

# KEY TO THE SPECIES OF THE GENUS *FOSTERELLA* (BROMELIACEAE)

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**ABSTRACT.** An updated key to the species of the genus *Fosterella* (Bromeliaceae) is presented. It comprises all of the 30 currently accepted species from Argentina, Bolivia, Brazil, Colombia, El Salvador, Guatemala, Mexico, Paraguay, and Peru.

**Key words:** Bromeliaceae, Pitcairnioideae, *Fosterella*, taxonomy, synonymy

## INTRODUCTION

Keys for the identification of the species of *Fosterella* (Bromeliaceae) so far have been provided by Smith (1934; genus *Lindmania*), Smith & Downs (1974), and Smith & Read (1992). Since the publication of the latter, collection efforts and taxonomic research have been intensified significantly. Since 1992 the number of described species has doubled, and now, after considerable progress of systematic research based on molecular data, we feel comfortable to provide a key to the currently accepted species. The terms of vestiture are used according to Simpson (2006): Arachnoid means having trichomes forming a cobwebby mass; lepidote describes scales or scale-like structures; tomentose means covered with dense, interwoven trichomes; villous is covered with long, soft, flexuous trichomes (FIGURE 1).

## KEY TO *FOSTERELLA*

- A. Petals at anthesis straight and not recurved at all, or recurved and lily-like, but becoming straight again postanthesis; leaves entire . . . . **Subkey I**
- B. Petals at anthesis recoiled like watchsprings, remaining so postanthesis, obviously in fruit as well; leaves entire or serrate . . . . . **Subkey II**

### Subkey I

- 1 Flowers bright red, reddish or rose; petals > 20 mm long; Tucuman-Bolivian Forests; BOLIVIA: Dpto. Santa Cruz, Chuquisaca . . . *F. spectabilis*

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- 1' Flowers white, cream or yellow, much shorter than 20 mm . . . . . **2**
- 2 Flowers and fruits spreading . . . . . **10**
- 2' Flowers and fruits secund . . . . . **3**
- 3 Leaves glabrous or glabrescent beneath, up to 30 mm wide, narrowed towards base, inflorescence racemose or paniculate, with lateral branches of 1st and rarely 2nd order; axis slender, green, sparsely lanate; flowers nutant; floral bracts sparsely lanate; Madeira-Tapajós moist forests in central Amazon; BRAZIL: State of Pará . . . . . *F. batistana*
- 3' Leaves variously but obviously bearing trichomes beneath, 10–70 mm wide, some constricted at the base, but not petiolate . . . . . **4**
- 4 Inflorescence obviously villous throughout, often including flowers . . . . . **8**
- 4' Inflorescence glabrous or glabrescent to obscurely scattered lepidote on peduncle and bracts, but flowers glabrous . . . . . **5**
- 5 Leaves white-lepidote beneath, covered ± densely with peltate or stellate scales, sparsely lepidote above; blades ± broadly lanceolate, 2.5–10 cm wide, sometimes reddish beneath; rest of the plant sparsely lepidote to glabrous; Tucuman-Bolivian Forests, Yungas, Inter-Andean valleys, Chiquitano Dry Forests, Montane Chaco; PERU: Dpto. Cuzco, BOLIVIA: Dpto. La Paz, Cochabamba, Santa Cruz, Chuquisaca, Tarija, ARGENTINA: Prov. Jujuy, Salta . . . . . *F. penduliflora*
- 5' Leaves tomentose or villous beneath, variously but obviously bearing long hairs . . . . . **6**
- 6 Leaves sparsely villous beneath; petals yellow; inflorescence much branched, panicle with branches of 2nd and 3rd order, branches curved ascending, glaucous; Sub- and Pre-Andean Amazon Forest; BOLIVIA: Dpto. La Paz, Beni . . . . . *F. gracilis*
- 6' Leaves densely tomentose beneath; petals white . . . . . **7**
- 7 Leaves ca. 35 cm long; floral bracts 2 mm long;

