Original Research Article

Taxonomic Studies of the Genus *Eragrostis* Wolf(Poaceae: Chloridoideae) in Telangana- with three new additions

ABSTRACT

Eragrostis Wolf is a highly variable genus inthe grass family Poaceae (subfamilyChloridoideae). A taxonomic study of twenty-five species of the genus *Eragrostis* in Telangana state is here presented. The study was carried out based on fresh collections from various localities of the state and herbarium specimens ~~housed~~ deposited in different herbaria. The results revealedthe ~~discovery~~of three~~previously neglected~~species:*E.~~ragrostis~~maderaspatana*Bor, *E.~~ragrostis~~nigra*Nees ex Steud., and*E.~~ragrostis~~zeylanica*Nees&Mey. Detailed descriptions of these species, key for identifying the i~~nvestigated~~ speciescited for Telangana state~~based on morphological characters~~, phenology, habitat, local, national and global distribution, specimens examined, notes, and photographsare provided for easy identification.

Keywords: Endemic species;*Eragrostis;*new distributional records;notes;Poaceae; Telangana

1. INTRODUCTION

The genus *Eragrostis*Wolf (Poaceae: Chloridoideae) comprises approximately 423 species and is distributed in tropical, subtropical, and warm temperate regions of the world [1,2,3,4,5]. Out of 423 species, 55species are endemic to Australia [6]followed by Mexico with 36 species, and the United States and Canada with 25 species [7,8,9]. In India, the genus is represented by 48 taxa belonging to 43 species and ~~5~~five varieties and distributed from sea level to 2800 m elevations [9,10]. ~~,~~Five of these ~~5~~ species and ~~4~~four varieties are endemic to the country (Vivek et al., 2021).

Comment [-1]: It is strongly suggested to propose another title for the paper that is focused on the new records of *Eragrostis* for the Telangana flora presented here. Because the complete taxonomic treatment of the 17 species cited for the state is not presented.

Comment [-2]: Please consider reviewing it. An exhaustive study of the 25 species of the genus for the state is not presented. Only of the new records.

Comment [-3]: It is suggested to specify how many localities the fresh collections belong to.

Comment [-4]: new report

Comment [-5]: As part of the introduction, the objective of the work must be explicitly stated.

Comment [-6]: This should be standardized with the format of the rest of the bibliographic citations.

In Telangana state, the genus is represented by 17 species (Pullaiah, 2015; Reddy and Reddy, 2016), in addition tofive recently 5registered species~~— namely,:~~*Eragrostis barrelieri*-Daveaucollected from Nirmal district, Telangana,and reported as an addition to the grass flora of India[11];*E. cumingii*Steud. reported as a new distributional record for the state of Telangana,collected from Adilabad and Nizamabad districts [12,13]; *E.macilenta* (A.Rich.) Steud. collected from Manjeera Wildlife Sanctuary of Medak district and reported as an addition to the grass flora of Telangana[14]; *E.nilgiriensis* Vivek, G.V.S. Murthy & V.J. Nair collected from TadwaiVillage of Kamareddy District and reported as extended distribution of endemic species [15]; and*E. papposa*(Roem. & Schult.) Duf. exSteud. collected from Manasahills, Rajendranagar,Rangareddy district, and reported as a new report from Telangana~~S~~state [16].The number of species of *Eragrostis*for the Telangana stateamunts to 25 considering the three new records presented in this study.

Comment [-7]: This also should be standardized with the format of the rest of the bibliographic citations.

2. STUDY AREA

Telangana, the 29th state of the Indian Union with 10 districts was ~~carved~~ segregated out of the common state of Andhra Pradesh in 2014,wich~~. It~~ is the 12th largest state ~~in India~~ of the country. The ~~city of~~ Hyderabad city is the capital of Telangana~~.Telangana~~ this is surrounded by Maharashtra and Chhattisgarh in the North, Karnataka in the West, and Andhra Pradesh in the South and East directions. The Telangana state ~~lies~~ is located on the Deccan plateau to the ~~w~~West of the Eastern Ghats range between 15˚48′ 32″ to 19˚ 55′ 46″ N ~~latitudes~~and 77˚ 09′ 02″~~E~~ to 81˚ 18′ 51″E,~~longitudes~~with an area of 112,077 km^2~~with~~ andan elevation range between 130 ~~m~~ to 900 m above the sea level. The high elevation area of 800 ~~m~~ to 900 m is distributed in parts of Nallamalaisand an average elevation of about 400 m above sea level of the state. Doli gutta is the possibly highest peak (965 m) in the present Mulugu district of the state[17,18].

Comment [-8]: It is to be expected that in addition to what is described here, the characterization of the predominant flora or biogeographical aspects will be included. Please consider adding information in this regard

Comment [-9]: Please clarify what it refers to. It is confusing since it refers to the total range of heights that characterizes the state.

3. REVIEW OF LITERATURE

A review of the literature on grasses documentation in Telangana ~~S~~state is presented to provide a perspective of the nature and extent of the work done within this state to date. ~~No~~Only three taxonomic/systematic work has been published on the genus *Eragrostis*~~(Poaceae)in~~for Telangana state: ~~except the~~ Grasses of Adilabad(Erstwhile District)[19], Grasses of Nizamabad District [12], and Grasses of Telangana [16]. While consulting the collection herbari~~um~~ (BSID, CAL, HY, MH, SKU, KUW, TUH ~~(Telangana University Herbarium)~~, etc.) and literature, the authors came across that, thecollections of *Eragrostis* species were made from various parts of the state for different projects by many ~~(33)~~ taxonomists/botanists/plant collectors; the plant collectors names are arranged alphabetically starting from R A. Appaiah, A. B. Reddy, A.N. Henry, B. R. P. Rao, C. P. Raju, C. S. Reddy, D. A. Moulali, G. Obulesu, G.V. Subbarao, J. Swamy, K. Chandra Sekhar, K. M. Sebastine, K. Tothathri, L. Rasingam, M. H. Reedy, M. S. Gayathri, M. V. Ramana, M.. R. Prasad, M.R. Suxena, M.S. Mohammed, N. Ramarao, P.S. Annamma, P. V. Prasanna, R. Chandrasekaran, R. Gopalan, R. K. Premanath, R. Rajan, S. Nagaraju, S.R. Srinivasan, T. Pullaiah, T. Ravisankar, V. Jalander to V. S. Kumar.

