75-3.5 mm length, inserted at 0.2-0.4 mm from the apex. Lodicules unequally bidentate.

Leaf blade section (Fig. 1b). — Flat or V-shaped. Epidermis usually interrupted by three sclerenchyma strands, two marginals and one abaxial, opposite to the midrib. Middle nerve free, merged with the abaxial sclerenchyma strand or, less frequently, with sclerenchyma girders to the adaxial and abaxial epidermises. Occasionally, sclerenchyma cells are also present on adaxial costal areas and, more rarely, on abaxial semi-blades. Bulliform cells are present in the valleys, in groups of 4-6, fan-shaped. Vascular bundles 11-16, covered by a double sheet; external sheet abaxially incomplete. Middle nerve 75-87.5 μm diameter. (Fig. 1b).

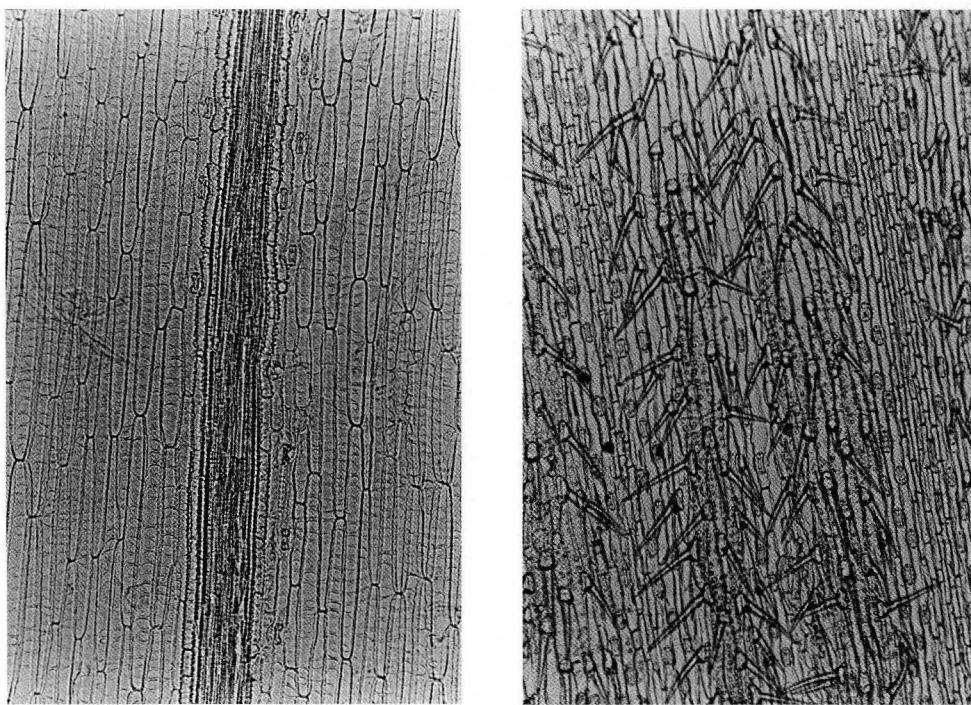


Fig. 2. *Festuca fontqueri* from Jbel Bouhalla, Maroc: a, abaxial epidermis; b, adaxial epidermis.

Abaxial epidermis (Fig. 2a). — Internerval areas with long cells; stomata scarce. Long cells (150) 220-410 (750) × 18-30 µm, rectangular, with straight walls. Stomata 35-50 × 20-40 µm, usually disposed in four rows, bordering the two sides of the midrib and the leaf margins; more rarely with extra-rows in the semi-blades. Nerval areas -central and marginals-with abundant silica-cork bodies alternating with long cells. Long cells 100-230 × 10-17.5 µm, with undulate walls. Silica cells (10) 12.5-17.5 × 7-10 (17.5) µm, isodiametric. Cork cells 7.5-17.5 × 5-12.5 µm, square or rectangular.

Adaxial epidermis (Fig. 2b). — Stomata, prickles, and aculei abundant. Stomata 30-35 (45) × 15-20 µm, disposed in rows along the sides of the costal areas. Costal areas provided with long cells, silica-cork bodies, prickles and aculei. Long cells 90-202 × 12.5-15 µm. Silica cells 12.5-17.5 × 10-15 µm.

Cork cells (12.5) 17.5-20 × (6) 10-12.5 µm. Prickles (47.5) 75-95 (107.5) µm length. Aculei 42.5-50 µm length.

