



CHECK LIST OF DIVERSITY OF GRASSES GROWING IN LADPURA REGION OF KOTA, RAJASTHAN

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ABSTRACT

Grasses are spread across vast areas of land and are grown in all climatic conditions. The grass family Poaceae is of major economic and ecological importance. It is the simple most important family of flowering plants for the survival of mankind. Grasslands are the chief sources of genetic material required for our ever-increasing demand for food and fodder. These resources are depleting day by day because of anthropogenic activities. The objective of this study was to prepare a checklist of grasses growing in the study area during the period of Dec. 2024 to Dec. 2025.

Herbaria were prepared from collected specimens. Floras and manuals have been followed to identify the specimens. During the study period, a total no. of 41 species and 29 genera belonging to family Poaceae were recorded across the study sites, of which 33 spp. and 21 genera are palatable and 8 spp. and 7 genera are unpalatable. In the future their study will be utilized as a reference for tracking changes at the species level to preserve grassland biodiversity.

Index Terms-

Ladpura, grassland, economic and ecological importance, poaceae, checklist.

1. INTRODUCTION

The grass family Poaceae is of major economic and ecological importance. It is the single most important family of flowering plants for the survival of mankind and terrestrial life forms on the earth due to their adaptability to changeable environments, ability to coexist with grazing animals and with man, and endless variations with distinct life forms. Grasslands are India's most threatened ecosystems, yet they have been neglected in conservation and restoration policy in India. Less than 5 % of India's grasslands fall within protected areas (Madhusudan et al., 2021). Grasslands are the chief source of genetic material required for our ever-increasing demand for food and fodder, which need to be conserved for posterity. These are depleting at an alarming rate due to several biotic and abiotic factors.

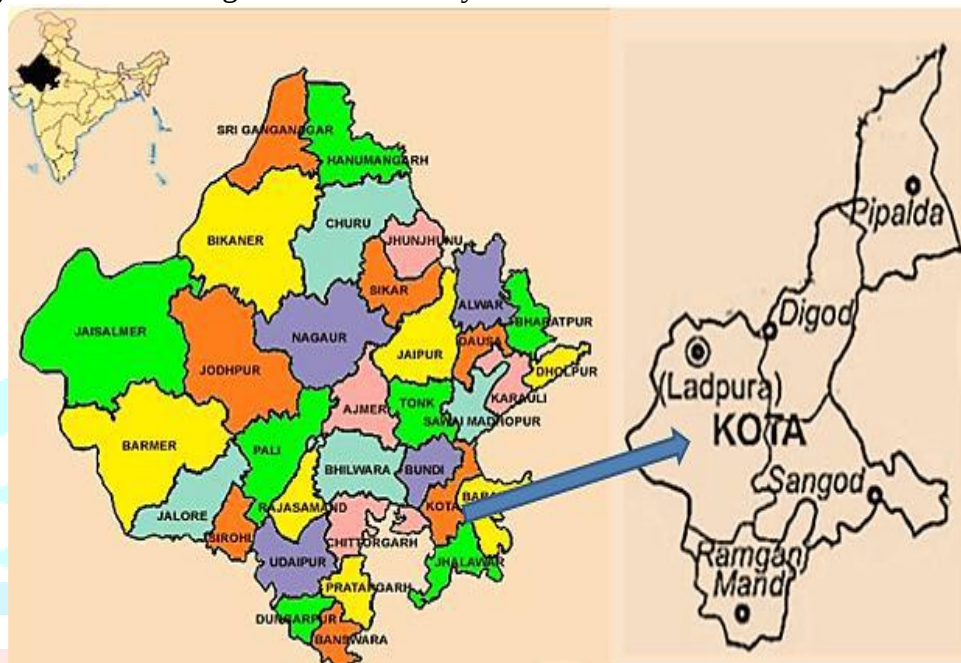
Grasses are very important to man because of their widespread distribution and high economic worth (Teshale and Legesse, 2022). They may be observed in a wide range of environments, in every kind of soil and in any climate. Grasses are members of the family Poaceae, have jointed thin-sheathed leaves and are monocotyledonous. Grasses can be little like annual bluegrass or vast like maize or bamboo. Grasses produce grain, which feeds human of a large portion of the globe. Yet their green and dried leaves and stems are primary sources of food for animals.

Grasses have a variety of applications, including food and nutrition for human beings; fodder for animals; in construction industry; in environmental protection and soil conservation; in bioenergy and biofuels; in landscaping and aesthetics; and medicinal and aromatic uses. Looking towards the immense importance of grasses, the objective of the present study was to generate baseline information on the distribution patterns and composition of the species of grasses present at the selected locations (Biological Park, Abhedha, crop fields,

wastelands) of the Ladpura region of Kota, Rajasthan, in order to support long-term conservation strategies and species-level monitoring.