4. MATERIALS AND METHODS

The present study is based on the regular floristic investigations were undertaken during the years 2014-2022 and ~~investigation of~~ the analysis of specimens ~~housed in various~~ from regional and national herbaria(BSID, CAL, HY, MH, SKU, KUW, TUH, etc.).The collected specimens were processed as per the standard herbarium protocol described by Jain and Rao [20] and deposited at the Botanical Survey of India, Deccan Regional Centre (BSID), Hyderabad, and Department of Botany, Telangana University Herbarium (TUH), Dichpally, Nizamabad,

Comment [-10]: It is suggested to redistribute some of the information presented here and delete this item.

Comment [-11]: All this corresponds to the background of the study. They should be included in the introduction.

Comment [-12]: This corresponds to the materials and methods item.

Comment [-13]: What is the purpose of listing the collectors?

Comment [-14]: If these are field collections please mention how many and which districts/locations/ of the state they were carried out.

Comment [-15]: Only specimens examined from TUH are mentioned in results.

Comment [-16]: All the herbaria visited or whose specimens have been analyzed should be cited.

Telangana. Every specimen was carefully studied by dissecting the floral parts ~~of~~ from the duplicate ~~specimens~~ samples using ~~under dissection and~~ compound microscopes. ~~Detailed study of the dried specimens and their identification were carried out in the Botanical Survey of India, Deccan Regional Centre, Hyderabad and Department of Botany, Telangana University, Nizamabad district and with the help of various~~ The Indian floras such as Grasses of Burma, Ceylon, India, and Pakistan [21], Flora of Tamil Nadu – Grasses [22], Grasses of Maharashtra [23], Flora of Telangana [17,18], Grasses of Adilabad (Erstwhile District) [19], and Grasses of Nizamabad District [12] were consulted. ~~Further, detailed~~ In addition to the recent revision by Vivek et al. [10]. The identified specimens were ~~further~~ confirmed by comparing ~~them~~ with ~~the~~ those ~~authentic specimens available~~ deposited at the BSID, CAL, ~~and~~ MH, and ~~deposited in BSID and~~ TUH herbaria. Detaileddescription ~~with~~, an identification key, andcolour photographs~~is~~ are provide~~d~~ to facilitate easy identification. ~~Voucher specimens are deposited at the Botanical Survey of India, Deccan Regional Centre (BSID), Hyderabad, and Department of Botany, Telangana University Herbarium (TUH), Dichpally, Nizamabad, Telangana.~~

Comment [-17]: Specify the equipment used.

Comment [-18]: Please cite the bibliography used or specialist criteria followed for the taxa descriptions and general morphological terminology.

5. RESULTS AND DISCUSSION

Twenty-five species of the genus *Eragrostis* from the Telangana states have been documented ~~in present taxonomic studies on the genus *Eragrostis* in Telangana.~~ During the study three previously neglected specieshave reported as an addition to the flora of Telangana:~~namely~~ *E.~~ragrostis~~maderaspatana*Bor, *E. nigra* Nees ex Steud., and*E.zeylanica*Nees&Mey~~have reported as an addition to the flora of Telangana~~(Figs. 3-5). Fiveother species ~~namely,~~*E.~~ragrostis~~ *barrelieri*-Daveau[11], *E. cumingii*Steud. [12,13], *E. macilenta* (A.Rich.) Steud. [14], *E. nilgiriensis* Vivek, G.V.S. Murthy & V.J. Nair [15], and *E. papposa*(Roem. & Schult.) Duf.

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Comment [-21]: Cite the figures in the species description, not here. Since Figs. 1 and 2 should be cited first

exSteud. [16]wereadded to the flora of Telangana by various authors in last three years. ~~The detailed studies of the species are discussed in taxonomic treatment.~~

5.1. Taxonomic treatment

Eragrostis Wolf, Gen. Pl.: 23. 1776.Type: *Eragrostis minor* Host. Lectotype designated by Pfeiffer, Nomencl. Bot. 1(2): 1226. 1874-1875.

Annuals or perennials. Culms erect or decumbent, geniculate. Leaf blades linear to lanceolate with raised glands on margins or eglandular, surfaces hairy or glabrous; ligules usually ciliate or membranous; leaf sheaths often with tufts of hairs at the mouth. Inflorescence is open to contracted or spiciform panicle, branches alternate or sub-whorled, glandular or eglandular, glabrous or hairy on axils. Spikelets ovate, oblong, linear to lanceolate, laterally compressed, green to grey, greenish to yellowish, purplish to greenish black (Fig. 1). Glumes deciduous, linear to lanceolate or ovate, acute or acuminate at apex, glabrous or ciliate on margins, nerved or nerveless, keeled or not keeled. Florets up to 72, disarticulate from below upwards or from above downwards; rachilla more or less zigzag. Lemmas ovate, lanceolate, oblong or elliptic, acute to acuminate or obtuse at apex, glabrous or ciliate on margins, 3-nerved, 1-keeled. Paleas persistent or caducous, acute, acuminate or obtuse at apex, flap margins entire or ciliate, 2-nerved, 2-keeled, keels scaberulous, ciliate or eciliate. Lodicules 2. Stamens 2 or 3. Ovary ovoid, obovoid, or ellipsoid; stigmas plumose. Caryopses variously shaped, truncate, obtuse or acute, brownish to yellowish or deep brown(Fig. 2).

