

Coelorachis khasiana and Eulalia fastigiata (Poaceae) – two new additions to the grass flora of Odisha, India

Truptirekha Kar¹, Kumar Vinod C. Gosavi² and Kishore Kumar Mandal³

¹P.G. Department of Botany, Fakir Mohan University, Balasore, Odisha – 756020, India

²Department of Botany, HPT Arts & RYK Science College, Nashik, Maharashtra – 422005, India

³P.G. Department of Botany, North Orissa University, Baripada, Odisha – 757003, India

कोइलोरैकिस खासियाना एवं यूलालिया फास्टीजियाटा (पोऐसी)-ओडिशा के घास वनस्पतिजात में नवीन संयोजन

तृप्तिरेखा कार, कुमार विनोद सी. गोसावी एवं किशोर कुमार मंडल

सारांश

कोइलोरैकिस खासियाना (हैक.) स्टाफ एक्स बोर एवं यूलालिया फास्टीजियाटा (नीस एक्स स्टेयूड.) हैन्स जातियों को ओडिशा राज्य के सिम्लीपाल जैव आरक्षित क्षेत्र से प्रलेखित किया गया है, ये दोनों जातियां ओडिशा राज्य के लिये नवीन अभिलेख हैं। प्रस्तुत शोध पत्र में इस जातियों का सही वर्गीकी नामकरण, आकरिकी का विस्तृत वर्णन एवं सहज निर्धारण के लिए रेखांकन उपलब्ध करवाया गया है।

ABSTRACT

Two grass species, *Coelorachis khasiana* (Hack.) Stapf ex Bor and *Eulalia fastigiata* (Nees ex Steud.) Haines are reported new to the Odisha state from Similipal Biosphere Reserve. The correct botanical nomenclature, detailed morphological description, taxonomic note and photo plates are provided for easy identification.

Keywords: *Coelorachis khasiana*, *Eulalia fastigiata*, Grass, New record, Odisha

INTRODUCTION

Grasses are one of the chief primary producers in the terrestrial ecosystem. Good palatable grasses play an important role in balancing the food chain in an ecosystem. During meadow survey for palatable grasses of Similipal Biosphere Reserve, authors have collected *Coelorachis khasiana* (Hack.) Stapf ex Bor and *Eulalia fastigiata* (Nees ex Steud.) Haines. After critical

study of the specimens and perusal of relevant literature (Bor, 1960; Shukla, 1996; Hooker, 1897; Haines, 1924; Mooney, 1950; Saxena & Brahmam, 1996) it revealed that, these grasses are not reported from Odisha state. Thus, in present communication reports occurrence of this grasses were reported as a new distributional records to the grass flora of Odisha. A detailed morphological description, note and photographs are provided.



Fig. 1: *Coelorachis khasiana* (Hack.) Stapf ex Bor **a.** Habitat, **b.** Habit, **c.** Panicle, **d.** raceme, **e.** pair of sessile and pedicelled spikelets.

