International Journal of Botany Studies
www.botanyjournals.com
ISSN: 2455-541X
Received: 06-09-2025, Accepted: 06-10-2025, Published: 21-10-2025
Volume 10, Issue 10, 2025, Page No. 52-55

Distribution and key to Eragrostis Wolf species from Buldhana district, Maharashtra, India

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Abstract
Buldhana is one of the 11 districts of Vidarbha. It includes 13 tehsils, flora of Buldhana district has been already studied by Diwakar and Sharma (2000) [7, 20] he reported 4 species. Information of grasses is essential for scientific study of natural resources of area. Many of the man's needs such as food, medicine, agricultural crops and fodder for cattle are met by grasses. Industries like textile and paper depend on grasses as their raw materials.
During last 24 year no survey was conducted of study area. Survey of grasses conducted during 2020 to 2025 revealed 92 species belonging to 46 genera. During collection field diary has been maintained. Field characters such as density, frequency, height, habitat, etc. were recorded. After collection specimens were dried with the help of plant presser. After drying specimens were mounted on herbarium sheets by stiching. After preparation of herbarium all specimens were observed under stereoscopic binocular microscope. Spikelets were dissected, glumes, lemmas, palea were observed; specimens were identified with the help of standard floras i.e. Grasses of Maharashtra by Dr. G. G. Potdar *et al*., Grasses of Marathawada by Dr. B. W. Patunkar, Flora of Marathawada by Dr. V. N. Naik, Flora of British India by Hooker, and all available literature. After identification all the specimens were discribed on the basis of actual specimens, during description all the vegetative as well as floral characters were covered. Eragrostis is largest genus of study area. It has 12 species which belong to subfamily Pooideae and tribe Eragrosteae. The aim of our investigation is to study Morphotaxonomic revision of family Poaceae. It focuses on details of macro and micro morphology of some species of Eragrostis.

Keywords: Eragrostis, Spikelets, Herbarium, Flora, Sterioscopic Binocular

Introduction
Eragrostis is one of the dominant genus of sub-family Pooideae. It is also called lovegrass or canegrass. It is largest genus of Poaceae family consist of 300 species in world, 35 species in India, 21 species in Maharashtra and 4 species recorded in Flora of Buldhana district. It is annual grasses, tufted, terete, leaves narrow-linear, ligule usually reduced to line of hairs. Inflorescence Panicle effuse or contracted, spikelets with 2-many flowered, ovate-oblong or linear, articulate on their pedicels on a simple terminal rachis; rachilla disarticulating above the glumes. Many species are used as palatable fodder and are drought-tolerant, flourish in all types of environmental condition.

Study area
Buldhana district is one of the most diversified districts in Vidarbha. It is situated at the western border of the Vidarbha region and is 500 Km away from the capital (Mumbai). It is surrounded by Madhya Pradesh in the north, Akola, Washim, and Amravati districts in the East, Jalna in the South, and Jalgaon and Aurangabad districts in the West. Buldhana district lies between 19^0 51' to 21^0 17' North Latitude and 75^0 57' to 76^0 49' East Longitude. Buldhana district has thirteen Talukas *viz*, Buldhana, Chilhali, Deulgaon Raja, Malkapur, Motala, Nandura, Mehkar, Shindhkhed Raja, Lonar, Khamgaon, Shegaon, Jalgaon Jamod and Sangrampur.
It has a total area of 9640 sq. km out of which 16% of the area under forest, most of which is tropical dry deciduous. It has two hilly ranges i.e. Satpuda and Ajantha which cover some parts of it. Buldhana district has notable floristic sites, most of the area under the Sanctuaries such as Dnyanganga and Ambabarwa sanctuaries (situated in Jalgaon jamod tehsil) rich in floral diversity has come core area which remains unexplored yet. Lonar lake is declared an international heritage which also rich in various microphytes. The main rivers of district are Purna, Penganga, Khadkpurna, Mun, Koradi, and Nalganga. The area has a total population of about 25,88,039 and has annual rainfall in the region varies from 538.70 mm to 844.96 mm. Climate is hot and dry, whereas the area has the black cotton and grarelly soil.

