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***Festuca humifusa* (Gramineae), a new species from Sicily**

Abstract

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Festuca humifusa, a new species from Cape Tyndaris (NE-Sicily) is described and illustrated. Its ecology, distribution and relationships with the allied species are discussed.

Introduction

During field studies in Sicily, a very distinctive population of *Festuca*, occurring in the coastal Cape of Tyndaris (NE Sicily), was found. According to literature, (Markgraf-Dannenberg 1980, 1982, Kerguelen & Plonka 1989, Foggi & Rossi 1996), the collected specimens show a close relation with *Festuca circummediterranea* Patzke, which has a widely Mediterranean distribution and occurs in the above-mentioned locality too.

The presence in the same site of two well-distinguished *Festuca* rose their taxonomical study. Indeed apart from the prostrate vegetative shoots with softish leaves, the specimens in question differ from *F. circummediterranea* also by morphological and anatomical characters, which let them to be treated as belonging to a new distinct species.

Materials and methods

All plants of the new species were collected at Cape Tyndaris, while those of *F. circummediterranea*, used for the comparison, come from the *locus classicus* Mt. Pizzuta, near Palermo. The observations were made on living material, cultivated in the Botanical Garden of Catania, and on herbarium specimens. For the karyological investigation, root tips were pre-treated with 0.3 % colchicine, fixed in Carnoy and stained according to the Feulgen technique. The leaf anatomy was studied on untreated material recorded under light microscope.

***Festuca humifusa* Brullo & Guarino, sp. nova.** - Typus: Sicily, Capo Tindari (ME) presso Marinello, su rupi calcaree, 16. Jul. 1997, *Brullo & Guarino s.n.* (Holotypus: CAT; isotypi: CAT, FI). - Fig. 1.