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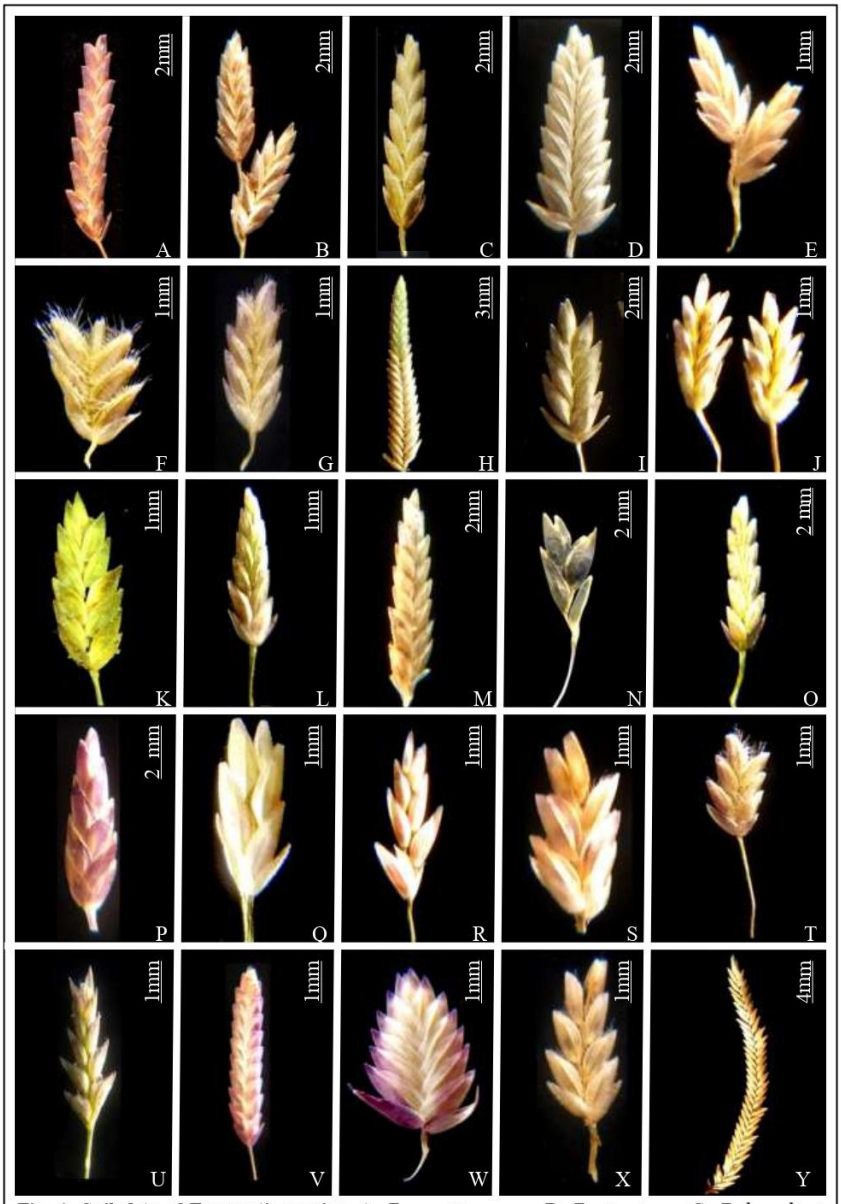

Fig. 1. Spikelets of Eragrostis species: A. *Eragrostis aspera,* B. *E. atrovirens,* C. *E. barrelieri,* D. *E. cilianensis,* E. *E. ciliaris,* F. *E. ciliata,* G. *E. coarctata,* H. *E. cumingii,* I. *E. gangetica,* J. *E. japonica,* K. *E. macilenta,* L. *E. maderaspatana,* M. *E. minor,* N. *E. nigra,* O. *E. nilgiriensis,* P. *E. nutans,* Q. *E. papposa,* R. *E. pilosa,* S. *E. riparia,* T. *E. tenella,* U. *E. tenifolia,* V. *E. tremula,* W. *E. unioloides,* X. *E. viscosa,* Y. *E. zylanica.*

Comment [-24]: In the legend,*Eragrostis* should be written in italics.
The references E and F should be written without italics.

