

GRASS SPECIES OF FAMILY POACEAE (GRAMINAE) FROM SABARMATI RIVER OF GUJARAT STATE , INDIA.



Science

KEYWORDS : Poaceae ,Grasses, Sabarmati river.

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ABSTRACT

The present paper deals with enumeration, distribution and prepare a checklist of plant species of Grass family Poaceae (Graminae), which are grow in the area of Sabarmati river of Gujarat state, India.. Taxonomic position of these plant species is described in various available Floras.Plant species of family Poaceae(Graminae) from Sabarmati riverbed-riverside area, have listed systematically which counts 34 species of 27 genera, These plant species grow wild as well as cultivated.

INTRODUCTION

Poaceae or Gramineae are the fifth most diverse family among the Angiosperms and the second most diverse family among the Monocotyledons.Poaceae comprises about 10,000 species in approximately 700 genera (Clayton & Renvoize,1986; Tzvelev, 1989; Watson & Dallwitz, 1992).Poaceae are also one of the most ecologically and economically important plant families. Grasses and grasslands are distributed worldwide and account for 25–45% of the world's vegetation.Most human food comes directly or indirectly from grasses. Grasses have many other economically important uses. Earlier,The Plants of Northern Gujarat published by Saxton, W. T. and Sedgwick L. J. (1918) ,Shah, C. K. (1963) enumerate the sedges of Sabarmati ,Bhatt, R. P. et.al (1969) reported A study of the vegetation and flora of Khedbrahma region. Sabnis , S. D. et.al (1975) reported the forest vegetation and phytogeography of Khedbrahma region. Shah, G. L. (1978) published the flora of Gujarat State. Yogi, D. V. (1970) submit thesis of the flora of North Gujarat.Earlier many research workers explore the North Gujarat region but not much explore the river Sabarmati.

STUDY AREA:

The geographical situation of the Sabarmati river is between 22° 30' to 24° 30' North latitude and 72° 30' to 73° 30' East longitude. It originates from Arvalli hills, near Vekaria in Rajasthan State and enters in the Gujarat state at the boundary of the Sabarkantha district .It passing through across the Northern to central part of the Gujarat state .It flows through seven districts of the Gujarat state , namely Banaskantha, Sabarkantha , Mehsana ,Gandhinagar, Ahmedabad , Kheda and Anand and finally enters into the Gulf of Khambhat (Cambay). Sabarmati river is one of the longest river in the state and its length is

about 418 km.It has total 5475 sq.km catchments area.

MATERIAL AND METHODS

The study of Grass family Poaceae (Graminae) from the Sabarmati river of Gujarat, on the results obtained from extensive and intensive studies of the vegetation of area. Field survey was carried out for collection of plants. Identification of plant species during field work was done by compiling different floras available and authenticated by experts from University department and research institutes. This piece of work is survey based. Surveys were made for a five years (2001-2005) to collect and identify the plants. The collected plants were categorized according to their Scientific name,Vernacular name and Habit represent in description.

RESULT:

1. *Apluda mutica* L.

Sp . Pl . 82 . 1753 ; FBI 7 : 150 ; FBP 3 : 474 ; FGS 2: 776 ; FOS 3 : 384 ; BBM 128

Perennial erect or geniculate , slender herbs

Leaves linear, flat, petiolate . Panicles long , terminal ,simple raceme subtended by spathe . Spikelets long polished , greenish yellow.**Fls. & Frs. :** Aug.-Jan. common , Throughout in plains.

2. *Aristida finiculata* Trin & Rupr .

sp . Gram . in Mem ., Acad .Sci . petersb . (ser . VI) 7 : 159.1842 ; FBI 7 : 226 ; FBP 3 : 530 ; FGS 2: 779 ; FOS 3 : 388 ; BBM 496

Erect or geniculate , slender herbs . Leaves narrowly linear, flat, Panicles long lax narrow Spikelets with long awns.**Fls. & Frs. :** Aug.- Dec. common in sandy soil and dry ground in river side.