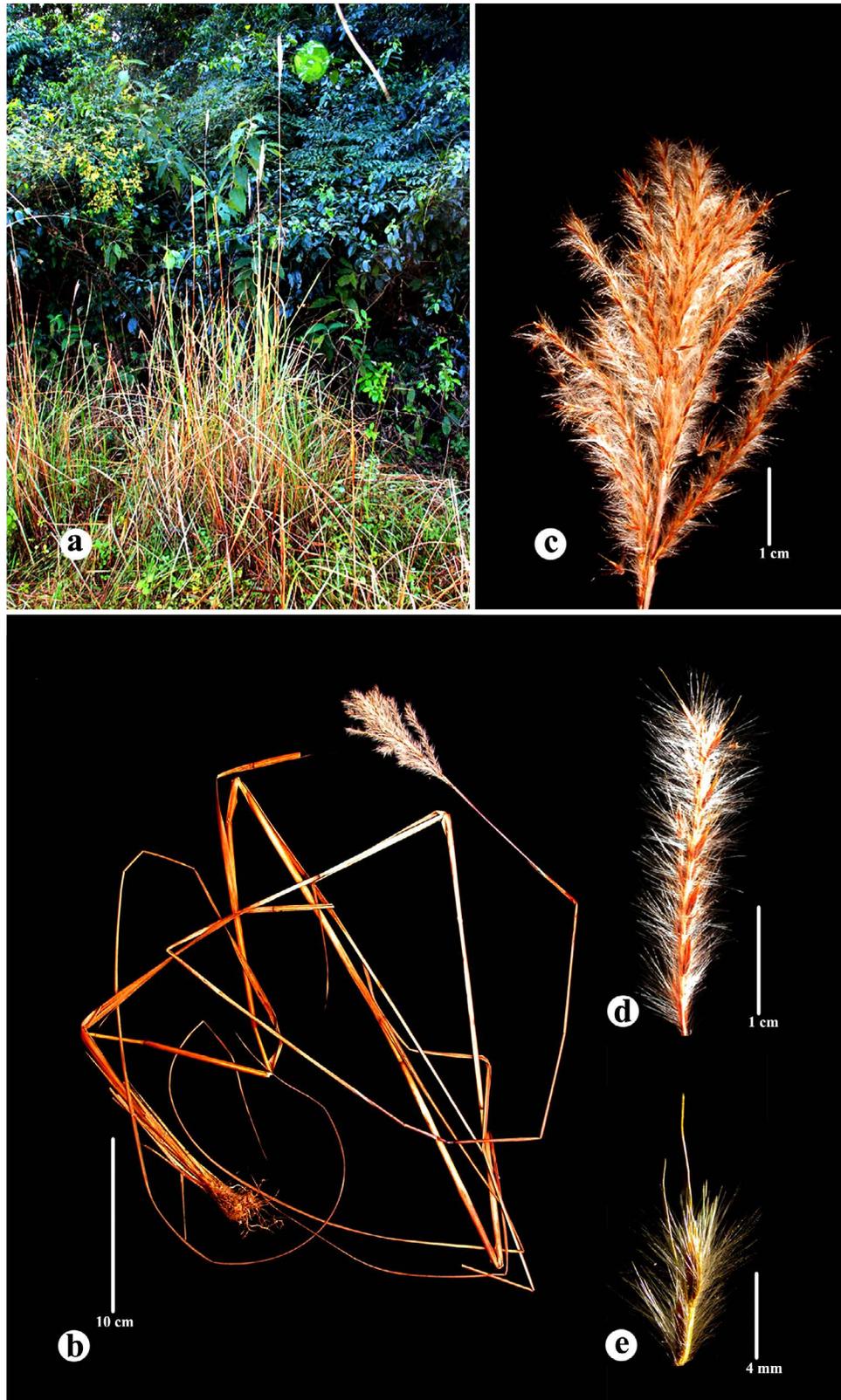


Fig. 2: *Eulalia fastigiata* (Nees ex Steud.) Haines **a.** Habitat, **b.** Habit, **c.** Panicle, **d.** raceme, **e.** pair of sessile and pedicelled spikelets.

TAXONOMIC TREATMENT

Coelorachis khasiana (Hack.) Stapf ex Bor in Indian Forest Rec., Bot. 1:101. 1938; Bor, Grass. Burma Ceylon India Pakistan: 121. 1960; Neogi & Jain in J. Bombay Nat. Hist. Soc. 75 (2): 532.1979; Karthik. & al., Fl. Ind. Enum. Monocot. 199. 1989; Shukla, Grasses N.E. India 72.1996; *Rottboellia striata* Ness ex Steud. *Sp. khasiana* Hack. in DC., Monogr. Phan. 6: 302. 1889. *Mnesithea khasiana* (Hack.) de Koning & Sosef in Blumea 31(2): 291.1986.