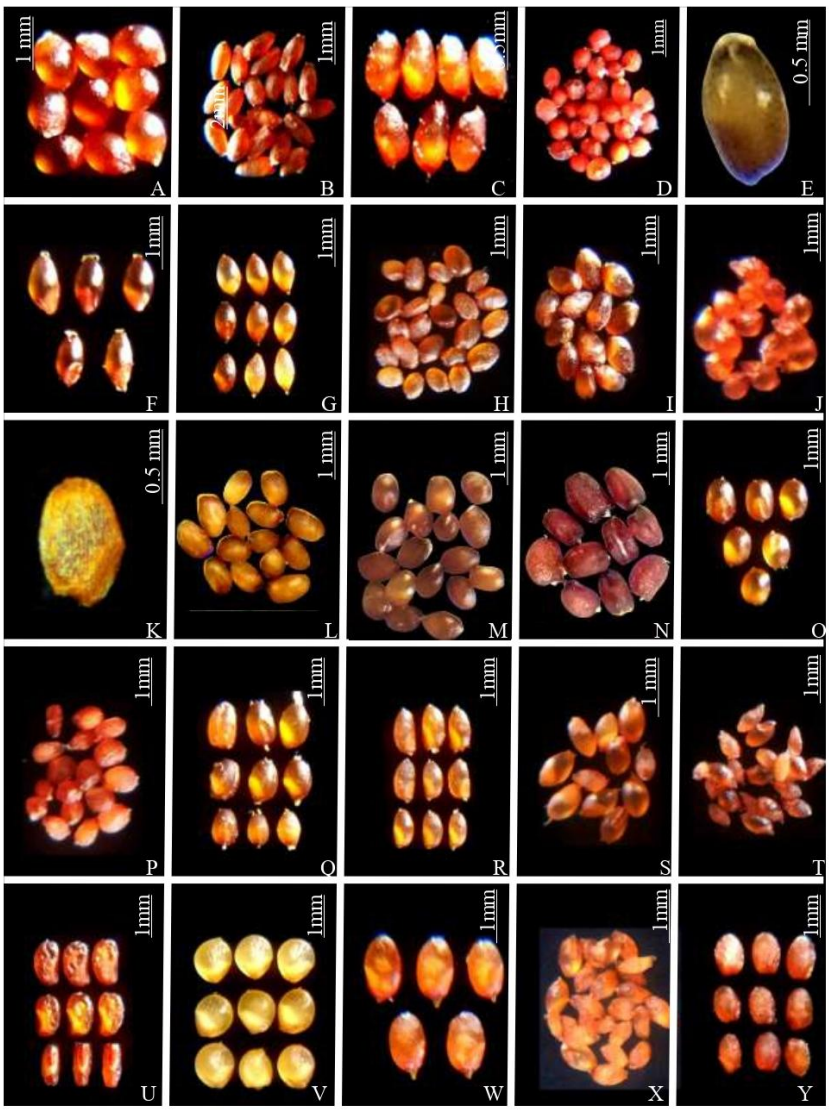

Fig. 2. Spikelets of Eragrostis species: A. *Eragrostis aspera,* B. *E. atrovirens,* C. *E. barrelieri,* D. *E. cilianensis,* E. *E. ciliaris,* F. *E. ciliata,* G. *E. coarctata,* H. *E. cumingii,* I. *E. gangetica,* J. *E. japonica,* K. *E. macilenta,* L. *E. maderaspatana,* M. *E. minor,* N. *E. nigra,* O. *E. nilgiriensis,* P. *E. nutans,* Q. *E. papposa,* R. *E. pilosa,* S. *E. riparia,* T. *E. tenella,* U. *E. tenifolia,* V. *E. tremula,* W. *E. unioloides,* X. *E. viscosa,* Y. *E. zylanica.*

Comment [-25]: In the legend,*Eragrostis* should be written in italics.
The Fig. 2B shows tow scale bars. Please check.
The scale bar of the Fig. 2C it is not evident, lacking contrast.

5.2. Key to the *Eragrostis* species ~~in~~ from Telangana state

1. Florets disarticulating from above downward.....2

   Florets disarticulating from below upward.....9

2. Lemmas ciliate on the margins……3

   Lemmas not ciliate on the margins……..4

3. Lemmas acuminate or mucronate; stamens 2 ……..……..**E. ciliata**

   Lemmas obtuse to acute; stamens 3……...……..... **E. coarctata**

4. Palea keels more or less ciliate……5

   Palea keels scabrid or smooth, not ciliate……..……8

5. Panicle spiciform or compact ……..……..6

   Panicle effuse…….....7

6. Annuals; lemma ciliate on the keels at least at the base; stamens 2.....……..…..**E. ciliaris**

   Perennials; lemma not ciliate on the keels; stamens 3…….……..... **E. riparia**

7. Culms and leaves more or less viscous……..…… **E. viscosa**

   Culms and leaves not viscous……...……...……....**E. tenella**

8. Panicles thyrsiform; lemmas truncate at apex; palea rounded at apex..... **E. aspera**

   Panicles oblong or linear; lemmas acute to acuminate at apex; palea three lobed at apex……..

…...…….……..**E. japonica**

9. Plants prominently glandular at least on culms/leaves/peduncle/panicle branches/pedicels/ nerves of glumes and lemmas……..……..…..……..10

   Plants eglandular……..……..18

10. Primary panicle branches capillary, filiform; spikelets less than 1 mm wide.....**E. pilosa**

    Primary panicle branches more or less stiff; spikelets more than 1 mm wide.....11

Comment [-26]: This species is repeated in dilemma 26. If these are varieties, please clarify or revise the key construction.

11. Leaf margins glandular (at times absent in *E. maderaspatana*)..…..……..……..12

Leaf margins eglandular……..…….……...14

12. Caryopses oblong, truncate at both ends……..……**E. maderaspatana**

Caryopses elliptic-globose to orbicular…….……..13

13. Spikelets oblong, 1.3-2.5 mm wide; lemmas 1.5-2 mm long.....**E. minor**

Spikelets broadly oblong to ovate-lanceolate, 2-4 mm wide; lemmas 2-2.2 mm long……..…….……..……..... **E. cilianensis**

14. Perennials;, glumes nerved/nerveless or nerves obscure ……..…...15

Annuals or short-lived perennials;, glumes distinctly one nerved…….……16

15. Spikelets serrate in appearance, ellipsoid to oblongoid……...…….. **E. tenuifolia**

Spikelets do not serrate in appearance, oblong to ellipsoid…...……...…**E. papposa**

16. Annuals or short-lived perennials; spikelets 1-1.25 mm wide; lemma 1.8-2 mm long; caryopsis

laterally compressed……..…….… **E. barrelieri**

Annuals; spikelets 1.3-1.8 mm wide; lemma 1.2-1.8 mm long; caryopsis ventrally compressed…17

17. Lemmas 1.2-1.5 mm long; caryopsis ellipsoid or narrowly oblong or ovoid to sub-globose, sometimes ventrally flattened, not grooved…….…….……...…….. **E. nilgiriensis**

Lemmas 1.5-1.8 mm long; caryopsis oblong, truncate at both ends, ventrally flattened to slightly grooved…….……...…… **E. maderaspatana**

18. Palea not persistent on rachilla nodes (at times sub-persistent in *E.gangetica*).....19

Comment [-27]: This species is repeated in dilemma 17. If these are varieties, please clarify or revise the key construction.