2. STUDY AREA

Kota is situated along the banks of the Chambal River on a high sloping tableland forming a part of the Malwa Plateau in the southern part of Rajasthan. The cartographic coordinates are 25.11°N 75.82°E. The city of Kota is situated at the center of the southeastern region of Rajasthan, a region very widely known as Hadoti. The present study was conducted at the selected location Khade Ganesh in the Ladpura region of Kota, Rajasthan. Located near the Chambal River in Ganesh Nagar, the area features a peaceful spiritual environment adjacent to the lush green Ganesh Udhyan Park.



3. MATERIALS AND METHODS

The field exercise was carried out throughout the selected sites of Ladpura Tehsil during Dec. 2024 to Dec. 2025. The polythene bags, tags, field notebook, pencil and blotting paper were used to collect herbarium specimens during the survey. All samples were collected from natural habitats. The collected species were identified with the help of Flora of Rajasthan, Vols I, II & III (Singh, Parmar and P. P. Pandey, 1987, 91, 93). Grasses were collected carefully by removing the whole plant, including roots, stem, leaves and flowers. Each specimen was labelled with field information, plant description, date of collection, etc.

4. RESULT & DISCUSSION

A total of 29 genera of grasses and 41 species were recorded from the selected sites (Table-1).

S. No.	Botanical Name	Perennials/ Annual	Palatable/ Unpalatable	Family	Flowering and fruiting
1.	<i>Apluda mutica</i> L.	Perennials	Palatable	Poaceae	Aug.– Feb.
2.	<i>Aristida adscensionis</i> L.	Annual	Unpalatable	Poaceae	Aug. – Dec.
3.	<i>Bothriochloa pertusa</i> (L.) A.Camus	Perennials	Palatable	Poaceae	Sept. – Mar.
4.	<i>Brachiaria reptans</i> (L.) C.A.Gardner & C.E.Hubb.	Annual	Palatable	Poaceae	Jul. – Oct.
5.	<i>Cenchrus ciliaris</i> L.	Perennial	Palatable	Poaceae	Jan. – Dec.
6.	<i>Cenchrus setigerus</i> Vahl	Perennial	Palatable	Poaceae	Aug. – Nov.
7.	<i>Chloris barbata</i> Sw.	Perennials	Palatable	Poaceae	Jul. – Dec.
8.	<i>Chloris virgata</i> P.Durand	Perennials	Palatable	Poaceae	Jul. – Nov.
9.	<i>Cymbopogon martinii</i>	Perennials	Unpalatable	Poaceae	Aug.– Mar.
10.	<i>Cynodon dactylon</i> (L.) Pers.	Perennials	Palatable	Poaceae	Jul. – Dec.

11.	<i>Dactyloctenium aegyptium</i> (L.) Willd.	Annual	Palatable	Poaceae	Jul. – Nov.
12.	<i>Dactyloctenium scindicum</i> Boiss.	Perennial	Palatable	Poaceae	Jan. – Dec.
13.	<i>Desmostachya bipinnata</i> (L.) Stapf	Perennial	Unpalatable	Poaceae	Jul. – Nov.
14.	<i>Dichanthium annulatum</i> (Forssk.) Stapf	Perennials	Palatable	Poaceae	Aug. – Nov.
15.	<i>Digitaria bicornis</i> (Lam.) Roem. & Schult.	Annual	Palatable	Poaceae	Aug. – Oct.
16.	<i>Digitaria ciliaris</i> (Retz.) Koeler	Annual	Palatable	Poaceae	Aug. – Oct.
17.	<i>Digitaria sanguinalis</i> (L.) Scop.	Annual	Palatable	Poaceae	Sep. – Nov.
18.	<i>Dinebra retroflexa</i> (Vahl) Panz.	Perennials	Palatable	Poaceae	Jul. – Sept.
19.	<i>Echinochloa colona</i> (L.) Link	Annual	Palatable	Poaceae	Mar. – Aug.
20.	<i>Echinochloa crus-galli</i> (L.) P.Beauv.	Annual	Palatable	Poaceae	Mar. – Aug.
21.	<i>Eleusine indica</i> (L.) Gaertn.	Annual	Palatable	Poaceae	Jul. – Sept.
22.	<i>Eragrostis cilianensis</i> (All.) Vignolo ex Janch.	Annual	Unpalatable	Poaceae	Aug. – Dec.
23.	<i>Eragrostis ciliata</i> (Roxb.) Nees	Perennial	Palatable	Poaceae	Jul. – Dec.
24.	<i>Eragrostis minor</i> Host	Annual	Unpalatable	Poaceae	Sept. – Mar.
25.	<i>Eragrostis tenella</i> (L.) P.Beauv.	Annual	Palatable	Poaceae	Aug. – Nov.
26.	<i>Eragrostis unioides</i> (Retz.) Nees ex Steud.	Annual	Palatable	Poaceae	Aug. – Nov.
27.	<i>Heteropogon contortus</i> (L.) P.Beauv.	Annual	Unpalatable	Poaceae	Aug. – Nov.
28.	<i>Imperata cylindrica</i> (L.) Raeusch.	Perennial	Unpalatable	Poaceae	May. – Aug.
29.	<i>Iseilema prostratum</i> (L.) Andersson	Perennial	Palatable	Poaceae	Aug. – Nov.
30.	<i>Panicum repens</i> L.	Perennial	Palatable	Poaceae	Jan. – Dec.
31.	<i>Paspalidium flavidum</i> (Retz.) A.Camus	Perennial Grass	Palatable	Poaceae	Jul. – Oct.
32.	<i>Phalaris minor</i> Retz.	Annual	Palatable	Poaceae	Dec. – Mar.
33.	<i>Polypogon monspeliensis</i> (L.) Desf.	Annual	Palatable	Poaceae	Mar. – Sep.
34.	<i>Saccharum spontaneum</i> L.	Perennial	Unpalatable	Poaceae	Jan. – Dec.
35.	<i>Sehima nervosum</i>	Perennial	Palatable	Poaceae	Aug. – Dec.
36.	<i>Setaria italica</i> (L.) P.Beauv.	Annual	Palatable	Poaceae	Aug. – Oct.
37.	<i>Setaria pumila</i> (Poir.) Roem. & Schult	Annual	Palatable	Poaceae	Aug. – Oct.
38.	<i>Sporobolus diander</i>	Perennial	Palatable	Poaceae	Aug. – Oct.

