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## ETHNO-MEDICINALLY SIGNIFICANT GRASSES OF GIRNAR WILDLIFE SANCTUARY OF GUJARAT, INDIA

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### ABSTRACT

The present investigation deals with the ethno-medicinal importance of the grasses of Girnar Wildlife Sanctuary location in the Junagadh district of Gujarat. An intensive field survey was done to document the grasses and personal interview and focused Group discussion were conducted with the local inhabitants and pastoralists. A total of 14 grasses were identified as ethno-medicinally significant grasses of Girnar wildlife Sanctuary.

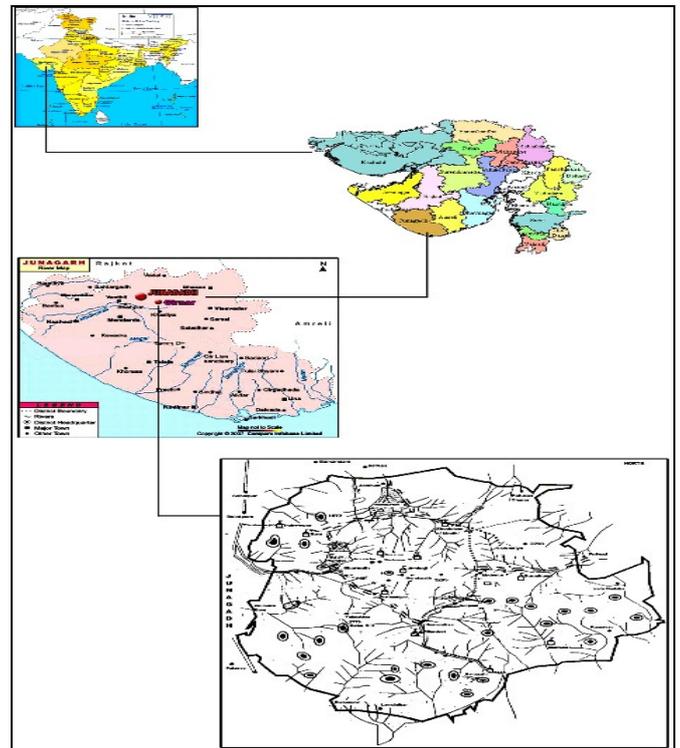
**Keywords:** Ethno-medicinal, Grass diversity, Documentation, Girnar.

### Introduction

Grasses constitute a homogenous group of plants belonging to the Poaceae (Gramineae) family. Poaceae forms fascinating flowering plants with a wide range of diversity and plays a vital role in humankind's lives and animals (Mitra and Mukherjee, 2005). The value and culture of cereal grasses date back to when Man emerged from the wild beast stage (Gould, 1968). The members of this group are present in all potential habitats, suitable for the growth of plant communities, and in every climatic region (Mitra, 2005). Grasses are of high economic value as they are taken as food and, because of having high protein content provide energy to the body (Mensah, 1990). Besides being the staple food, grasses are also ecologically important (Clayton & Renvoize, 1986). Several ethnobotanical surveys on grasses were carried out in India; 24 obnoxious grasses used for various diseases were identified (Katewa *et al.*, 2001). Likewise, Mitra and Mukherjee (2005) accounted for 16 grass taxa from West Dinajpur district West Bengal and described their 27 uses by the natives of the area. The grasses of the Southwest Indian region were studied by Doebley (1984). Ahmad *et al.* (2009) identified 62 species of grasses based on morphology and highlighted their indigenous uses in the area. They also studied grasses from an ethnomedicinal point of view. Among the 62 species of grasses, 10 species were used ethnomedicinally by people of the area. The ethnomedicinal importance of two grasses, *Cynodon dactylon* and *Cymbopogon jawarancusa*, was recorded from the Kadhi areas of Khushab. *Cynodondactylon* is used to treat fever and skin problems. While *Cymbopogon jawarancusa* was regarded as to be effective in treating typhoid (Qureshi *et al.*, 2011; Badshah and Hussain, 2011).

Hence, here is an attempt was made to document the ethno medicinally important grasses of Girnar Wildlife Sanctuary.