Palea persistent on rachilla nodes ……..21

19. Rachilla slender and clearly visible between florets; spikelets less than 1.5 mm wide; lemmas less than 1 mm long……..…….…… **E. gangetica**

Rachilla more or less stiff and not visible between florets; spikelets more than1.5 mm wide; lemmas more than 1 mm long…….……...……..……20

20. Paleas narrowly winged; stamens 2; anthers less than 0.5 mm long…….....… **E. unioloides**

Paleas not winged; stamens 3; anthers more than 0.5 mm long…….…….. **E. atrovirens**

21. Spikelets in fascicles……22

Spikelets not in fascicles…….....23

22. Spikelets up to 66-flowered; lemmas up to 2.2 mm long;paleas up to 1.5 mm long……

……..…..**E. zeylanica**

Spikelets up to 40-flowered; lemmas less than 1.8 mm long;paleas less than 1.25 mm long…

……..**E. cumingii**

23. Perennials…….24

Annuals……..……...……..25

24. Panicles more or less contracted; lemmas 1.2-1.5 mm long, purplish towards the apex……

…….....… **E. nutans**

Panicles effused; lemmas 2-2.2 mm long, black or greenish black…….…….… **E. nigra**

25. Spikelets 10-30 mm long, 10-72 flowered…….……..……...**E. tremula**

Spikelets 3-6 mm long, up to 14-flowered……..26

26. Lowermost branches whorled; long white hairs usually in the axils of the panicle branches; spikelets less than 1 mm wide……...…….……..… **E. pilosa**

Lowermost branches sub-whorled; no long white hairs in the axils of the panicle branches;

spikelets more than 1 mm wide……...…...……..…**E. macilenta**

5.3. Enumeration

Comment [-28]: Please change the subtitle for "Taxonomic treatment"

EragrostismaderaspatanaBor, Grasses Burma, Ceylon, India Pakistan: 509. 1960; S.Moulik, Grass. Bamb. India 2: 604. 1997; Vivek et al. in Nelumbo 60 (1): 63. 2021. *Eragrostis willdenowiana* Nees [in Wight, Cat. Ind. Pl.: n. 1779] ex Stapf in Hook.f., Fl. Brit. India 7: 322. 1896, non Nees ex Hook. &Arn., Bot. Beechey Voy.: 252. 1832& in Nov. Act. Nat. Cur. 19: Suppl. 1. 205. 1843. (Fig.3)

Tufted annuals. Culms geniculate, 20-50 cm high, more or less ribbed, with a glandular ring-like patch just below the node. Leaf blades linear to lanceolate, 2-12 × ca. 0.3 cm, acuminate, flat to inrolled, margins rarely with sparse tuberculate glands, finely scabrellate; ligule membranous fringe of cilia; leaf sheath more or less ribbed, sparsely ciliate along on margin, mouth bearded. Panicle 6-20 × 3-5 cm, racemes alternately arranged on the central axis; peduncle 7-17 cm long, with a glandular ring-like patch just below the panicle, pedicels straight, 1-5 mm long, with or without glandular patches, scabrous on margins. Spikelets narrowly ovate-lanceolate, 5.5-11 × 1.5-1.8 mm, acute, olive green to grey with or without a purplish tinge; rachilla zigzag; florets closely arranged on rachilla. Glumes unequal; lower glume ovate-lanceolate, 1-1.2 × ca. 0.3 mm, acute, chartaceous, purplish, prominently 1-nerved; upper glume ovate, 1.2-1.4 × ca. 0.5 mm, acute, chartaceous, purplish, prominently 1-nerved. Florets 9-22, closely imbricate on zigzag rachilla; disarticulating from below upwards. Lemma broadly elliptic, 1.5-1.8 × 0.6-0.7 mm, subacute, chartaceous, olive green to purplish, prominently 3-

nerved, 1-keeled, scabrid along the keel. Palea elliptic to oblanceolate, 1.4-1.6 × 0.25-0.3 mm, obtuse, membranous, 2, truncate at apex, membranous, hyaline. Stamens 3; anthers 0.3-0.5 mm long, brownish yellow. Ovary ovate to oblong-ellipsoid, ca. 0.4 mm long, acute, greenish; style