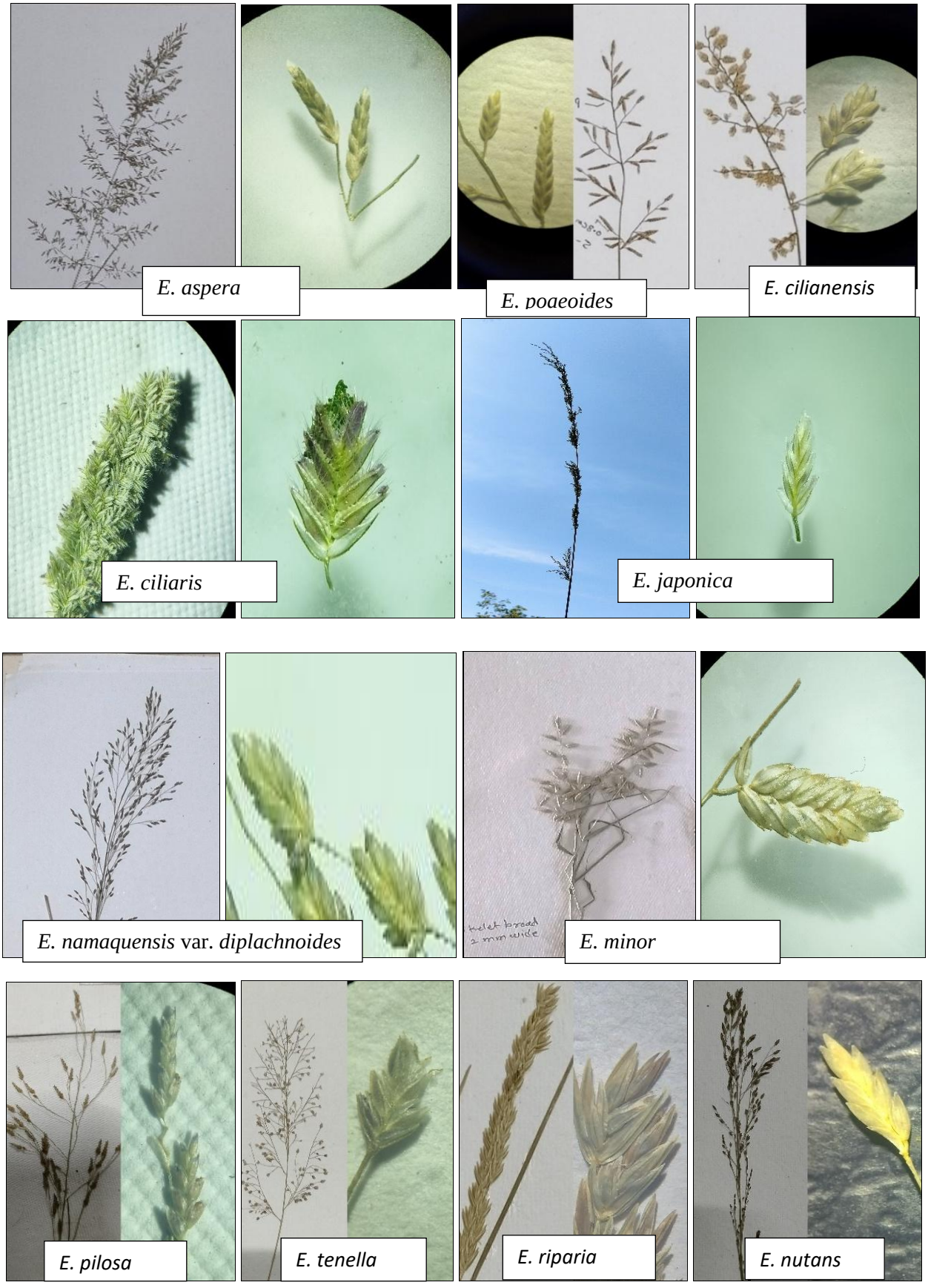
Material and Methods
1. Study of Habitat
In every season the study area was expored systematically. Grass covered sites were targeted for study. Grasses were collected from different habitats i.e. irrigated fields, open grassland, forest, bunds of field, wasteland, bank of river and rocky places.