3. *Aristida adscensionis* L. (Lapdu)

Bor 407. t. 43. L. Sp. Pl. 82. 1753; FGS 2: 778 FOS 3 : 386 ; BBM 248

Annual or perennial, tufted, erect or geniculately ascending herbs Leaves narrowly linear, flat, scabrous. Panicles contracted,

subsecund. Spikelets ovoid-oblong to oblong-lanceolate.**Fls. & Frs. :** Aug.-Jan. common in plains.

4. *Bambusa arudinacea*. (Retz.) Willd. (Kanti vans)

Sp . Pl . 2 : 245 . 1799 ; 7 : 395.1842 ; FBI 7 : 226 ; FBP 3 : 569 ; FGS 2: 787 ; FOS 3 : 392 ; BBM 453

Giant bamboo with stout root stalks,the dense clumps reaching 35m in height and 10-15 cm in diam., Leaves linear to linear-lanceolate, glabrous or puberulous beneath, scabrous on one or both margins, ciliate on round base. **Fls. & Frs. :** Not seen. Planted by forest department.

5. *Bambusa vulgaris* Schrad. (Vans)

Sp . Pl . 2 : 245 . 1799 ; 7 : 395.1842 ; FBI 7 : 226 ; FBP 3 : 569 ; FGS 2: 787 ; BBM 207

Tufted, unarmed, bright green trees . Leaves linear to linear-lanceolate,petiolate , glabrous beneath .Panicles large leafy . Spikelets bracteate in clusters .**Fls. & Frs. :** Aug.-Jan. Common in garden also planted by forest department.

6. *Brachiaria setigera* (Retz) (Kaneru)

Hubbo . in . H . Ic . Pl . 34 : 2 . FBP 3: 449; FBI 7 : 37 ; FGS 2: 795 ; FOS 3 : 397 ; BBM 299

Slender herbs , prostrate below , beared at nodes. Leaves ovate lanceolate , flat ,ciliate at base .Panicals long racemes , alternate .Spikelets loosely imbricate, glabrous ,acute .**Fls.- Frs. :** Sep-Oct.Common , throughout .

7. *Cenchrus biflorus* Roxb. (Motu dhramnu)

Fl. Ind. 1:238. 1820; FBP 3: 433; GLS 2: 795 FBI 7 : 90 ; FGS 2: 795 FOS 3 : 399 ; BBM 129

30-40 cm tall, tufted, glabrous herbs. Leaves flat, linear-lanceolate, glabrous. Spikes 5-15 cm long, solitary, terminal, at first pale-green, later on straw-coloured, often light-to dark-violet or almost black. **Fls.** : Sep-Oct. **Frs.** : Oct.-Nov. Common, weed use as a fodder.

8. *Cenchrus ciliaris* L. Mant. (Jhinu dhramnu)

Alt. 302. 1771; FBI 1 : ; FBP 3 : 432 ; FGS 2: 796 ; FOS 3 : 399 ; BBM 519

Slender, perennial herbs, 40-50 cm tall, tufted. Leaves linear-lanceolate, glabrous. Spikes 6-10 cm long, terminal, solitary, at first green, then pale-brown and at times pale- to deep violet. Spikelets 0.4-0.6 cm long, oblong- lanceolate or subglobose. **Fls.** & **Frs.** : July-Jan. common, use as a fodder.

9. *Chloris barbata* Sw. Fl. (Mindadiu ghas)

Ind. Occ. 1:200. 1797; FBI 7 : 292 ; FBP 3 : 555 ; FGS 2: 798 FOS 3 : 403 ; BBM 520

Tufted, perennial herbs, with a creeping base. Leaves 2-6 cm long, flat, linear, glabrous. Spikes violet-purple, on drying pale-straw, digitate. Spikelets 0.2-0.25 cm long, arranged in rows, unilateral on axis. **Fls.**-**Frs.** : Sep.-Nov.. Common, throughout.