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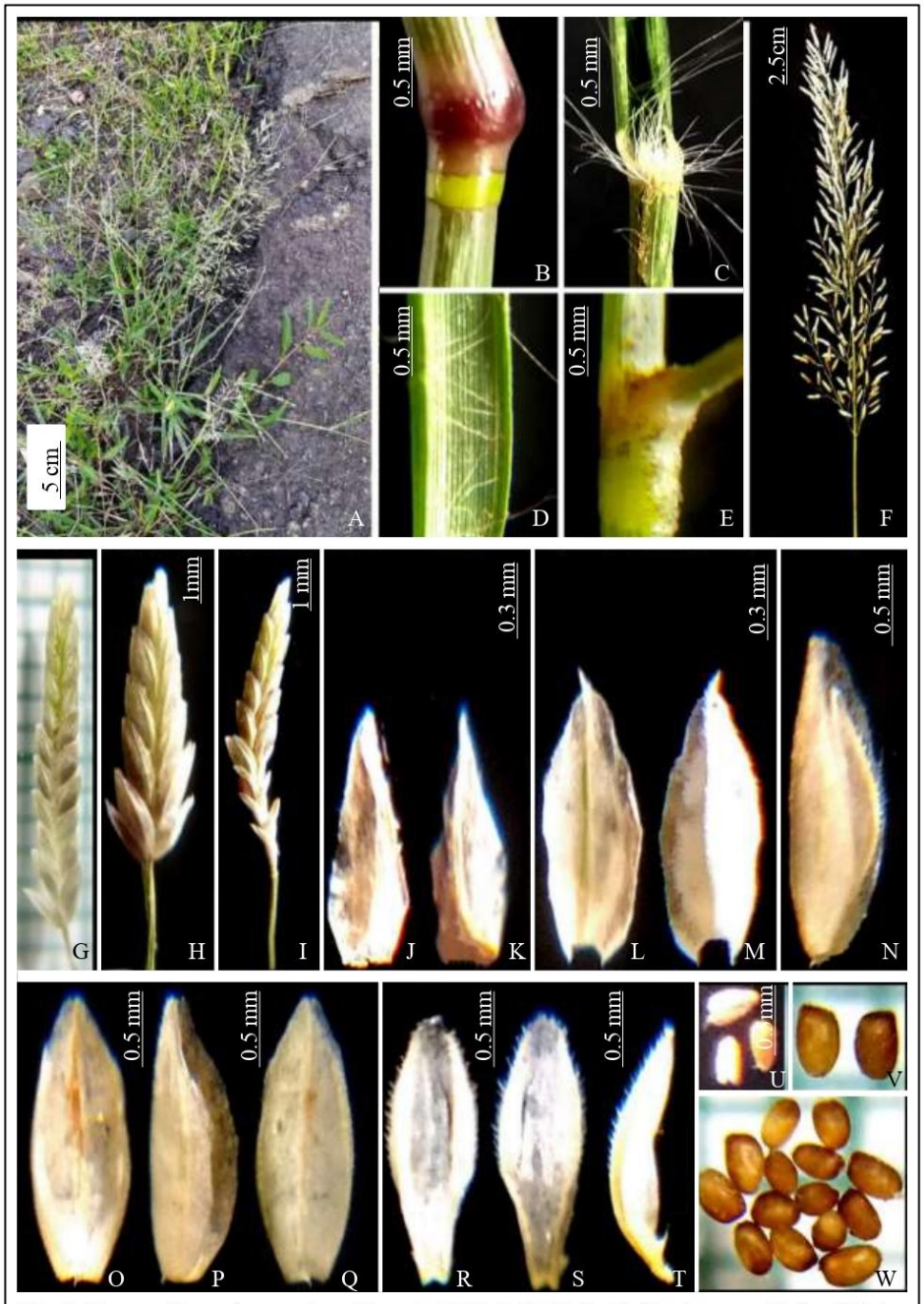

Fig. 3. Eragrostis maderaspatana Bor: A. Habitat; B. Node: C. Ligular area; D. Leaf blade; E. Glandular ring below the inflorescence; F. Inflorescence; G-H. Spikelets; I. Persistent palea on the rachilla nodes; J-K. Lower glume; L-M. Upper glume; N. Floret; O-Q. Lemma; R-T. Palea; U. Stamens; V-W. Caryopses.

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Delete : after B. Node

ca. 0.3 mm long, hyaline; stigma plumose, 0.4-0.6 mm long. Caryopses 0.5-0.8 mm long, oblong to ellipsoid, truncate at both ends, ventrally flattened to slightly grooved, yellowish brown.

Flowering and fruiting:-August-October.

Habitat: Common along the roadsides and wastelands.

Distribution: INDIA: Andhra Pradesh, Karnataka, Kerala, Tamil Nadu, and now from Telangana,Endemic.

Comment [-31]: This category corresponds to "status".

Specimens examined: India, Telangana, Adilabad District:Echoda Mandal, nearGubbaVillage,*V. Jalander*494 (TUH); Nizamabad District:Dichpally (Mandal),*V. Jalander*885 (TUH).

Note: It is reported here as an addition to the flora of Telangana. It is similar to *E. minor* in having glandular bodies but it differs from *E. minor* by the ventrally flattened and truncate caryopses.

Eragrostis nigra Nees ex Steud., Syn. Pl. Glumac. 1: 267. 1854; Mao & Dash, Fl. Pl. India Annot. Checkl. Monocot. 3: 367. 2020; Vivek et al. in Nelumbo 60 (1): 66. 2021. *Eragrostis atropurpurea*Hochst. exSteud., Syn. Pl. Glumac. 1: 267. 1854. (Fig. 4)

Perennials. Culms erect to geniculate, 5 to 80 cm high; nodes brownish. Leaf blades linear-lanceolate, 5-40 × 0.2-0.5 cm; ligulae fringe of cilia. Panicle 10-22 × 5-12 cm, ovate, lax to effuse; branches 1-9 cm long, alternate to sub-whorled; axils glabrous or ciliate. Spikelets ovate to lanceolate, 2.5-4 × 1-2 mm, black or greenish black. Glumes divergent at maturitysub-~~equal~~equal. Lower glume ovate-lanceolate, 1.5-2 mm long, acute-acuminate, chartaceous, 1-nerved, 1-keeled. Upper glume 1.5-2.2 mm long, similar to lower glume. Florets up to 8, closely arranged on rachilla; disarticulating from below upwards. Lemma ovate, 2-2.3 × 0.8-1.2 mm,

acuminate, chartaceous, 3-nerved, 1-keeled. Palea elliptic-oblanceolate, 1.8-2× 0.5-0.7 mm, sub-persistent,