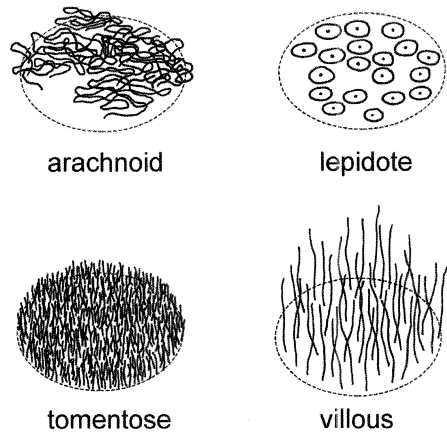


FIGURE 1. Terms of vestiture following Simpson (2006). Drawing by J. Peters.

- sepal 2.5 mm long; petals 7 mm long; on Precambrian rocks within Cerrado Forests; BRASIL: Mato Grosso . . . . . *F. hatschbachii*
- 7' Leaves up to 50 cm long; floral bracts 3 mm long; sepals 3.5 mm long; petals 7–9 mm long; on Precambrian rocks within Chiquitano Dry Forest; BOLIVIA: Dpto. Santa Cruz . . . . . *F. yuvinkae*
- 8 Leaves pale green beneath; inflorescence slightly villous; floral bracts sparsely villous to glabrescent; more or less dry tropical to subtropical forests: Central American pine-oak forests, Sierra Madre de Chiapas moist forest, Southern Pacific dry forests; MEXICO, GUATEMALA, and EL SALVADOR . . . . . *F. micrantha*
- 8' Leaves green or reddish beneath; inflorescence densely villous; floral bracts and sepals villous . . . . . 9
- 9 Flowers crowded; floral bracts about 7 mm long; sepals almost as long as petals; petals 7 mm long; Sub-Andean Amazon Forests, Yungas; BOLIVIA: Dpto. La Paz, Cochabamba . . . . . *F. villosula*
- 9' Flowers ± crowded; floral bracts 3–4 mm long; sepals clearly shorter than the petals, about 3 mm long; petals 5 mm long; southern Pre- and Sub-Andean Amazon Forests in contact with Chiquitano Forest; BOLIVIA: Dpto. Santa Cruz . . . . . *F. christophii*
- 10 Flowers spreading; floral bracts whitish; sepals white, petals recoiled at anthesis, but becoming straight afterwards; Pre- and Sub-Andean Amazon Forests, Yungas; PERÚ: Dpto. Huánuco, Ayacucho, Junín, Cuzco, Puno, BOLIVIA: Dpto. La Paz, Beni, Cochabamba . . . . . *F. weberbaueri*
- 10' Flowers erect; sepals green . . . . . 11
- 11 Sepals 2–3 mm long; inflorescence glabrous; petals recurved, 4–5 mm long; leaves glabrous beneath; Sub-Andean Amazon Forests, Yungas; BOLIVIA: Dpto. La Paz, Cochabamba, Beni . . . . . *F. chaparensis*
- 11' Sepals to 13 mm long; inflorescence appressed-arachnoid; petals straight, forming a tube, to 14 mm long; leaves densely grayish lepidote beneath (with pale appressed scales); Sub-Andean Amazon

Forests in contact with Inter-Andean Dry Forests; BOLIVIA: Dpto. Santa Cruz . . . . . *F. floridensis*