10. *Chrysopogon fulvus* (Spr .) (Khad sundhiu)

Chiov. Fl. Somal . 1:327. 1929 ; FBI 7 : 192 ; FBP 3 : 505 ; FGS 2: 801 ; FOS 3 : 406 ; BBM 201

Perennial, slender, tufted herbs. Leaves 2-6.5cm long, narrowly linear or lanceolate, glabrous, thickened margins. Panicles long terminal open .. Spikelets bright yellow. **Fls.** & **Frs.** : Sep -Jan .. common throughout in plains.

11. *Cymbopogon citratus* (DC.) (Lili chaha)

Stapf . in . kew bull . 1906 : 357 . ; FBI 7 : 204 ; FBP 3 : 511 ; FGS 2: 805 FOS 3 : 408 ; BBM 498

Perennial, tall herbs. Leaves dense fascicles from short rhizome. 2-6.5cm long, narrowly linear, green, rough margins. **Fls.** & **Frs.** : Not sen. Cultivated in the garden.

12. *Cymbopogon martini* (Roxb.) (Roicha ghas)

Wats in Atkins . Gaz . N. W > Prov . Ind . 392. 1882. ; FBI 7 : 204 ; ; FGS 2: 806 ; FOS 3 : 409 ; BBM 450

Perennial, tall herbs. Leaves dense fascicles from short rhizome. 2-6.5cm long, narrowly linear, green, rough margins. **Fls.** & **Frs.** : Aug.- Dec. Found in hilly area near Dharoi.

13. *Cynodon dactylon* (L.) Pers. (Darbh)

Syn. Pl. 1:85. 1805; FBI 7 : 288 ; FBP 3 : 554 ; FGS 2: 808 ; ; FOS 3 : 411 ; BBM 202

Perennial creeping herbs with slender erect 10-30cm tall culms. Leaves 2-6.5cm long, narrowly linear or lanceolate, flat. Spikes 2-5, 1.5-6.2cm long, spreading. Spikelets sessile, laterally compressed. **Fls.** & **Frs.** : Throughout the year, common in plains.

14. *Dactyloctenium aegyptium* (L.) P. Beauv.

Ess. Agrost. Expl. Pl. 15. 1812; FBI 2 : 795 ; FBP 3 : 560 ; FGS 2: 808 ; FOS 3 : 412 ; BBM 457

Annual, 10-15 cm tall, erect, suberect or basally geniculately ascending herbs. Leaves glabrous or sparsely hairy, ciliate on margins. Spikes 3-7, 2-3.5 cm long, digitately arranged. Spikelets

light-to dark-olivaceous-green, at times tinged purple or completely purple, rigid, laterally compressed, 0.3-0.4 cm long. **Fls.** : Aug.-Sep. **Frs.** : Sep.-Dec. Common, throughout.

15. *Dendrocalamus strictus* Nees (Manvel vans)

in Linnaea 9:476. 1834; FBI 7 : 404 ; FBP 3 : 172 ; FGS 2: 809 ; FOS 3 : 413 ; BBM 522

8-10m tall trees, with solid, tufted culms. Leaves linear-lanceolate to ovate-lanceolate, glabrous. Panicles 20-25cm long. Spikelets 0.8-1.2 X 0.2-0.5cm, spinescent, hairy, fertile intermixed with many sterile ones. **Fls.** : Aug.-Sep. **Frs.** : Sep.-Dec. , occasional, planted .

16. *Desmostachya bipinnata* (L.) (Dabh)

Stapf in Dyer, Fl. Cap. 7:632. 1900; FBI 7 : 324 ; FBP 3 : 550 ; FGS 2: 809 ; FOS 3 : 414 ; BBM 353

Perennial, 40-60 cm. tall; rootstock stout, creeping; stolons very stout clothed with shining sheaths, stems 30-90 cm, tufted, smooth erect, stout. Leaves many, basal fascicled, very long, rigid long acuminate tips filiform, branches crowded, spikelets unilateral. **Fls.** & **Frs.** : Almost around the year, Common throughout.