Perennial rhizomatous herbs; rhizome thick, creeping. Culms up to 2 m high, erect, terete, branched above, bulbous at base; nodes glabrous, dark coloured, slightly swollen. Basal scaly leaves covering mouth of rhizome, glabrous to villous. Leaf sheath 5-30 × 0.8-1.5 cm shorter than internodes, terete to sub-terete, with prominent nerve, glabrous, margins glabrous, mouth sparsely villous inside, internodes less than 5 cm long, upper internodes 10-40 cm long; ligule 1 mm long, membranous, apex truncate; leaf blades broadly ovate, linear - elliptic linear, 30-90 × 1.5-2.5 cm, flat, glabrous, midrib prominent, acute - acuminate at apex. Inflorescence of many racemes, axillary and terminal panicle; pedunculate; peduncle 5-15 cm long, 2-4 noded, each node with 2-5 cm long narrow spathe, terete, glabrous; raceme 3-5 cm long on 4-14 cm long capillary peduncle, sub-terete to terete, glabrous. Spikelets paired. Joints thick, c. 3 mm long, hollow, glabrous, green to purple coloured, fused with pedicel at basally. Sessile spikelet well developed, lanceolate, 3-4 mm long, glabrous, sunk in cavity of rachis-joint, unawned, apex obtuse; callus ca. 0.2 mm long, glabrous, florets 2, lower empty, upper fertile. Lower glume coriaceous, yellow-green to purple coloured, elliptic - lanceolate, 3-4 × 1-1.2 mm, 7-nerved, longitudinally, ribbed between the nerves with tubercles, margins equal to unequal, narrowly wing of either side at apex; apex obtuse. Upper glume oblong - lanceolate, 3-3.5 × 1-1.2 mm, cartilaginous, 3-nerved; mid nerve narrowly keeled at back, margins inflexed, apex acuminate. Lower lemma elliptic to ovate-lanceolate, 3-3.3 × 1-1.2 mm, hyaline, membranous, margins inflexed; sparsely ciliate, nerveless, apex obtuse - acute. Palea narrowly ovate-lanceolate, 3 × 0.4 mm, hyaline, membranous, nerveless, margins inflexed, apex acute. Upper lemma elliptic-lanceolate to ovate, 2.8-3 × 1 mm, hyaline, membranous, nerveless, apex acute. Palea elliptic - lanceolate, 2.8 × 1 mm, hyaline, membranous, nerveless, apex acute. Lodicules 2, 0.8 mm long, membranous, glabrous. Stamens 3; anthers 1-1.5

mm long. Pistil c. 2 mm long, ovary 0.6-0.8 mm long; style 0.6-0.8 mm long; stigma plumose, c. 0.6-1 mm long. Caryopsis oblong. Pedicel of pedicelled spikelet as long as joint. Pedicelled spikelet elliptic - oblong, 2.5 × 0.7 mm, pedicel as long as joint, sterile. Lower glume elliptic, 2.2 × 0.5 mm, sub-coriaceous, obscurely 2-4 nerved, margins unequal, winged on one side. Upper glume elliptic, 1.8-2 × 0.4 mm, winged on one side.

Flowering and Fruiting: August to January.

Specimens examined: INDIA: Odisha: Similipal Biosphere Reserve, Balidar, 20.12.2017, *Gosavi* and *Kar* 481(SUK); Assam: K & G hills, Umran, 24.9.1935, *S. R. Sharma* 12315 (ASSAM); Nangpoh, 27.9.1935, *S. R. Sharma* 12603 (ASSAM); Goalpara dist., 25.11. 1935, *Dinanath* 12714 (ASSAM); K & G hills, Dawki road, 30.10.1935, *G. K. Deka* 12416 (ASSAM); Malbhog, 26.11.1935, *G. K. Deka* 12739 (ASSAM); Meghalaya: Khasia, Laitkimum, 10.11.1872, *C. B. Clarke* 18189 (CAL); 26 mile from Shillong, 14.11.1957, *G. K. Deka* 9158 (CAL); Sikkim: 12 Oct. 1869, *Dr. Reeleiry* 9960 (CAL); Umtru dam site, South side of dam, K & G dist. 15.11.1966, *G. Panigrahi* 4378 (CAL).

Distribution: India: Odisha (present report), Assam, Meghalaya, Nagaland, Manipur, Sikkim, Burma, Vietnam, China, Thailand.

Note: The species grows rarely along stream banks, in open forests. The species is easily recognized by its fused pedicel and joints, small sized spikelet's and contracted racemes at each nodes.

Eulalia fastigiata (Nees ex Steud.) Haines, Bot. Bihar & Orissa 1014.1924; Bor, Grass. Burma Ceylon India Pakistan: 155. 1960; Lakshmin. In B. D. Sharma & al. (eds.), Fl. Maharashtra, Monocot. 495. 1996; Moulik, Grass. Bamb. India 1: 332. 1997. *Saccharum fastigiatum* Nees ex Steud., Syn. Pl. Glumac. 1: 409. 1854; Hook. f., Fl. Brit. India 7: 125.1896.

Perennials. Culms tufted, 1.5-2m high, erect, branched, terete, golden at dry; nodes and internodes glabrous. Leaf sheath 3-27cm long, terete, sparsely scabrid, length less than internodes, lower part subtending the internode, upper part loose; ligule up to 1 mm long, membranous, glabrous. Leaf blade linear, 10-80 cm long, with prominent mid vein, both surface sparsely scabridous, margins

revolute, apex acute - obtuse. Panicle with long peduncle, base of panicle puberulous, panicle 10-30 cm long, with number of raceme arranged from basal part to apex on central axis. Raceme 4-8 cm long, wooly. Joint and pedicel of pedicellate spikelets c. 2.5 mm long, mouth slightly hollow, covered with c. 4 mm long silky hairs. Spikelets paired; one sessile and another pedicelled. Sessile spikelets elliptic - ovate, 4 x 0.8 mm, awned, brown coloured, callus c. 1 mm long with tuft hairs, two floret; lower floret empty and upper hermaphrodite. Lower glume elliptic - ovate, 4 x 0.8 mm, brown, membranous, sparsely 3-4 nerved c. 3 mm long silky hairs on back at lower half, margins inflexed, tip bifid. Upper glume elliptic-linear ovate, 4 x 0.8 mm long, laterally sub-compressed, membranous, sparsely hairy at back, margins ciliate, inflexed, apex obtuse. Lower lemma elliptic - linear ovate, 3-3.5 x 0.4-0.5 mm, membranous, margins inflexed, sparsely hairy, apex obtuse. Palea absent. Upper lemma c. 1.5 mm long, glabrous, hyaline, margins inflexed, apex bifid, awned; awn geniculate, from sinus, c. 6-8 mm long, scabrid. Palea ovate, 1 mm long, membranous, hyaline to brown, glabrous, apex obtuse. Lodicules 2, 0.4-0.5 mm long, membranous, brown. Stamens 3. Pistil c. 2.5 mm long. Pedicelled spikelet similar to sessile spikelet, hairy.

Flowering and Fruiting: November to January.

Specimens examined: **Odisha**, Similipal Biosphere Reserve, Upper Barhakamuda, 21.12.2017, Gosavi & Kar 483 (SUK); Assam: River bank of Tezpur, 19.12.1900, A.C. Chatterjee 527682 (CAL); West Bengal: Darjeeling, Kurseong, 18.09.1957, P.C. Nanda 1238 (CAL); Tripura: Agartala, 12.08.1915, P.M. Debbarman 527687 (CAL).

Distribution: **India:** Odisha (present report); Assam, Meghalaya, Nagaland, Sikkim, West-Bengal; Burma, China.

Note: The species grows occasionally at higher elevations, open grasslands. The species can be identified in field by its verticillate panicle and central axis of panicle longer than racemes.

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REFERENCES

- BOR, N. L. 1960. *The Grasses of Burma, Ceylon, India, and Pakistan* (excluding Bambuseae). Pergamon Press, London. Pp. 767.
- HAINES, H. H. 1924. *The Botany of Bihar and Orissa. Part V & VI*, Adlard and Sons, London, 937-1065.
- HOOKER, J. D. 1897. *The Flora of British India. Vol 7*. L. Reeve & Co., London, 1-420.
- MOONEY H. F. 1950. *Supplements to the Botany of Bihar and Orissa*. Catholic Press, Ranchi. 156-194.
- SAXENA, H. O. AND BRAHMAM, M. 1996. *The Flora of Orissa. Vol. 4*. Orissa Forest Development Corporation, Ltd. Bhubaneswar, 2222-2524.
- SHUKLA, U. 1996. *The grasses of North-Eastern India*. Scientific Publishers, Jodhpur. pp. 238.