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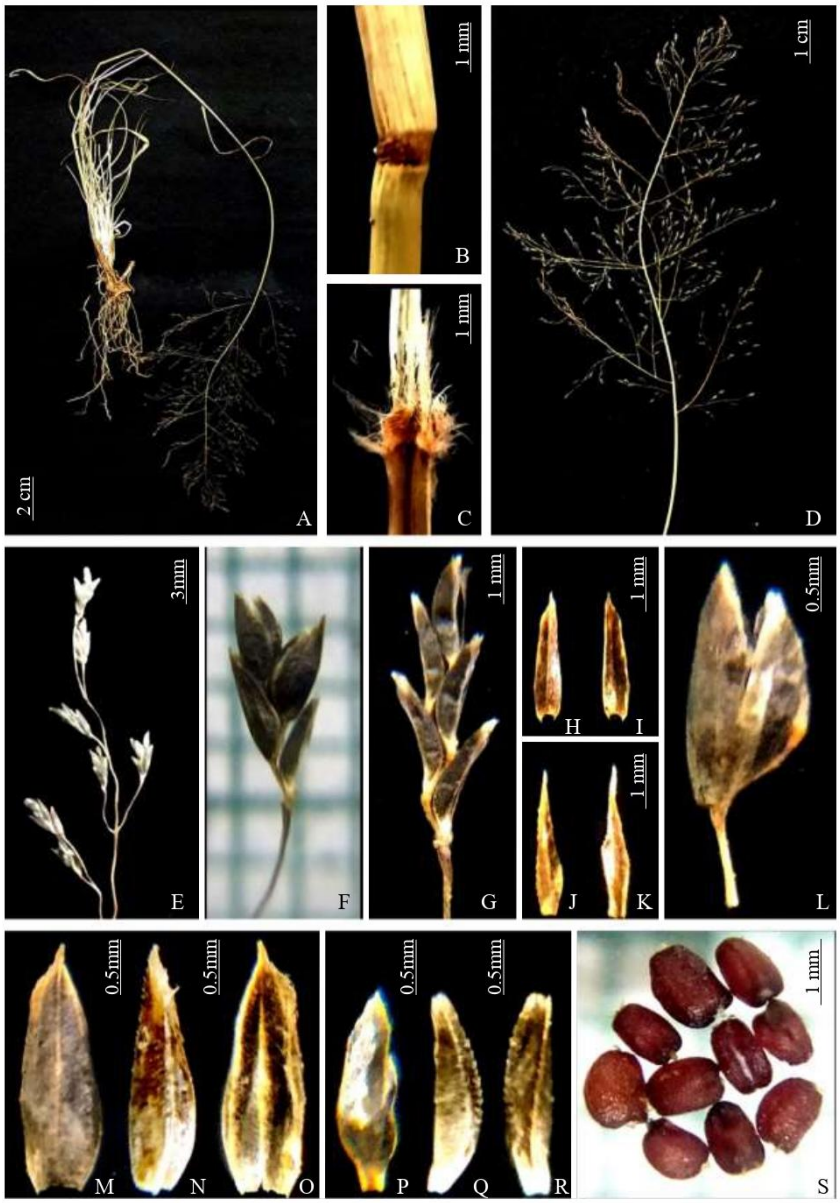

Fig. 4. Eragrostis nigra Bor: A. Habit; B. Node; C. Ligular area; D. Inflorescence; E. Part of inflorescence; F. Spikelets; G. Persistent palea on rachilla nodes; H-I. Lower glume; J-K. Upper glume; L. Floret; M-O. Lemma; P-R. Palea; S. Caryopses.

Comment [-33]: In the legend,*Eragrostis* should be written in italics.
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acute at apex, 2-nerved, 2-keeled, scabrid. Stamens 3; anthers 0.2 mm long, purplish. Caryopsis 0.4-0.6 mm long, oblong, ventrally flattened to grooved, dark reddish.

Flowering and fruiting: January–November.

Distribution: INDIA: Almost throughout and now from Telangana (BhadradriKothagudem District); ~~WORLD~~: China, Indonesia, Sri Lanka.

Habitat: Occasionally on roadsides and stream banks.

Specimen examined: India, Telangana, BhadradriKothagudem District, Allapally Mandal, Ananthogu Village, *J. Swamy* & V. Jalander 446 (TUW).

Note: It is reported here as an addition to the flora of Telangana.

Eragrostiszeylanica Nees & Mey., Nov. Actorum Acad. Caes. Leop.-Carol. Nat. Cur. 19(Suppl. 1): 204. 1843; Mao & Dash, Fl. Pl. India Annot. Checkl. Monocot. 3: 368. 2020; Vivek et al. in Nelumbo 60 (1): 95. 2021. *Eragrostis elongata* sensu Stapf in Hook.f., Fl. Brit. India.7: 319. 1896, nonJacq., 1813. (Fig. ~~3~~5)

Annual or short-lived perennial. Culms 15-45 cm high, erect or decumbent, geniculate; nodes brownish. Leaf sheaths 0.5-2 cm long, ciliate at along margin, mouth bearded. Ligule a fringe of hairs. Leaves linier to lanceolate; blades 3-14 cm long. Panicles 3-18× 1.5-3.5 cm, open, with spikelets fascicled and grouped in branches; primary branches 1-2.5 cm long; axils slightly ciliate. Spikelets 2.5-27 ×1.5-3 mm, 5-65-flowered, lanceolate to oblong, sharply acute at apex; florets firmly arranged on rachilla, rachilla narrowly zigzag, disarticulating from below upwards. Glumes linear to lanceolate, chartaceous or sub-coriaceous, 1-nerved, 1-keeled, scabrid along keel, apex acute to acuminate; lower glume 1-1.5 × 0.3-0.5 mm; upper glume, 1.5-2 × 0.5-

Comment [-34]: Unify with the symbol used in the previous description.

Comment [-35]: Please specify all the states were it is distributed.

Comment [-36]: Also it is reported to....

Comment [-37]: In italics.

Comment [-38]: HUW or TUH?

0.7 mm. Lemmas 1.5-2.2× 1–1.8 mm, ovate to lanceolate, subcoriaceous, 3-nerved, 1-keeled, scabrous along the keel, apex acute. Paleas 1.3-1.5 × 0.3-1 mm, persistent, ellipticslightly

Comment [-39]: Include the rest of the description on this page.