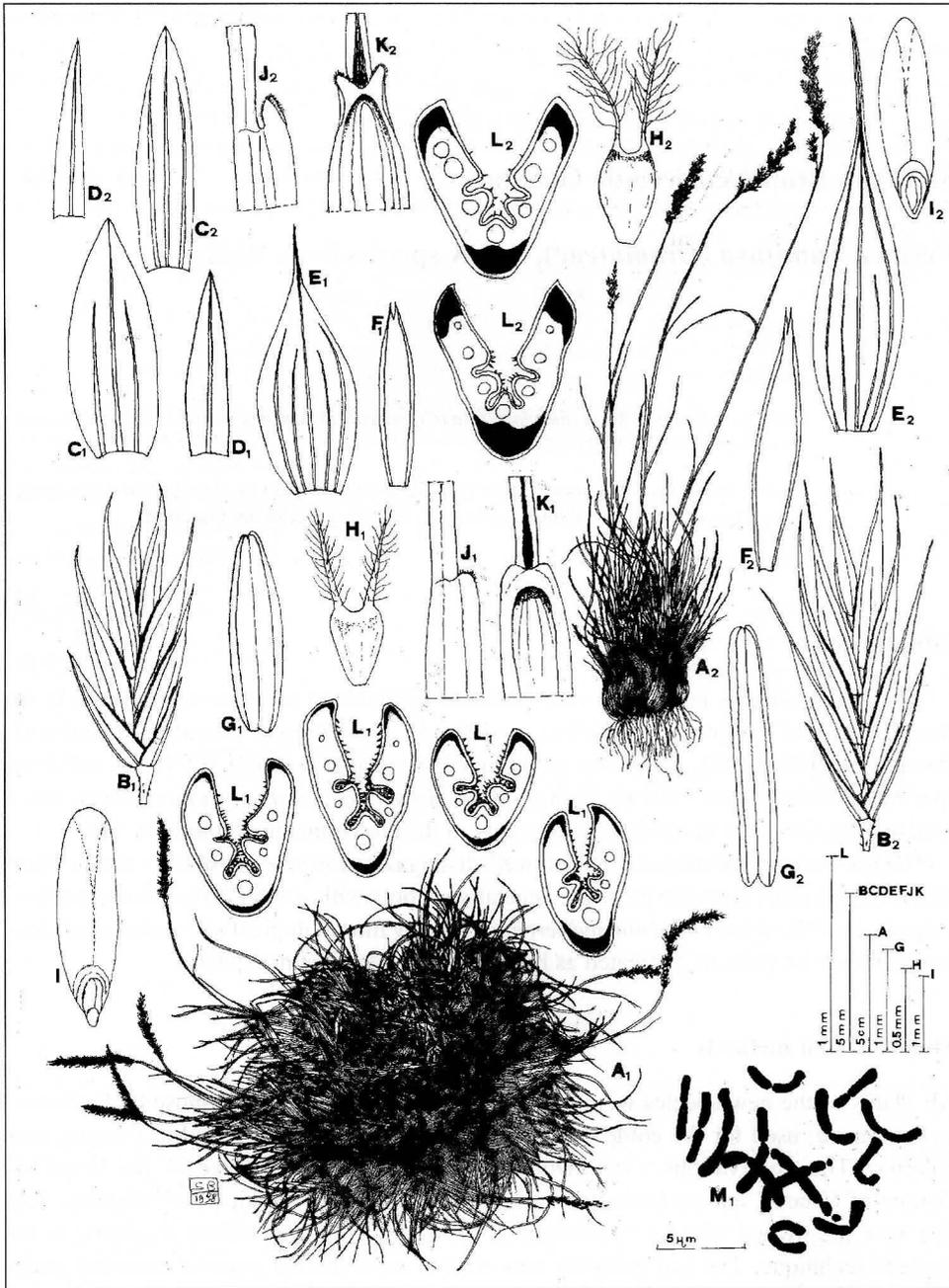


Fig. 1. *Festuca humifusa* (1) and *Festuca circummediterranea* (2). – A, habit; B, spikelet; C, lower glume; D, upper glume; E, lemma; F, palea; G, anther; H, pistil; I, caryopside; J, lateral view of the leaf sheath; K, frontal view of the leaf sheath; L, transversal section of the leaf blade; M, chromosome complement ($2n=14$).

Festuca circummediterranea affinis sed habitu decumbenti, scapis prostrato-ascendentibus, foliis glaucis, dense pilosis in pagina adaxiali, in sectione transversali brachio 0.6-0.8 mm longo, fascibus vascularibus 5-7, filis sclerenchymatis tenuioribus, vaginis coalitis per 1/2 longitudinis, truncato-rotundatis auriculis, panícula brevior compactioreque, gluma inferiore 0.75 mm lata, gluma superiore 1.5 mm lata, lemmate 3.5-4 mm longò, arista 0.8-1 mm longa, palea 3-3.2 × 0.5-0.6 mm longa, dentibus apicalibus 0.25 mm longis, anthera 1.8-2 mm longa, stigmatibus 0.6-0.7 mm longis, ciliorum breviorum praeditis, caryopside 3 mm longa.

Plant densely caespitose, with intravaginal decumbent tillers. Flowering stems prostrate-ascending, smooth, 8-20 (25) cm long. Leaf sheath glabrous, hyaline at the margin, fused for 1/2 of its length, with auricles truncate-rounded, minutely ciliated at the margin. Ligula inconspicuous. Leaf blade conduplicate, lank, glaucous, acute, more or less recurved, glabrous on the abaxial surface and densely hairy on the adaxial one, (5) 7-18 (24) cm long, in transversal section U-shaped with arms 0.6-0.8 mm long, 5-7 vascular bundles, 3 thin sclerenchyma strands. Panicle 2.5-6 cm long, compact, linear, sometimes interrupted below. Spikelets 6-7.5 mm long, with 5-6 florets and pedicels c. 1 mm long. Lower glume subulate-lanceolate, 3-3.2 × 0.75 mm, 1-veined. Upper glume ovate-lanceolate, 4 × 1.5 mm, 3-veined. Lemma ovate, 3.5-4 × 1.5-1.7 mm, 5-veined, the central vein reaching the tip, the lateral ones vanishing upwards, with awn 0.8-1 mm long. Palea linear-elliptical, 3-3.2 × 0.5 mm, bifid at the apex with teeth 0.25 mm long. Anther 1.8-2 × 0.4 mm. Ovary obovate, 0.5 mm long. Stigmas 0.6-0.7 mm long, with cilia 0.1-0.2 mm long. Caryopsis 3 mm long. Somatic chromosome number is $2n = 14$.

