

On the identity of *Jansenella griffithiana* (Poaceae) with a new species from Western Ghats, India

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Abstract

Jansenella Bor is wide-spread in India, Myanmar and Sri Lanka. Analysis of various populations of the genus from Western Ghats revealed an occurrence of hitherto undescribed species along with the only known species, *J. griffithiana*. This paper circumscribes and lectotypifies *J. griffithiana*. A new species, *J. neglecta* S.R. Yadav, Chivalkar et Gosavi, from Western Ghats is described and illustrated.

Keywords: *Jansenella*, Lectotypification, New species, Poaceae, Western Ghats

Introduction

Jansenella Bor so far known to have a single species, viz., *J. griffithiana* (C. Müll.) Bor (Karthikeyan *et al.*, 1989; Watson & Dallwitz, 1994; Sharma *et al.*, 1996; Moulik, 1997) is distributed in India, Myanmar and Sri Lanka. It is a common grass species occurring throughout the Western Ghats growing on lateritic plateaus of higher altitude ranging from 500 to 1200 m. Müller (1856) described it as *Danthonia griffithiana*, that was later raised into a monotypic genus *Jansenella* by Bor (1955). Our careful field observations, comparison and critical analysis of specimens with type revealed that some sympatric populations differ from typical *J. griffithiana* in several characters. There are no intermediate forms bridging these populations. There is distinct morphological discontinuity between these entities and warrants status of a separate species. Hence, in the present paper circumscription of *J. griffithiana* is defined and a new species is described.

Jansenella griffithiana (C. Müll.) Bor in Bull. Misc. Inform. 1955: 98. 1955 & Grass. Burma Ceylon India Pakistan: 426. 1960; Lakshminarasimhan in Sharma *et al.*, Fl. Maharashtra, Monocotyl.: 534. 1996; Moulik, Grass. Bamb. India 1: 62. 1997. *Danthonia griffithiana* C. Müll. in Bot. Zeitung (Berlin) 14: 347. 1856. – Lectotype (designated here): India Orientalia, Khasia Leg.: *W. Griffith s.n.* B-0240400 (B!).

Arundinella avenacea Munro ex Thwaites, Enum. Pl. Zeyl.: 362. 1864; Hooker, Fl. Brit. India 7: 69. 1896; Blatter & McCann, Bombay Grass.: 191. 1935; Cooke, Fl. Bombay 3: 520. 1958 (Repr. ed.).

Fig. 2b, d, g, h, j, l, n

Annuals; culms erect or decumbent, terete, slender, 10 – 30 cm high, rooting at lower nodes; nodes glabrous. Leaf-sheath terete, hairy at margin, 0.5 – 2 cm long; ligule arch-shaped, membranous. Leaf-blade flat, narrowly ovate, 3 – 5.5 × 0.5 – 0.7 cm, amplexicaul at base, ciliate with tubercle-based hairs near ligule, acute to acuminate, dark green above, glaucous below; nerves conspicuous on upper surface, quite inconspicuous on lower surface. Panicle compact or spreading, 4 – 4.5 cm long (including awn); rachis slender, flattened, hairy. Spikelet ovate, 6 – 7 × 1 – 2 mm (excluding awn). Lower glume ovate, 3.4 – 3.6 × 0.8 – 1 mm, aristate at apex (arista 0.5 – 0.8 mm long, minutely scabrous), membranous, tubercle-based hairy on dorsal surface, 3-nerved. Upper glume lanceolate, 5.7 – 6 × 1 – 1.2 mm (including awn), aristate at apex (arista 1.8 – 2 mm long), membranous, 3 – 5-nerved. Lower floret male, female, bisexual or barren. Lower lemma lanceolate to elliptic, 3.8 – 4.2 × 1.2 – 1.4 mm, aristate at apex (arista 1 – 1.2 mm long, minutely scabrous), membranous, very minutely hairy, obscurely 3-nerved. Palea lanceolate, 2 – 2.2 × 0.5 – 0.6 mm, hyaline; apex lacerate, hairy. Upper floret always bisexual. Upper lemma lanceolate, 3.8 – 4 × 0.8 – 1.2 mm (with lateral awns), membranous, bearded at base, with two tufts of white hair on the back at margin just above the middle, white to brown, 3-awned at apex; lateral awns capillary, 2.4 – 2.8 mm long; median awn 9 – 12.5 mm long, scabrid. Palea lanceolate, 1.8 – 2.0 × 0.4 – 0.6 mm, bifid at apex, pointed-hairy on dorsal surface, brown. Stamens 3; anthers c. 1 mm long. Lodicules 2. Pistil 1.2 – 1.4 mm

long; style bifid; stigma feathery. Caryopsis ellipsoid, $1.2 - 1.5 \times 0.4 - 0.6$ mm; hilum punctiform; embryo half the length of caryopsis.

Flowering & Fruiting: August – November.

Specimens examined: INDIA, **Maharashtra**, Kolhapur district, Kondushi Plateau, 17.10.2007, K.V.C. Gosavi 2798; Shelap, Radhanagari, 18.10.2007, K.V.C. Gosavi 2810 (SUK); Nagar district, Durga Killa Plateau, 22.10.1967, Hemadri 107544; Pimpricha Umar, Harishchandra gad, 28.9.1970, B.M. Wadhwa 127848; Ratnagiri district, Ramghat, Chandgad, Ratnagiri, 1.9.1946, B.G. Kulkarni 119146; Satara district, Mahabaleshwar, 12.3.1957, S.D. Mahajan 13920; Mahabaleshwar, 12.10.1957, S.D. Mahajan 27162; Venna lake, Mahabaleshwar, 14.10.1957, S.D. Mahajan 24697; Machutar Forest, on Satara Road, Mahabaleshwar, 10.10.1960, M.Y. Ansari 67556 (BSI); Mahabaleshwar, 7.10.1990, S.R. Yadav 7370; Kas, 9.10.1994, C.B. Salunkhe 8187 (SUK); Sindhudurg district, Amboli, 27.11.1961, M.Y. Ansari 78545; Amboli, 7.11.1965, B.G. Kulkarni 106359; Amboli Ghat, Forest house, Ratnagiri Road, 8.11.1965, B.G. Kulkarni 107918; Hirmaykeshi, Amboli Ghat, 27.10.1969, B.G. Kulkarni 119111; Phoda Ghat, 4.10.1970, B. G. Kulkarni 121437 (BSI); Chaukul, 28.10.2006, K.V.C. Gosavi 2703 (SUK).

Typification: There are two specimens, viz., B10 0240400 and B10 0240395 in Botanisches Museum Berlin-Dahlem (B) referred by Müller that constitute syntypes. As type is not cited in the protologue by Müller, India Orientalia, Khasia Leg.: Griffith s.n. B10 0240400 is designated here as the lectotype.

Notes: Bor (1960) states “In Bombay it has been found in open places in rather dry habitats and here the parts of the spikelets become almost coriaceous and the glumes more or less long awned. The facies of such plants is somewhat different from that of typical *Jansenella griffithiana*, but I doubt if they are specifically different”. Our critical observations in the field and detailed studies in laboratory revealed occurrence of sympatric populations of two species of *Jansenella* in Western Ghats, namely, *J. griffithiana* and *J. neglecta* sp. nov.

Jansenella neglecta S.R. Yadav, Chivalkar et Gosavi, sp. nov. **Fig. 1a – m, 2a, c, e, f, i, k, m**

Jansenellae griffithianae similis, spiculis 7 – 12 (nec 6 – 7) mm longis, glumis inferioribus 5 – 6.5 (nec 3.4 – 3.6) mm longis, glumis superioribus 8.8 – 10 (nec 5.7 – 6) mm longis, lemmate inferiore 6.5 – 7.5 (nec 3.8 – 4.2) mm longo, lemmate superiore 7.5 – 9 (nec 3.8 – 4) mm longo, palea superiore dorsaliter omnino pilis clavuliformibus (nec acutis) tecta differt.

Typus: INDIA, **Maharashtra**, Kolhapur district, Radhanagari Wildlife Sanctuary $16^{\circ}10' - 16^{\circ} 30'N$ and $73^{\circ}52' - 74^{\circ}05'E$, 550 – 600 m, 8.10.2006, S.R. Yadav 201 (Holotypus, CAL; Isotypii, K, MH, BLAT, SUK).

Annuals; culms erect or decumbent, terete, slender, 10 – 40 cm high, rooting at lower nodes; nodes glabrous. Leaf-sheath terete, 1 – 2.5 cm long, hairy at margin; ligule membranous. Leaf-blade flat narrowly ovate, $1.5 - 5 \times 0.35 - 1$ cm, amplexicaul at base, ciliate with tubercle-based hairy near base, acute at apex. Panicle compact or spreading, 2 – 5 cm long (including awn); rachis slender, flattened. Spikelet ovate-oblong, $7 - 12 \times 3 - 4.2$ cm (excluding main awn). Lower glume ovate, $5 - 6.5 \times 1.8 - 2$ mm, aristate at apex (arista 1.6 – 2 mm long, minutely scabrous), membranous, sparsely hispid with tubercle-based hairs on dorsal surface, 3-nerved. Upper glume lanceolate, $8 - 10 \times 2.2 - 2.4$ mm, aristate at apex (arista 3 – 3.5 mm long, minutely scabrous), membranous, sparsely hispid with tubercle-based hairs on dorsal surface, 3 – 5-nerved. Lower floret male, female, bisexual or barren. Lower lemma lanceolate, $6.5 - 7.5 \times 2.2 - 2.5$ mm, aristate at apex (arista 1.4 – 1.6 mm long), membranous, glabrous, 3-nerved. Palea lanceolate, $4 - 5 \times 1 - 1.2$ mm, bifid at apex, hyaline, hairy at upper half along margin, obscurely 2-nerved. Upper floret always bisexual. Upper lemma oblong, $7.5 - 9 \times 1.8 - 2$ mm (with lateral awns), coriaceous, bearded at base, with two tufts of white-brown hairs on dorsal side at margin just above the middle, brown, 3-nerved, 3-awned at apex; lateral awns capillary, 3 – 4 mm long; median awn 15 – 18 mm long, scabrid. Palea ovate, $4.2 - 4.5 \times c. 1$ mm, bifid at apex, scabrid on dorsal surface, brown, 2-nerved. Stamens 3; anthers c. 1 mm long. Pistil 1.2 – 1.4 mm long. Caryopsis ellipsoid, $2 - 2.5 \times 0.4 - 0.6$ mm; hilum punctiform; embryo half the length of caryopsis.

Flowering & Fruiting: August – November.

Habitat: It grows in grassy grounds of higher altitude (500 – 1200 m) in Western Ghats in association with *Dimeria stapfiana* C.E. Hubb. ex Pilg., *Glyphochloa forficulata* (C.E.C. Fisch.) Clayton, *G. mysorensis* (S.K. Jain et Hemadri) Clayton, *Ischaemum* spp., *Utricularia albocaerulea* Dalzell, *U. praeterita* P. Taylor, *U. purpurascens* J. Graham, *Smithia bigemina* Dalzell, *Paspalum canarae* (Steud.) Veldkamp var. *fimbriatum* (Bor) Veldkamp, *J. griffithiana* (C. Müll.) Bor, *Impatiens lawii* Hook.f. et Thomson, *I. oppositifolia* L., *I. tomentosa* B. Heyne ex Wight et Arn., *Indopoa paupercula* (Stapf) Bor, *Eriocaulon eurypleplon* Körn. and *E. tuberiferum* A.R. Kulk. & Desai during monsoon season.

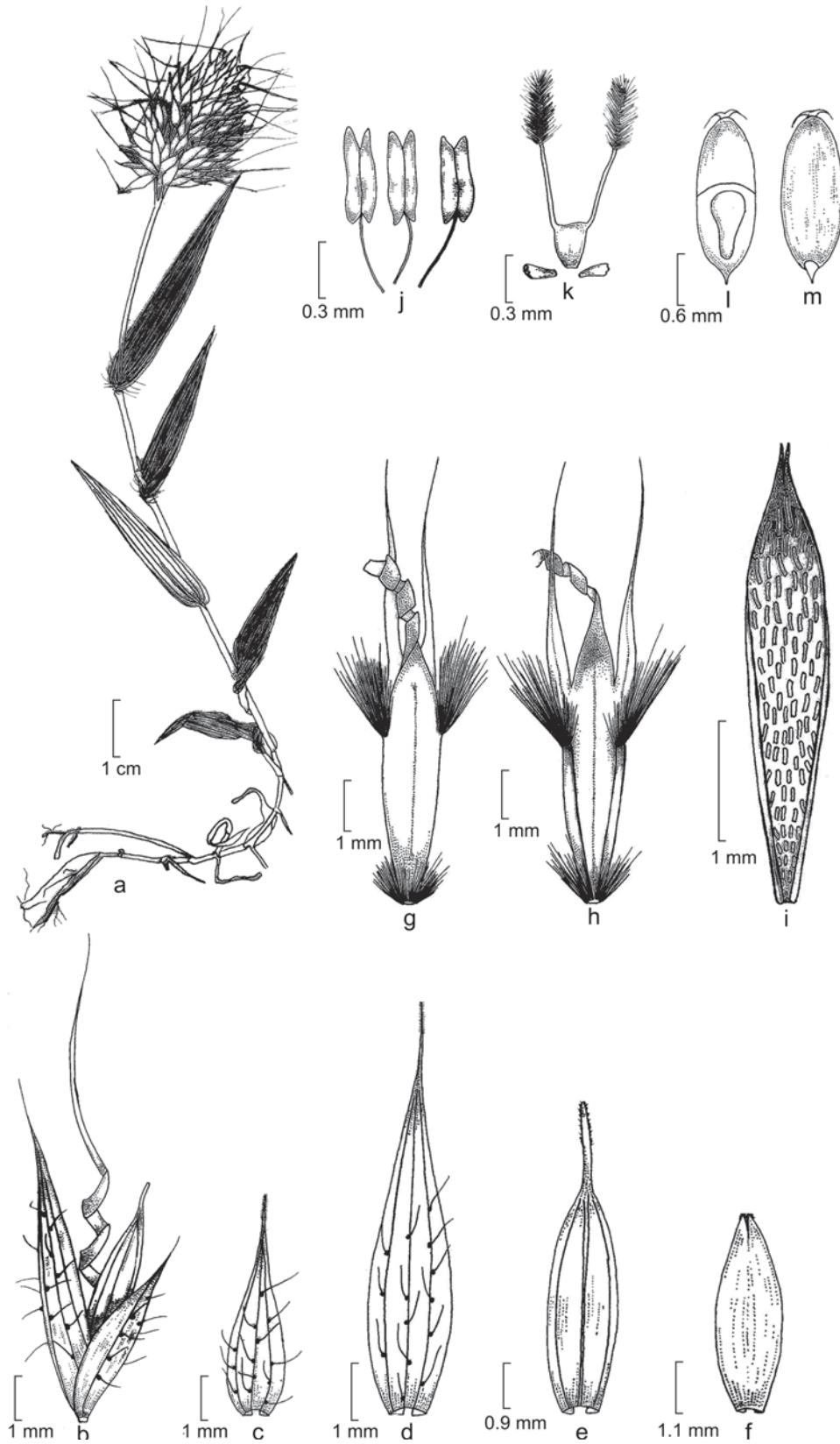


Fig. 1. *Jansenella neglecta* S.R. Yadav, Chivalkar *et* Gosavi, *sp. nov.*: a. Habit; b. Spikelet; c. Abaxial view of lower glume; d. Abaxial view of upper glume of upper floret; e. Abaxial view of lower lemma; f. Abaxial view of palea; g. Abaxial view of upper lemma; h. Adaxial view of upper lemma; i. Abaxial view of palea; j. Stamens; k. Pistil and lodicules; l. Adaxial view of caryopsis showing embryo; m. Abaxial view of caryopsis showing punctiform hilum.



Fig. 2. *Jansenella neglecta* S.R. Yadav, Chivalkar et Gosavi, *sp. nov.* (a, c, e, f, i, k, m): a. Habit; c. Inflorescence; e, f. Fertile floret, ventral and dorsal views; i. Dorsal view of upper palea; k. Lateral view of upper palea; m. Caryopsis. *J. griffithiana* (b, d, g, h, j, l, n): b. Habit; d. Inflorescence; g, h. Fertile floret, dorsal and ventral views; j. Dorsal view of upper palea; l. Lateral view of upper palea; n. Caryopsis.

Table 1. Differences between the two species of *Jansenella* Bor

<i>J. griffithiana</i>	<i>J. neglecta</i> sp. nov.
Spikelet 6 – 7 × 1 – 2 mm (excluding awn)	Spikelet 7 – 12 × 3 – 4.2 mm (excluding awn)
Lower glume 3.4 – 3.6 × 0.8 – 1 mm; arista 0.5 – 0.8 mm long	Lower glume 5 – 6.5 × 1.8 – 2 mm; arista 2.6 – 2.8 mm long
Upper glume 5.7 – 6 × 1 – 1.2 mm (including awn); arista 1.8 – 2.1 mm long	Upper glume 8.8 – 10 × 2.2 – 2.4 mm (including awn); arista 3 – 3.4 mm long
Lower lemma 3.8 – 4.2 × 1.2 – 1.4 mm, very minutely hairy, acute to acuminate at apex with 1 – 1.2 mm long, minutely scabrous arista	Lower lemma 6.5 – 7.5 × 2.2 – 2.5 mm, truncate to lacerate at apex with 1.4 – 1.6 mm long, minutely scabrous arista
Palea 2 – 2.2 × 0.5 – 0.6 mm; apex not bifid	Palea 4.3 – 4.6 × 1.1 – 1.2 mm; apex bifid
Upper lemma 3.8 – 4 × 0.8 – 1.2 mm (including lateral awns); lateral awns 2.4 – 2.8 mm long; median awn 9 – 12.5 mm long	Upper lemma 7.5 – 9 × 1.8 – 2 mm (including lateral awns); lateral awns 3 – 4 mm long; median awn 15 – 18 mm long
Palea 1.8 – 2.0 × 0.4 – 0.6 mm, with pointed long hairs on dorsal surface	Palea 4.2 – 4.5 × 0.9 – 1 mm, with club-shaped hairs on dorsal surface
Caryopsis 1.2 – 1.5 × 0.4 – 0.6 mm	Caryopsis 2 – 2.5 × 0.4 – 0.6 mm

Etymology: Specific epithet denotes the neglected nature of the species.

Paratypes: INDIA, **Maharashtra**, Kolhapur district, Borbet, 7.10.2007, K.V.C. Gosavi 2789; Shelap, Radhanagari, 18.10.2007, K.V.C. Gosavi 2811; Pandharpani, Vishal gad, 26.9.2008, K.V.C. Gosavi 2913 (SUK); Nagar district, Bhimashankar road, 1.9.1965, K.P. Janardhanan 81706; Durgawadi killa, Junner, 29.9.1965, Hemadri 107468, 107533; Range, 16.11.1968, K.V. Bhillore 115306; Kedarnath hill, Harischandra garh, Range, 17.11.1968, K.V. Bhillore 115507; Nashik district, Ambewadi Forest, 9.10.1983, P. Lakshminarasimhan 166025; Ramghat, 22.10.1990, S.R. Yadav 7948; Poone district, Khandala, Meroshi Plateau, 15.9.1957, S.D. Mahajan 16393; Sakarpatten hill, Lonavla, 1.9.1964, Bvennata Reddi 98737; Saltan & Amborne nala, Mulsh Tatuka, 1.9.1964, Bvennata Reddi 99090; Amborne Temple, Mulshi, 8.9.1964, Bvennata Reddi 99132; Near Amborne Temple, Mulshi, 1.9.1965, Bvennata Reddi 99131 (BSI); Raigad district, Matheran Charlet lake area, 16.9.1960, B.M. Wadhwa 67315; Ratnagiri district, Pawas, 6.10.1991, C.B. Salunkhe 7738 (SUK); Satara district, Onthur point road, Mahabaleshwar, 11.10.1960, M.Y. Ansari 67589; Sindhudurg district, Chaukul road, Amboli Ghat, 12.10.1970, B.G. Kulkarni 121639 (BSI); Amboli, 21.10.1990, C.B. Salunkhe 8267 (SUK).

Note: *Jansenella neglecta* sp. nov. resembles very much with and is mistaken for *J. griffithiana*. However, it can be distinguished from the latter as shown in Table 1.

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