**Subkey II**

- 1 Flowers nutant and secund (or inflorescence so congested as to be indeterminable) . . . . . 6
- 1' Flowers erect or spreading . . . . . 2
- 2 Leaves few and small, broadly lanceolate, to 10 cm long, 10–30 mm wide, abaxially glabrescent, entire, strongly nerved; inflorescence racemose or with only very few, short primary branches, sparsely flocculose; peduncle bracts small and remote; Sub-Andean Amazon Forests, Moist Amazon Forests; PERÚ: Dpto. Cuzco . . . . . *F. aletroides*
- 2' Leaves long and linear or narrowly lanceolate, 30–100 cm long, abaxially white or grayish with a dense layer of scales . . . . . 3
- 3 Plant caulescent . . . . . 5
- 3' Plant acaulescent; inflorescence villous-arachnoid . . . . . 4
- 4 Leaves to 8 mm wide, densely grayish lepidote beneath (with pale appressed scales), entire; inflorescence rather lax; floral bracts 3–4 mm long; sepals 3 mm long; petals 6 mm long; Yungas; BOLIVIA: Dpto. La Paz . . . . . *F. pearcei*
- 4' Leaves 20–30 mm wide, thickly white-lepidote beneath, serrate toward the base; inflorescence ± crowded; floral bracts 4–5 mm long; sepals 3–4 mm long; petals 6–8 mm long; Tucuman-Bolivian Forests, Yungas; ARGENTINA: Dpto. Salta, BOLIVIA: Dpto. La Paz, Cochabamba, Santa Cruz, Chuquisaca, Tarija . . . . . *F. albicans*
- 5 Inflorescence sparsely villous to glabrescent; flowers sessile; floral bracts 1.5 mm, sparsely villous to glabrescent; sepals 3 mm long, sparsely villous to glabrescent; petals 5 mm long; leaves to 30 cm long, to 17 mm wide, serrate towards base; densely grayish lepidote beneath (with pale appressed scales); Sub-Andean Amazon Forests, Yungas; BOLIVIA: Dpto. La Paz . . . . . *F. rexiae*
- 5' Inflorescence densely villous-arachnoid; flowers subsessile; floral bracts 5 mm, villous-arachnoid; sepals 5 mm long, villous-arachnoid; petals 7 mm long, greenish; leaves 30–40 cm long, to 25 mm wide, strongly serrate towards base, densely grayish lepidote beneath (with pale appressed scales); Sub-Andean Amazon Forests, Yungas; BOLIVIA: Dpto. La Paz . . . . . *F. caulescens*
- 6 Leaves entire . . . . . 11
- 6' Leaves serrate, at least towards base . . . . . 7
- 7 Leaves to 12 mm wide, covered beneath with a layer of pale appressed scales, linear, to 60 cm long, strongly channeled, serrate towards base; peduncle glabrous and with long, foliaceous bracts; inflorescence glabrous; flowers secund; floral bracts 1 mm long; pedicels 2 mm long; sepals 1.5 mm long; petals 3 mm long; Sub-Andean Amazon Forests, Yungas; BOLIVIA: Dpto. La Paz . . . . . *F. graminea*
- 7' Leaves 15–55 mm wide, thickly white-lepidote beneath . . . . . 8
- 8 Plant caulescent, leaves strongly serrate towards base . . . . . 10
- 8' Plant acaulescent . . . . . 9