17. *Dichanthium annulatum* (Forsk.) (Zinzvo)

Stapf in Prain, Fl. Trop. Afr. 9:178. 1917; FBI 7 : 196 ; FBP 3 : 508 ; FGS 2: 810 FOS 3 : 415 ; BBM 303

Stems usually wood at the base with strong wiry roots and tufted. Leaves 7.5-30 cm, rigid, glaucous, glabrous or hairy above with tubercle based hairy, margins scabrid; spike 2.5-6.2 cm straight or flexous. **Fls.** & **Frs.** : Almost around the year. common, in open fields,

18. *Digitaria adscendens* (H B. & K) (Tanodiyu)

Henrard in Blumea 1 : 92. 1934; FBI 7 : 15 ; FBP 3 : 457 ; FGS 2: 812 ; FOS 3 : 418 ; BBM 389

Slender, tuft, prostrate herb. Leaves linear, flat, sparsely hairy. Raceme long sub digitate. spike lanceolate green. **Fls.** & **Frs.** : Jul.- Dec. common, Throughout in open wasteland.

19. *Echinochola colonum* L. (Motu jiriu)

Link, Hort. Berol . 2 : 209. 1833. FBI 7 : 32 ; FBP 3 : 447 ; FGS 2: 817 ; FOS 3 : 422 ; BBM 200

Slender, sub erect - diffuse herb. Leaves linear, flat, sparsely hairy. Panicles spikes. spikelets green purple lanceolate green. **Fls.** & **Frs.** : Throughout the year. Cocommon, Throughout in damp place.

20. *Eragrostris ciliaris* (L.) R.Br. var. *brachystachya* Boiss. (Murmur)

Fl. Orient. 5:582. 1884; FBI 7 : 314 ; FBP 3 : 545 ; FGS 2: 823 ; FOS 3 : 428 ; BBM 497

Stem 30-60 cm, procumbent below and geniculately ascending slender. Leaves very narrow, flat, mouth of sheath with very long hairs. spikelets very pale, as broad as long, much compressed. **Fls.** : Sep.-Nov. **Frs.** : Nov.-Dec. common .

21. *Eragrostris diarrhena* . schult

Steud. Syn . Pl. glum . 266. 1854. FBI 7 : 316 ; FBP 3 : 546 ; FGS 2: 824 ; FOS 3 : 430 ; BBM 455

A tufted, slender, glabrous herb. Leaves linear, flat; sheaths long, ciliate near the mouth. spikelets innumerable, minute to small on capillpanicles contracted spreading. spikelets very minute, purple pinkish, ovate. **Fls.**- **Frs.** : Oct. - Feb. Through-

out the year . common in riverbed ..

22. *Eragrostis tenella* (L.) (Kalavo)

P. Beauv. Ex R.& S. Syst. Veg. 2:576. 1817; FBI 7 : 315 ; FBP 3 : 546 ; FGS 2 : 826 ; FOS 3 : 431 ; BBM 302

Small , slender grass. Very variable, rarely 45 cm high. Stems many slender, densely tufted. Leaves slender, narrow, acuminate, attaining 12 cm by 5mm, usually much less; sheaths long, ciliate near the mouth. spikelets innumerable, minute to small on capillary branchlets and pedicels. **Fls.- Frs. :** Throughout the year . common.

23. *Melanocentris jacquemontii* J. & S. III.

Pl. Or. 4:36. t. 325. 1851; FBI 7 : 284 ; FBP 3 : 553 ; FGS 2 : 842 ; ; FOS 3 : 446 ; BBM 352

Annual, stems 7.5-20 cm high, densely tufted, very slender. Leaves 2.5-5 cm long, narrowly linear-lanceolate or ensiform, flat or convolute. Racemes 3.5-7 cm long. Cluster of spikelets greenish-white, at times tinged violet, at length silvery-white. **Fls. :** Aug.-Oct. **Frs. :** Oct.-Dec. common, particularly in stony or rocky soil.