Specimina visa. - Sicily, Promontorio di Tindari (Me) presso il Santuario, su rupi calcaree, 28-Apr.-1997, Bacchetta, Brullo & Guarino (CAT); Capo Tindari (ME) presso Marinello, su rupi calcaree, 16. Jul.1997, Brullo & Guarino s.n. (CAT, FI).

Ecology and distribution. - *F. humifusa* grows on lithosoils derived from mesozoic marbles and calcium-silicate feldspars, in windy rocky ridges close to the sea, at an altitude of 5-270 m. Flowering occurs in the period between late April and early June. The plant is a member of a xerophyllous discontinuous grassland linked to semi-rupestrian habitats. This vegetation, belonging to the class *Thero-Brachypodietea ramosi* Br.-Bl. ex A & O. Bolòs 1950 (= *Lygeo-Stipetea* Rivas-Martínez 1978), is physiognomically characterized by several hemicyptophytes and chamaephytes, such as *Hyparrhenia hirta*, *Andropogon distachyus*, *Ampelodesmos mauritanicus*, *Micromeria fruticulosa*, *Micromeria graeca*, *Phagnalon saxatile*, *Hyoseris radiata*, *Dactylis hispanica*, *Bituminaria bituminosa*, *Galium aetnicum*, *Centaurea todari* f. *seguenzae*, etc.

Taxonomic relationships. - *Festuca humifusa* is closely allied to *F. circummediterranea* Patzke and *F. jeanpertii* (St-Yves) Markgraf subsp. *campana* (N. Terrac.) Markgr.-Dannenb. in having vegetative tillers intravaginal, ligula inconspicuous and leaf sheaths ending with 2 lateral auricles, leaf-blades smooth, normally flabby, conduplicate, 3 sclerenchyma strands in correspondence with the midrib and the leaf edge, 3 adaxial hairy ribs, linear panicle. In particular *F. humifusa* differs from the former by having decumbent tillers, prostrate-ascending flowering stems, leaf sheath fused up to 1/2 of its length with truncate-rounded auricles, leaf blade glaucous, densely hairy on the adaxial surface, in transversal section with arms 0.6-0.8 mm long, 5-7 vascular bundles, 3 thin sclerenchyma

strands, panicles 2.5-6 cm long, lower glume subulate-lanceolate, 0.75 mm wide, upper glume ovate-lanceolate, 1.5-1.7 mm wide, lemma ovate, 3.5-4 mm long, the middle vein reaching the tip, the lateral ones vanishing upwards, with awn 0.8-1 mm long, palea linear-elliptical, 3-3.2 × 0.5-0.6 mm, with apical teeth 0.25 mm long, anther 1.8-2 mm long, ovary obovate, stigmas 0.6-0.7 mm long, with cilia 0.1-0.2 mm long, caryopsis 3 mm long, while *F. circummediterranea* shows erect or erect-ascending tillers, erect flowering stems, leaf sheath fused up to 1/2-2/3 of its length with conspicuously sagittate-auriculate auricles, leaf blade pruinose green, sparsely hairy on the adaxial surface, in transversal section with arms 0.9-1.2 mm long, 7 (9) vascular bundles, 3 very stout sclerenchyma strands, panicles up to 9 cm long, lower glume subulate, 0.5 mm wide, upper glume linear-lanceolate, 1-1.2 mm wide, lemma lanceolate, 4-5.8 mm long, the middle and the 2 lateral exterior veins reaching the tip, the 2 lateral interior ones vanishing upwards, with awn 1 (1.5)-3 mm long, palea linear-lanceolate, 3.5-5 × 0.7-0.9 mm, with apical teeth 0.4 mm long, anther 2-2.8 mm long, ovary elliptical stigmas 0.8 mm long, with cilia 0.2-0.35 mm long, caryopsis 2.3-2.5 mm long.

As concerns *F. jeanpertii* ssp. *campana*, it has in common with *F. humifusa* other additional morphological characters, such as the leaf sheaths fused up to 1/2 of their length and lemma with awn shorter than 1 mm, but clearly differs by having erect flowering stems 30-60 cm long, leaf blade with 7 vascular bundles and 3 very stout sclerenchyma strands, panicle 7-13 cm long, spikelets with 5-8 florets, upper glume 0.9-1.3 mm wide, lemma 3.9-4.6 mm long with awn 0.2-0.9 mm long.

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