2. Sample collection and preservation
During excursion specimens of grasses were collected and field number is given to each specimen. Field observation were noted down in field diary. After collection the samples are critically studied in laboratory. Then it is dried properly, poisoned by using 2% Mercury Chloride and mounted using conventional methods. For critical cases BSI (Pune) was consulted to match the specimens.

3. Identification
The identification was confirmed by using floras like flora of british India (Hooker, 1897) [9], Flora of Marathawada (Naik, 1998) [14], Grasses of Marathawada (Patunkar, 1980), Grasses of Maharashtra (Potdar, Salunkhe and Yadav, 2012) [16, 17].
Artificial key was provided for species. Population variations are critically studied, latest nomenclature is given

in detail for proper taxonomic level. Each grass specimen description was supported by a note on distribution and herbarium specimen number. All the specimens were deposited in the herbarium of S.S.S.K.R. Innani Mahavidyalaya, Karanja (Lad), dist. Washim (M.S.)

Observation and Result



ERAGROSTIS Wolf

Key to species

1a – Spikelets breaking up from above downwards…….2
1b – Spikelets breaking up from below upwards…….8
2a – Panicle compact……3
2b – Panicle effuse……...5
3a – Inflorescence cylindrical……...4
3b – Inflorescence not cylindrical……*E. japonica*
4a – Spikelets with 5 florets……*E. riparia*
4b – Spikelets with 8-9 florets…..……...…… *E. ciliaris*
5a – Culms and leaves viscous...……...*E. viscosa*
5b – Culms and leaves not viscous……6
6a – Floret more than 10……...*E. aspera*
6b – Floret less than 10……...7
7a – Spikelets 4-4.5 mm long……...*E. tenella*
7b – Spikelets 2-3 mm long……*E. namaquensis* var. *diplachnoides*
8a – Spikelets more than 2 mm broad…….9
8b – Spikelets less than 2 mm broad……...10
9a – Spikelets 9-10 florets……. *E. cilianensis*
9b – Spikelets 12-14 florets……...*E. minor*
10a – Pedicel glandular……...*E. poaeoides*
10b – Pedicel not glandular……11
11a – Panicle upto 8 cm long……. *E. pilosa*
11b – Panicle upto 15 cm long……...*E. nutans*

Sr. No.	Name of Species	Habitat	Distribution	Specimen no.
1	*Eragrostis aspera*	Crop field	C	MDN157
2	*E. cilianensis*	Maize crop field	C	MDN45
3	*E. ciliaris*	Uncultured land & open grassland	C	MDN85
4	*E. japonica*	weeds in cultured field	C	MDN100
5	*E. minor*	irrigated crop field	C	MDN188
6	*E. namaquensis var. diplachnoides*	Crop field	R	MDN164
7	*E. pilosa*	water canal road side	C	MDN160
8	*E. riparia*	Open Grassland	R	MDN123
9	*E. tenella*	uncultured field	C	MDN70
10	*E. viscosa*	road side	F	MDN135
11	*Eragrostis nutans*	Moist places water canal area	R	MDN202
12	*Eragrostis poaeoides*	Maize crop field	C	MDN45

Conclusion

During the present study collected 12 specimens of Eragrostis have been collected, out of which 3 specimens namely *E. namaquensis* var. *diplachnoides*, *E. riparia*, *E. nutans* are rare in study area whereas remaining common or frequent.

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