24. *Oryza sativa* L. (Danger, Chokha)

Sp. Pl. 333. 1753;; Shah 2: 845 FBI 7 : 93 ; FBP 3 : 565 ; FGS 2 : 845 ; FOS 3 : 449 ; BBM 199

75-100 cm tall herbs. Leaves linear, flat, scabrid on margins and on nerves beneath. Panicles 10-25cm long, at length drooping. Spikelets 0.6-1cm long, ovate-oblong or ovoid, pale-brown at maturity. **Fls. & Frs. :** Aug.-Nov. cultivated in field.

25. *Panicum miliaceum* L. (Moraiyo)

Sp. Pl. 58 1753. ; FBP 3 : 432 ; FGS 2 : 856 ; BBM 301

Annual, tufted erect herb . Leaves linear to linear-lanceolate, hirsute. Panicles contracted and dense long. Spikelets ovate oblong , turgid , acuminate . **Fls. & Frs. :** Aug. Nov. cultivated for food.

26. *Paspalum distichum* L.

Syst. Nat . 2 : 855 . FBI 2 : 212 ; FBP 3 : 432 ; FGS 2 : 856 ; FOS 3 : 454 ; BBM 198

Perennials , rhizomatous grass with long stolon .1-. Leaves linear to linear-lanceolate, glabrous, Racemes terminal erect spreading . spikelets broadly elliptic . **Fls. & Frs. :** Sep.-Nov. and Mar.-May . Found in moist ground ..

27. *Pennisetum typhoides* (Burm. f.) (Bajri)

Stapf & Hubb. in Kew Bull. 1933; FBI 7 : 82 ; FBP 3 : 432 ; FGS 2 : 856 ; FOS 3 : 456 ; BBM 387

1-2m tall, stout, simple or branched, annuals. Leaves linear to linear-lanceolate, glabrous or hairy, Spikes cylindrical, terminal, pale-brown. **Fls. & Frs. :** Aug.- Nov. and Mar.- May .cultivated in field near river.

28 . *Paspalidium punctatum* (Burm . f)

A. camus in Lecomte , Fl. Gen , de l'indo-chine 7 : 419 . 1922; FBI 7 : 29 ; FBP 3 : 445 ; FGS 2 : 851 ; BBM 388

Perennials herbs in mud . Leaves linear . Spikes many , distant , sessile , longer than internodes . Spikelets ovate oblong 2- seriate. **Fls. & Frs. :** Sep.-Dec. Common in water , abundant near Dharoi .

29. *Saccharum munja* L. (Munj)

Sp. Pl. 54. 1753; FBI 7 : 119 ; FBP 3 : 466 ; FGS 2 : 860 ; PNG 301 ; BBM 356

Perennials, erect, 1-3.5m. tall, stout. Leaves rigid linear-lanceolate, sharply serrate on margins. Panicles pyramidal, very long, dense, silvery, primary branches very slender, glabrous or hairy. Spikelets lanceolate, surrounded by densely silky-white hairs, paired, one sessile, other pedicellate. **Fls. & Frs. :** Sep.-Dec. Cultivated.

30. *Setaria glauca* (L.) P. Beauv. (Kutri ghas)

Agrost. 51. 1812; FBI 7 : 78 ; FBP 3 : 435 ; FGS 2 : 864 ; FOS 3 : 464 ; BBM 454

15-45cm tall, slender, loosely tufted herbs. Leaves flat, linear, glabrous or softly hairy. Spike-like in racemes, densely flowered, 1-7cm long, erect, linear-cylindrical, fulvous. Spikelets numerous, ellipsoid, glabrous. **Fls. & Frs. :** July-Nov. common, use as fodder.

31. *Setaria tomentosa* (Roxb.) Kunth, (Chitku ghas)

Rev. Gram. 1:47. 1829; FBI 7 : 79 ; FBP 3 : 436 ; FGS 2 : 864 ; FOS 3 : 465 ; BBM 355

Slender, erect or ascending, glabrous, tufted, 60-90 cm tall herbs. Leaves linear-lanceolate, flat, glabrous or sparsely softly hairy, scabrous on margins. Panicles 5.4-15 cm long, erect, dense-flowered, narrowly pyramidal, spikelets ovoid, subacute. **Fls. & Frs. :** July-Dec. Common,

32. *Sorghum bicolor* (L.) Moench. (Juar)

Meth. Pl. Hort. Bot. Merburg. 207. 1794; Bor 207. FBI 7 : 183 ; FBP 3 : 511 ; FGS 2 : 866 ; PNG 301 ; FOS 3 : 467 ; BBM 521

Stout annual, 5-8 ft. tall. Leaves broadly lanceolate, flat, glabrous. Panicles 10-25cm long. Spikelets 0.3-0.5 an long, broadly ovate-lanceolate, hairy. **Fls. & Frs. :** Dec.- Mar. cultivated in field near river ..

33. *Triticum sativum* L. (Ghahun)

Sp. Pl. 85, 1753,; FBI 7 : 767 ; FBP 3 : 574 ; FGS 2 : 880 ; FOS 3 : 480 ; BBM 197

Annual 30-60cm tall, tufted herbs. Leaves linear to linear-lanceolate, flat, glabrous or hairy on one or both surfaces. Spikes 6-15cm long, erect, compact, glabrous or hairy. Spikelets distichously, laterally compressed, 3-5-flowered. **Fls. & Frs. :** Dec.-Mar. Cultivated in field near river mostly in winter season.

34. *Zea mays* L. (Makai)

Sp. Pl. 971, 1753; FBI 7 : 102 ; FBP 3 : 574 ; FGS 2 : 882 ; FOS 3 : 483 ; BBM 354

Annual herbs. Leaves linear, glabrous. Male panicles , terminal, above dense foliage. Female spike solitary, axillary. **Fls. & Frs. :** July-Oct. Cultivated in field near river , common crop in the area.

No	BOTANICAL NAME	LOCAL NAME (In Gujarati)
01	<i>Apluda mutica</i> L	Phophul
02	<i>Aristida adscensionis</i> L	Lapadu
03	<i>Aristida funiculatae</i> Trin.&Rupr.	Laso lambh
04	<i>Bambusa arundinacea</i> (Retz.) Willd.	Kanti vans
05	<i>Bambusa vulgaris</i> Schrad.	Vans
06	<i>Brachiaria setigera</i> (Retz)	Kaneru
07	<i>Cenchrus biflorus</i> Roxb.	Motu Dhramn
08	<i>Cenchrus ciliaris</i> L.	Jhinu Dhramnu
09	<i>Chloris barbata</i> Sw.	Mindadiu
10	<i>Chrysopogon ulvus</i> (Spr.ocniov.)	Khad sundhiu
11	<i>Cymbopogon citratus</i> (DC.)	Lili chaha
12	<i>Cymbopogon martinii</i> Roxb.	Rosh ghas
13	<i>Cynodon dactylon</i> (L.) Pers.	Darbh,Dharo
14	<i>Dactyloctenium aegyptium</i> (L.)Beauv	Chund ghas
15	<i>Dendrocalamus strictus</i> Roxb.	Manvel Vans
16	<i>Desmostachya bipinnata</i> (L.)	Dabh
17	<i>Dichanthium annulatum</i> (Forsk.)	Zinzvo
18	<i>Digitaria adscendens</i> (H.B.&K.)	tanodiyu
19	<i>Echinochloa colonum</i> L.	Samo
20	<i>Eragrostis ciliaris</i> (L.) R.Br.	Murmur
21	<i>Eragrostis diarrhena</i> (schult.)	Fuliyu Ghas
22	<i>Eragrostis tenella</i> (L.) P.Beauv.	Kalavo,
23	<i>Melanocenthris jacquemontii</i> J. & S.	Vekar
24	<i>Oryza sativa</i> L.	Chokha, Dangar
25	<i>Panicum miliaceum</i> L	Moraiyo
26	<i>Paspalum disticum</i> Roxb.	Kodri
27	<i>Paspilidum punctatum</i> Burm. F.	Sano sau
28	<i>Pennisetum typhoides</i> (Burm.f.)	Bajri, Bajra
29	<i>Saccharum munja</i> L.	Sarkhat
30	<i>Setaria glauca</i> (L.) P.Beauv.	Kutri ghas
31	<i>Setaria tomentosa</i> (Roxb.) Kunth	Chiktu,Kutri
32	<i>Sorghum bicolor</i> (L.) Moench	Juwar
33	<i>Triticum sativum</i> L.	Ghahun
34	<i>Zea mays</i> L.	Makai