Variations found in some morphoanatomical characters within the studied Maghrebian specimens include some but not all the diagnostic traits proposed by Saint-Yves to differentiate its variety *lipskii* from the type, namely those concerning the possession of shortly aristate spikelets and the absence of an abaxial merge of sclerenchyma in front of the middle nerve on the adaxial costal areas of the leaf blades (cf. Saint-Yves 1930: 6-7). We have verified that the extremes of variation accounted for these and other features in the Maghrebian materials are not related to any geographical or ecological distribution of

the plants but think they are due to their plasticity. Consequently, we interpretate all the Maghrebian plants studied as belonging to the same taxon *Festuca fontqueri* Saint-Yves.

Favarger & al. (1980: 48) and Galland (1988: 134) have reported the chromosome counts $2n = 14+2B$, and $n = 7$, $2n = 14$, respectively, for *Festuca fontqueri* (sub *Festuca yvesii* Litard.).

Geographical distribution

Morocco: Rif Atlas, Middle Atlas, High Atlas, and Anti-Atlas (Maire, 1955: 148); in the mountains, between 1300-3100 m alt.

Studied materials

“Jbel Bouhalla, 35°08'33''N, 5°08'48''W, pinsapar con *Cedrus atlantica*, 1800 m”, B. Albertos, E. Coy & V. Mazimpaka, 16 Jun 1997 (Herb. UAM). “Gomara: in abiete maroccanae montis Lexhab, ad 1950 m alt.” Font Quer. Iter maroccanum 1930. no. 65, 21 Jul 1930. (BC 136396, MA 12316, G s.n.). “Djebel Lechhab, 2000 m, 35°08'N 5°09'W, Font Quer, 18 Jul 1932. (BC 809720). “Djebel Lechhab, 1950 m (=Lexhab), 35°08'N 5°09'W”, Font Quer, 1 Jul 1932. (BC 809398, MA 537332). “Montis Lexhab (El Ajmas), in abiete maroccanae, ad 1950 m alt., 21 Jul” (BC 804722). “Chefchaouen, Bab Taza, subida al Djebel Lexhab desde la casa forestal, 35°07'N 5°08'W, 1640-1800 m, pinsapar, pastos y cantiles calizos de la vertiente oriental.” M. A. Mateos & J. M. Montserrat. JMM-5705/4, 9 Jun 1996. “Tetouan: Dj. Tiziren, au N de Bab Berred, 35°01'N 4°55'W, sous-bois dans la cédraie hygrophile, 1600-1850 m”, Jacquemoud & Jeanmonod. Iter Maroccanum May-Jun. 1980, MAR1106, 20 Jun 1980 (G 229836, MA 263238). “Atlante Riphæo: in saxosis arenaceis montis Tidiguin, ad 2400 m alt.”, Font Quer. Iter maroccanum 1929, No. 41, 17 Jul 1929. (BC 98508 isolectotype, MA 12412 isolectotype, and G s.n., lectotype). “Djebel Tidiguine, 2450 m (=Tidiguin), 34°51'N 4°31'W”, Font Quer, 14 Jun 1929. (BC 809415). “Atlas Rifain: Tetleta a Ketama, sol schisteux, 1320 m”, Sennen & Mauricio Pl. du Maroc. 21 Jun 1933. (BC 830716). “Taza: Bab Bou-Idir, 30SUC97, falaises calcaires orientées au N, fissures et replats, 1800 m”, Molero, Romo & Susanna, R4487, 16 Jun 1988. (BC 814093). “Taza, col de Bov Ibane, 2330 m”, Cebolla, Fernández Casas & Rivas Ponce, 6 Jul 1994 (Herb. UAM). “Izourar, G.A. Ahausal, escarpements calcaires, 2400 m”, A. Dobignad, No. 3681, 13 Jun 1985 (G 301540). “Ayachi: J. Maskèr, versant sud entre 2000 et 3000 m”, J. Tazzeka, J. Bon Iblane, J. Tieccahoukt, J. Ayachi, J. Masker, C. Guinet, Ch. Sauvage & R. de Vilmorin no. 876, 6 Jul 1952 (G s.n.). “Grand Atlas, Reraya, Adrad-n-Ouaraout, vallée de l’Acif Talionine, rochers porphyriques, 2480 m env.”, R. Litardière, 24 Jul 1924 (G s.n.). “Grand Atlas: Reraya, Hte vallée de l’Acif Ouenkrime, rocallies porphyriques, 3050 m env.”, Litardière, 24 Jul 1923 (G s.n., lectotype). “Grand Atlas, Reraya, in pascuis rupestr. porphyrini, con vallis Ouekrim, 2700 m.”, Maire, 22 Jul 1924 (G s.n.).

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Addresses of the authors:

- José Ángel López Rodríguez, Departamento de Biología, Universidad Autónoma de Madrid, Canto Blanco, E-28049 Madrid, Spain.
- Pilar Catalán, Departamento de Agricultura, Universidad de Zaragoza, Miguel Servet 177, E-50013 Zaragoza, Spain.