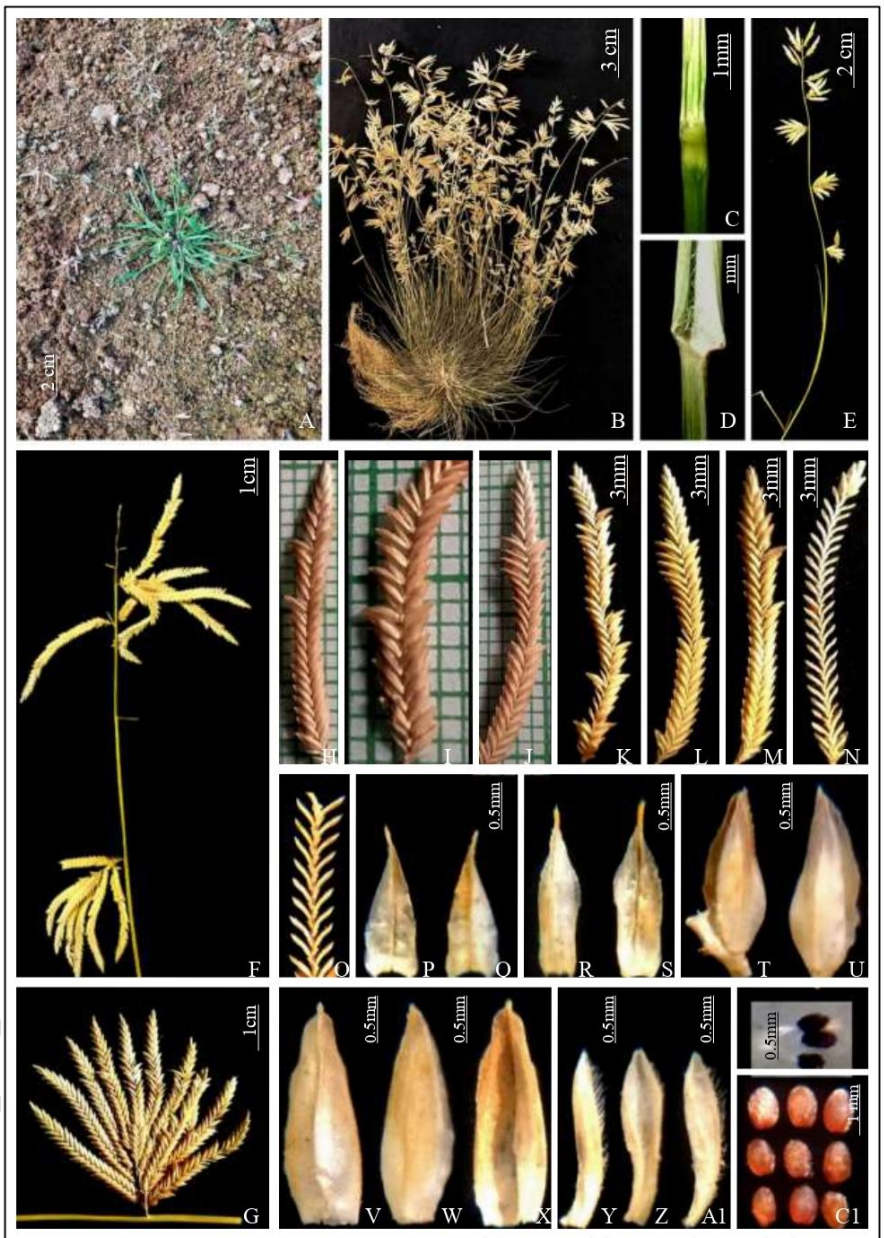

Fig. 5. Eragrostis zeylanica Nees & Mey.**:** A. Habitat; B. Habit; C. Node; D. Ligular area; E-F. Inflorescence; G. Spikelets in fascicle; H-M. Spikelets; N-O. Persistent palea on rachilla nodes; P-Q. Lower glume; R-S. Upper glume; T-U. Florets; V-X. Lemma; Y-A1. Palea; B1. Stamens; C1. Caryopses.

Comment [-40]: In the legend,*Eragrostis* should be written in italics.
Unify the legend format with previous figures (separation of references with , or ;).
In the images the reference B1 is missing.

curved, 2-nerved, 2-keeled, ciliolate along keels above middle, apex acute to obtuse. Anthers 3, 0.25-0.3 mm long, purplish. Caryopses 0.5-0.6 × 0.3-0.4 mm, ovate to sub-globose or orbicular, laterally compressed,light brownish.

Flowering and fruiting: August-October.

Habitat: Occasional on road sides banks of streams and backwaters.

Distribution: INDIA: Assam, Kerala, Madhya Pradesh, Sikkim, Uttar Pradesh, West Bengal, and now from Telangana (NizamabadDistrict); WORLD: Bangladesh, Myanmar, and Sri Lanka.

Specimens examined: India, Telangana, Nizamabad District, Near CMC, Dichpally Mandal and Village, *V. Jalander* 454 (TUH).

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6. CONCLUSION

The taxonomic studies on the genus led to the discovery of seven new distributional records for Telangana state and India. Many species in the genus *Eragrostis* exhibit a high range of variations due to the occurrence of polyploids. Precipitation and other environmental factors are the primary causes of polyploidization. Due to climate change, most of the areas in tropical countries are converting into arid and also witnessed the expansion of desertification. Many *Eragrostis* species have a high potential to adapt to specific environmental changes, especially in drylands. The ancestors of the existing *Eragrostis*species originated in dry areas. Hence, selected species can be used in semi-arid and arid regions to control soil erosion and development of grasslands.

Comment [-42]: It is considered that this statement needs to be rephrased or clarified in the taxonomic treatment of the species. Because among the three species described (*E. maderaspatana, E. nigra,* and *E. zeylanica*) only 3 different districts of Telangana are cited as new distribution records (Adiladab, Nizamabad, and BhadradriKothagudem).

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Comment [-44]: Unify the format with the rest.

Comment [-45]: Unify the format with previous reference.

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