### Materials and Methods



**Fig. 1 :** Map of study area

The present investigation was carried out in the Girnar wildlife sanctuary, located in the Junagadh district of the Saurashtra region in Gujarat, India (Fig. 1). From September 2006 to May 2009 regular field visits in various localities viz. Bordevi, Datar hill, Jina bava ni madhi, Laldhori, Nalpani ni Ghodi, Surajkund, Mathureswer, Ravat Sagar, Kala gadba, Hasnapur dam, Paturanvidi, Patvadkotha were conducted to collect the field data. Field trips were carefully planned to

cover all season data on the plants' availability and related secondary information on their traditional uses. The forested areas maps were used to explore the grasses diversity from study area. To identify various grasses the published floras, manual and other unpublished research reports were used. Plants sample were also collected and prepared herbarium sheets. Prepared herbarium sheets were deposited at Department of Marine Science, Bhavnagar University, Bhavnagar.

To document the traditional knowledge, personal interview and focused group discussion were conducted with local inhabitants and noted all the information in open-ended questionnaire.

### Results and Discussion

Fourteen grass species were recorded to be used by locals for different medicinal purposes. All the ethno medicinally important grass species are mentioned below as: their scientific name, family, local name, flowering and fruiting season, field notes, description of the plant, parts used, and uses.

#### (1) *Aristida adscensionis* Linn.

**Family:** Poaceae

**Local name:** Uthlanpado

**Fls & Frs:** August to March

**Field note:** Common in the study area during monsoon season.

**Description:** An annual or perennial, stem densely tufted, very slender erect or ascending simple or branched. Leaves convolute filiform, smooth or scaberulous sheaths smooth, ligule of fine shoot hairs. Panicles contracted subsecund rachis filiform smooth, branches short.

**Part Used:** Leaf, seed, root, whole plant.

**Ethno medicinal uses :** 1) Decoction of the root in calculus, urinary bladder inflammation, urinary tract infections, diarrhea, and leucorrhoea. 2) Seeds are helpful in diarrhea, dysentery, and diabetes. 3). Plant ash with honey is given in cough and asthma. 4) Leaf paste is applied on boils, inflammations, and poisonous insect or animal bites.

#### (2) *Bambusa stricta* Roxb.

Syn. *Dendrocalamus strictus* (Robisx) Ness.

**Family:** Poaceae

**Local name:** Vans, nakorvans

**Fls & Frs:** August to March.

**Field note:** Common in the study area.

**Description:** Thorny, fublect,trees, culm stout. Leaves linear, linear-lanceolate, glabrous or puberulous beneath, scabrous on one or both margins ciliate on round base. Panicle ample, spikelets, glabrous, suberect, lanceolate in loose clusters

**Chemical composition:** Protein carbohydrates, calcium, phosphorus, iron, magnesium, chlorine, thiamin, vitamin -c

**Part used:** Leaves, roots, leaves, sprouts, grains.

**Biological activities:** Sweet, astringent, cooling, laxative, depurative, diuretic, tonic, and acrid.

#### (3) *Cenchrus spennisetiformis* L.

**Family:** Poaceae.

**Local name:** Dhaman

**Fls & Frs:** August to January

**Field note:** Common in the study area during monsoon season

**Description:** perennial tufted glabrous herbs. Leaves narrowly linear-lanceolate, glabrous, finely acuminate, and sparsely hairy to nearly glabrous. Racemes solitary, terminal. Spikelets glabrous.

**Part Used:** Leaves

**Ethno medicinal uses :** 1) leaf extract with honey in cough, bronchitis, asthma, tuberculosis. 2) leaf juice is also used in pyorrhoea, peptic, ulcer, bleeding, menorrhagia, and piles. 3) Leaves are used in jaundice, diarrhea, leukoderma, leprosy, vomiting, fever, rheumatism, diabetes, dropsy, inflammation, and malaria.

#### (4) *Chloris virgata* Sw. Fl

**Family:** Poaceae

**Fls & Frs:** August to December.

**Field note:** Common in study area.

**Description:** An erect or geniculately ascending herbs, creeping and rooting at nodes towards the base. Leaves flat acute, linear glabrous at length, spikes erect crowded at the end of the peduncle, fine rachis angular.

**Part used:** Whole plant

**Ethnomedicinal Uses:** Decoction of the plant or root is used as an additional to bath to treat cold and rheumatism.

#### (5) *Cynodon dactylon* (L.)

**Family:** Poaceae.

**Local name:** Dharo, Durva.

**Fls & Frs:** Major part of the year.

**Field note:** Common in dry places of the study area.

**Description:** Perennial, creeping and rooting herbs. With slender erect. Leaves short, rigid distichous. