

A Less known grass from North Eastern India

S. Pathak¹ & P. Singh²

Abstract: *Alloteropsis cimicina* (L.) Stapf, a less known grass species from north eastern India, is collected and documented for the first time from Mizoram. The present article provides a meticulous description, phenology and illustration to facilitate identification and confirmation of the species from this expanse.

Key words: *Alloteropsis cimicina*, grass, India, Poaceae.

Scrupulous field exploration and survey was undertaken during the year 2010 – 2011, for collections of grasses and bamboos of Mizoram. The state is a mountainous one, nestling in the southern tip of the North Eastern India, crammed between Myanmar and Bangladesh. While approaching Serlui town in Kolasib district, the first author observed a grass growing next to a narrow stream in a soggy area. Later, the same grass was collected along shaded road sides. The specimen was identified as *Alloteropsis cimicina*, an extremely unfamiliar grass from this area.

Alloteropsis J. Presl., derived from the Greek word "allotrios", meaning strange and "opsis" meaning appearance; a grass genus recognized by its successful and independent progression means (Christin, 2012), is presently documented by 6 described species and is predominantly distributed in the tropical and sub-tropical regions of the world (Clayton & Renvoize, 1986; Chen and Phillips, 2006; Mabberley, 2008; Watson & Dallwitz, 2008). It is also reported from the temperate zones of Asia and North America (Clayton *et al.*, 2006). Previously, Hooker, 1897 gave no allusion of the genus in Flora of British India; later on it was Bor (1960) who enumerated 2 species including 2 varieties from Burma, Ceylon (Sri Lanka), India and Pakistan. At present, India

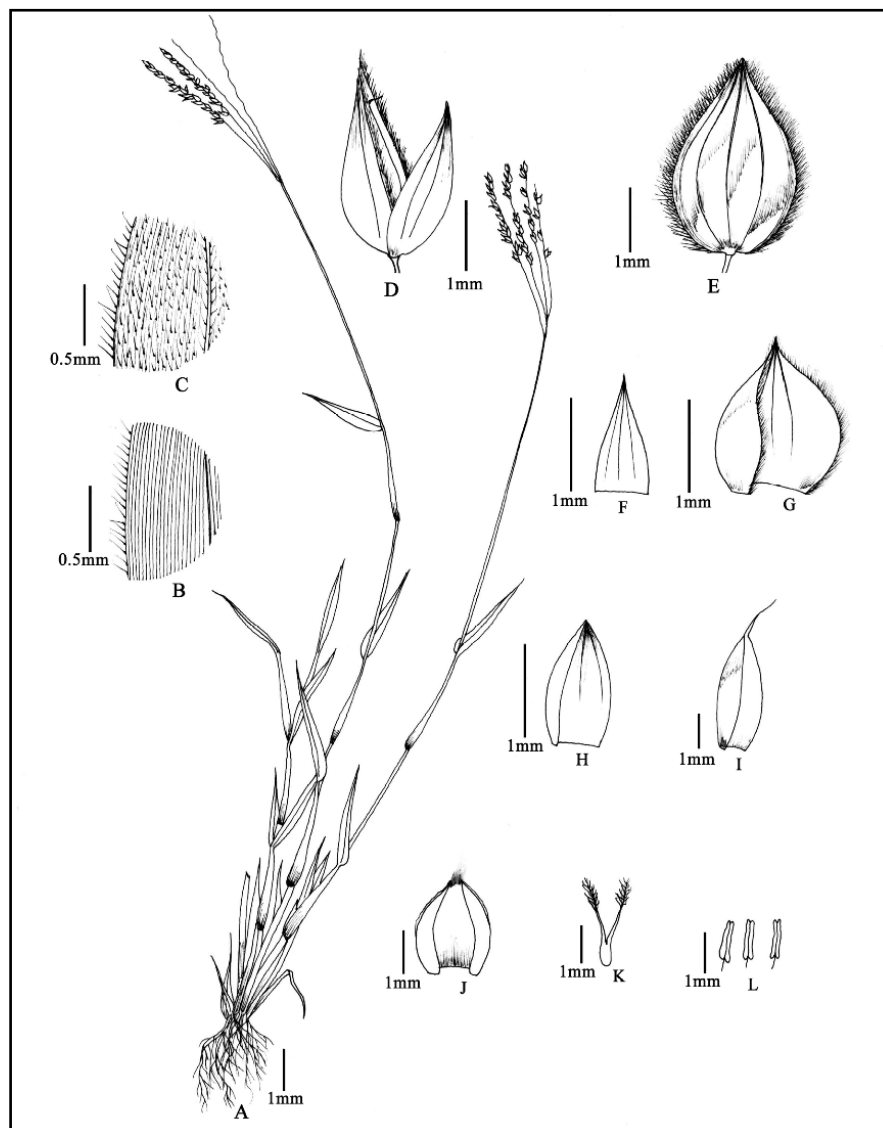


Figure 1. *Alloteropsis cimicina* (L.) Stapf - A: Habit; B - C: Leaf surface; B: Adaxial surface rugose, margin tuberculate hairy; C: Abaxial surface hairy all over; D: Spikelet (side view); E: Spikelet (front view); F: Lower glume; G: Upper glume; H: Lower lemma; I: Upper lemma; J: Palea; K: Pistil; L: Stamens. (S. Pathak 48486 CAL).

harbours 2 species including 3 varieties transpiring within the present political boundaries (Shukla, 1996).

Alloteropsis cimicina (L.) Stapf, widespread from Tropical Africa to India extending up to Australia (Lazarides, 1980; Simon, 1987; Gibbs Russell *et al.* 1987). It possesses superior erosion control ability (Burkill, 2004). This

species is distinguishable by idiosyncratic and ciliate upper glume. In India, it is known to grow all over the plains (Bor, 1960). In the recent past, Shukla (1996) reported only 1 species from North Eastern India, *A. semialata*. Subsequently, neither literature, nor herbarium collections has established the incidence of occurrence of this grass species from any other

^{1&2} Botanical Survey of India, CGO Complex, Salt Lake City, Kolkata- 700064. India. Email: ¹spathak.bsi@gmail.com (Corresponding author); ²pchanna@gmail.com



Image 1. Herbarium picture of *Alloteropsis cimicina* (L.) Stapf

constituency of north east except Tripura (K.A.A. Kabeer. & V.J. Nair, *ibid.*). Therefore, the present collection forms new distributional record of this less recognized grass to Mizoram.

Material and Methods

The specimen was collected during the field survey conducted from 2010 to 2011, in different areas of Mizoram. The collected materials were processed following standard herbarium techniques, specimens were identified with the aid of literature and herbarium specimens obtainable at ASSAM and CAL herbaria. Morphology of the live specimen was studied using Olympus (SZ - 51) microscope. The specimen is

deposited in Central National Herbarium (CAL). At the instance of critical study, it was noticed that *Alloteropsis cimicina*, was not previously reported from any other states, except Tripura. Therefore, the present collection will be a first time reported extensive of species to this precinct.

Result and Discussion

***Alloteropsis cimicina* (L.) Stapf** in Oliver *et al.*, Fl. Trop. Afr. 9: 487. 1919; C. Fischer, Fl. Madras 3: 1766 (1223). 1934; Bor, Grass. India 276 - 277. 1960; Matthew, Mat. Fl. Tamilnadu Carnatic 383. 1981 & III. Fl. Tamilnadu Carnatic t. 801. 1982. Figure 1

Description: Annual; caespitose. Culms erect, geniculately ascending; 15 - 26 cm long. Culms erect; rugose, slightly hairy; nodes round, brownish, bearded. Leaf blade simple; alternate; 2 - 3×0.3 - 0.7 cm; lanceolate to ovate, base amplexicaul, apex acute; margin pectinate having tuberculate, stiff hairy, hairs ca 1 - 2 mm; adaxial surface rugose, glabrous, margin tuberculate hairy; abaxial surface hairy all over, on the main and minor veins; mid vein prominent, slightly depressed, whitish; ligule membranous, brown, shiny, 1.2 - 1.3 mm; sheaths loose, open for most of their length, with flat margins, 4 - 5.3 cm, without keel, striate, hirsute with tubercle-based hairs. Inflorescence composed of racemes. Racemes 4 - 11, digitate, unilateral, 3 - 4.3 cm long. Rhachis angular to triquetrous, pilose, 2 - 3 cm long hairy at base. Spikelets ascending, in pairs, clustered at each node. Spikelets comprise 1 basal sterile floret and 1 fertile floret, without rhachilla extension or with a barren rhachilla extension. Spikelets elliptic to ovate, dorsally compressed, 3 - 3.5×1 - 1.2 mm long, greenish brown. Glumes dissimilar. Lower glume ovate to triangular, 2.5×0.75 - 1 mm, acuminate, membranous, 3- veined, veins ending almost midways. Upper glume broadly ovate, apex acuminate, 3×2 mm, cartilaginous, 3- veined, margins densely ciliate (hairs 1 - 2 mm). Basal sterile florets male, paleate. Lower lemma ovate, acuminate, 2.2×1.1 mm, chartaceous, leathery, 3- veined, cream coloured. Upper lemma oblong, apex acuminate, 2.2×1 mm long, margins involute, chartaceous, nerveless, 1-awned, awn 1 mm. Palea broadly ovate, 2×1.4 mm, chartaceous, surface papillose, apex fringed. Stamen 3, anthers linear, 0.5 - 1 mm, yellowish, tip smooth. Pistil 1, 2 mm, stigmas 2, dark purple, styles 2, white, ovary oblong, glabrous.

Phenology: Flowering & fruiting: September to May.

Habitat: Road sides and along the edges of small streams.

Distribution: Africa, Asia, China, Malaysia, Australia, North America. INDIA: Andaman, Andhra Pradesh, Bihar, Kerala, Madhya Pradesh, Maharashtra, Mizoram, Orissa, Tamil Nadu, Tripura, West Bengal.

Specimens Examined: INDIA : Mizoram, Kolasib District, Kolasib road side, near Serlui town, 887 m, 24°13'51.00" N – 92°40'32.99" E, 02.04.2011, S. Pathak 48486.

References:

Bor, N.L. (1960). *The Grasses of Burma, Ceylon, India and Pakistan (excluding Bambuseae)*, 276 – 277pp. Pergamon Press, London.

Burkill, H.M. (2004). *The useful plants of west tropical Africa*. USDA Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland. <http://www.ars-grin.gov/cgi-bin/npgs/html/stdlit.pl?Use%20PI%20WT%20Afr>.

Chen, S. & S.M. Phillips (2006). *Flora of China*. 22: 519 – 520. Science Press (Beijing) & Missouri Botanical Garden (St. Louis).

Christin, P.A., E.J. Edwards, G. Besnard, S.F. Boxall, R. Gregory, E.A. Kellogg, J. Hartwell, & C.P. Osborne, (2012). Adaptive Evolution of C4 Photosynthesis through Recurrent Lateral Gene Transfer. *Current Biology* 22 (5): 445 – 449.

Clayton, W.D. & S.A. Renvoize (1986). *Genera Graminum: Grasses of the World*, 282pp. Kew Publishing, Kew.

Clayton, W.D., M. Vorontsova, K.T. Harman, & H. Williamson (2006). RGB Kew: Grass Base - *Alloteropsis* Description. *Grass Base - The Online World Grass Flora*. <http://www.kew.org/data/grasses-db.html>.

Gibbs Russell, G.E., W.G.M. Welman, E. Retief, K.L. Immelman, G. Germishuizen, B.J. Pienaar, M. Van Wyk & A. Nicholas (1987). List of species of southern African plants. *Mem. Bot. Surv. S. Africa*. 2(1 – 2):1 – 152.

Hooker, J.D. (1897). *The Flora of British India*, Vol. 7. L. Reeve & Co. London.

Karthikeyan, S., S.K. Jain, M.P. Nayar & M. Sanjappa (1989). *Florae Indicae Enumeratio: Monocotyledoneae*, 264 – 265pp. Botanical Survey of India, Calcutta.

Lazarides, M. (1980). *The Tropical Grasses of Southeast Asia (excluding bamboos)*. 225pp. Vaduz.

Mabberley, D.J. (2008). *Mabberley's Plant book- A portable dictionary of Plants, their Classification and Uses*. 3rd edition, 815pp. Cambridge University Press, Cambridge.

Moody, K. (1989). *Weeds Reported In Rice in South And Southeast Asia*. 1 – 552pp. International Rice Research Institute, Philippines.

Shukla, U. (1996). *The Grasses of North-Eastern India*, 308pp. Scientific Publishers, Jodhpur.

Simon, B.K. (1987). *Flora of Australia*, 43: 240. By Australian Biological Resources Study, CSIRO Publishing.

Watson L. & M.J. Dallwitz (2008). The grass genera of the world: descriptions, illustrations, identification, and information retrieval; including synonyms, morphology, anatomy, physiology, phytochemistry, cytology, classification, pathogens, world and local distribution, and references. *The Grass Genera of the World*. Retrieved 2009-08-19.