- 9 Leaf blades to 4 cm wide, obviously serrate at base, undulate; flowering plant up to 1.5 m high; peduncle bracts sparsely lepidote, equaling the internodes; inflorescence branches arcuate, glabrous; petals sometimes greenish or rose; Sub-Andean Amazon Forests, Yungas; BOLIVIA: Dpto. La Paz, Cochabamba . . . . . *F. rusbyi*
- 9' Leaf blades to 2 cm wide, obscurely serrate (if at all); flowering plant up to 50 cm high; peduncle bracts densely lepidote, longer than internodes; inflorescence branches erect-spreading; petals white; on Precambrian rocks, waterfalls of Caparús table mountain forests; BOLIVIA: Dpto. Santa Cruz . . . . . *F. vasquezii*
- 10 Leaf blades 20–50 mm wide; peduncle bracts serrate; floral bracts 2–5 mm long; sepals 2–3 mm long; petals 5 mm long; Inter-Andean Dry Forests, Yungas, Sub-Andean Amazon Forests; BOLIVIA: Dpto. La Paz . . . . . *F. weddelliana*
- 10' Leaf blades to 15 mm wide; peduncle bracts entire; floral bracts to 10 mm long; sepals 5 mm long; petals 8 mm long; Inter-Andean Dry Forests; BOLIVIA: Dpto. Cochabamba, La Paz . . . . . *F. cotacajensis*
- 11 Leaves glabrous or glabrescent or very sparsely lepidote beneath; blades lanceolate, 20–30 mm wide, narrowed toward base; inflorescence glabrous, with few branches, these ascending; Inter-Andean Dry Forests, Pre-Andean Amazon Forests, Yungas; BOLIVIA: Dpto. La Paz(?), PERU: Dpto. Puno, Cuzco, Junín, Pasco, Huánuco . . . . . *F. schidosperma*
- 11' Leaves covered beneath with a dense layer of pale or whitish scales . . . . . 12
- 12 Plant caulescent, flowering up to 60 cm high; leaves pale-lepidote beneath (with appressed scales); dimorphic foliation: lower leaves surrounding the stem, narrowly triangular, gradually merging into the rosette leaves: sheaths violet beneath, blades narrowly lanceolate, ± petiolate; peduncle reddish, glabrous; peduncle bracts pale lepidote; Yungas; BOLIVIA: Dpto. La Paz . . . . . *F. heterophylla*
- 12' Plant acaulescent . . . . . 13
- 13 Leaves not or scarcely contracted basally . . . . . 16
- 13' Leaves narrowed, more or less petiolate . . . . . 14
- 14 Leaves petiolate, to 35 mm wide, entire, densely pale-lepidote beneath (with appressed scales); primary bracts up to 20 mm long; peduncle bracts 3–10 cm long, glabrescent; sepals 2–3 mm long; petals 4–5 mm long; Yungas; BOLIVIA: Dpto. La Paz, PERÚ: Dpto. Puno . . . . . *F. petiolata*
- 14' Leaves constricted at base, almost petiolate, to 25 mm wide, thickly white-lepidote beneath; primary bracts inconspicuous, to 10 mm long . . . . . 15
- 15 Leaves to 15 mm wide, entire or some inconspicuous spines at the base; peduncle bracts glabrous, always longer than the internodes; inflorescence: less than 15 branches, branches longer than 5 cm; floral bracts shorter than the pedicels; on Precambrian rocks within Beni and Santa Cruz Amazon Forests; BOLIVIA: Dpto. Santa Cruz, BRAZIL: Mato Grosso . . . . . *F. windischii*
- 15' Leaves to 25 mm wide, entire; peduncle bracts lepidote, not always longer than the internodes; inflorescence: more than 15 branches, branches up to 5 cm long; floral bracts longer than the pedicels or equaling; Yungas; BOLIVIA: Dpto. La Paz . . . . . *F. kroemeri*
- 16 Pedicels to 5 mm long; floral bracts much shorter than pedicels, leaf blades 20 mm wide, petals ca. 5.5 mm long; on rocks in Parañá-Paraíba Interior forests; PARAGUAY: Dpto. Amambay . . . . . *F. rojasii*
- 16' Pedicels short, to 1.5–3 mm long; floral bracts longer than pedicels . . . . . 17
- 17 Leaf sheaths to 20 mm wide; blades to 20 mm wide, to 15 cm long, linear-lanceolate; petals 4–5 mm long; Sub-Andean Amazon Forests, Yungas; BOLIVIA: Dpto. La Paz, Cochabamba . . . . . *F. elviragrossiae*
- 17' Leaf sheaths to 50 mm wide; blades to 12 mm wide, to 75 cm long, narrowly linear; petals 3–4 mm long; Andean humid forests; PERU: Cuzco . . . . . *F. robertreadii*

NOTE: Terms of Vestiture following Simpson (2006): glabrous, glabrescent, tomentose, villous, lepidote, arachnoid.

#### CURRENTLY ACCEPTED *FOSTERELLA* SPECIES AND SYNONYMS

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