39.	<i>Themeda quadrivalvis</i> (L.) Kuntz	Perennial	Palatable	Poaceae	Sep. – Nov.
40.	<i>Themeda triandra</i> Forssk	Perennial	Palatable	Poaceae	Oct. – Dec.
41.	<i>Urochloa ramosa</i> (L.) T.Q.Nguye	Annual	Palatable	Poaceae	Jul. – Oct.



**Polypogon
monspeliensis (L.) Desf.**



Cynodon dactylon (L.) Pers.



**Dactyloctenium
aegyptium (L.) Willd**



Phalaris minor Retz.



Chloris barbata Sw.



**Dinebra retroflexa (Vahl)
Panz.**

Perennial grasses (19 genera and 22 spp.) dominated over 12 genera and 19 spp. annuals. Recorded species were classified as palatable to grazing herbivores. Only seven genera, *Cymbopogon martini* (Roxb.), *Saccharum spontaneum* L. (Kans grass), *Heteropogon contortus* (L.) P.Beauv., *Aristida adscensionis* L., *Desmostachya bipinnata* (L.) Stapf, *Eragrostis minor* Host, *Imperata cylindrica* (L.) Raeusch were found to be unpalatable. Palatable grasses are crucial for the nutrition and health of local livestock and stock. Avoid nonpalatable grasses due to their stiffness, sharp awns, or low nutritional value, but they play a key role in preventing soil erosion.

The ecological balance of rangelands in the Ladpura, Kota region heavily relies on the availability of *Cenchrus* and *Dichanthium* species. However, due to overgrazing and anthropogenic pressures, palatable native species are declining, allowing non-palatable species to colonize degraded lands. To sustain livestock productivity, active pressure management such as reseeding degraded rangelands with palatable species is essential. In order to protect the grasslands, we can adopt the rotational grazing system. This will help to protect rare and endemic grasses.

5. CONCLUSION

Grasslands are the chief sources of genetic material required for our ever-increasing demand for food and fodder. The present investigation recorded a total of 41 species belonging to 29 genera under the family Poaceae from the Ladpura region of Kota, Rajasthan, of which 21 genera and 33 species were palatable and 7 genera and 8 species were unpalatable to grazing herbivores. The dominance of perennial grasses (19 genera, 22 species) over annual forms (12 genera, 19 species) indicates a relatively stable grass cover in the study area, with genera such as *Cenchrus* and *Dichanthium* playing a critical role in sustaining rangeland productivity.

However, increasing overgrazing and anthropogenic pressure are causing a decline in palatable native species and a corresponding spread of unpalatable taxa, posing a threat to the long-term sustainability of these grasslands. Adoption of a rotational grazing system, together with reseeding of degraded patches with palatable species, is recommended to restore ecological balance and conserve the rare and endemic grass taxa of the region. The present checklist thus provides a valuable baseline for future taxonomic, ecological, and conservation-oriented studies on the grass flora of the Ladpura region of Kota, Rajasthan.

These resources are depleting day by day because of anthropogenic activities. This will help to protect rare and endemic grasses.

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