Table:1 : Plant list

DISCUSSION & CONCLUSION:

The analysis of the plant species gives the result that the total Grass comprises of 34 species belong to 27 genera of the family . The most of the species as weeds are mainly found in this study area..There are herb 31 species and 03 species of trees. There are 25 common species, 05 very common species ,04 not common species .There are 10 cultivated plant species and 24 wild plant species . Mostly the species of grasses are found in the riverbed and river margin during monsoon season .Some common grass species are *Apluda mutica* L , *Brachiaria setigera*(Retz), (Vahl.) R.Br., *Cenchrus biflorus*

Roxb., *Cymbopogon martinii* Roxb., *Cynodon dactylon* (L.) Pers., *Dichanthium annulatum* (Forsk.), *Digitaria adscendens* (H.B.&K.), *Echinochloa colonum* L., *Enicostema hyssopifolium* (willd) , *Eragrostis ciliaris* (L.) R.Br., *Eragrostis unicolor*(Retz.), *Setaria glauca* (L.) P.Beauv

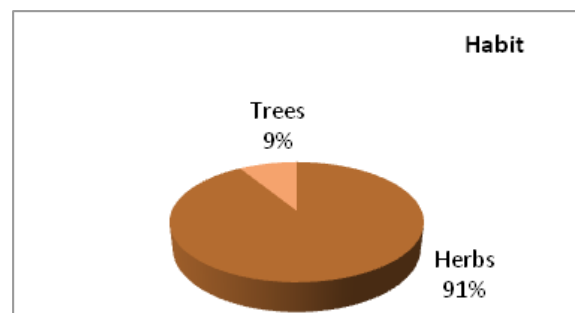
STATISTICAL ANALYSIS OF FAMILY

Family: Poaceae (Graminae)

Genera	27
Species	34

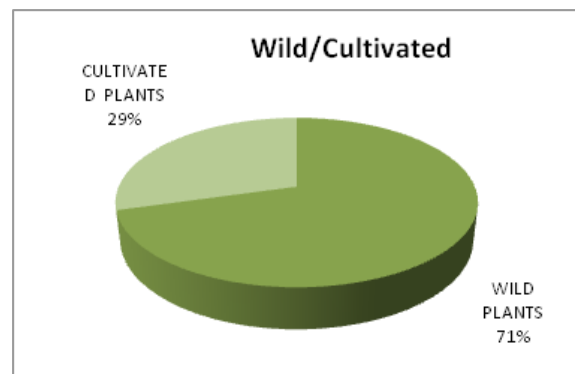
ANALYSIS OF HABIT

Herbs	Trees
31	03



ANALYSIS OF CULTIVATED / WILD PLANTS

WILD PLANTS	CULTIVATED PLANTS
24	10



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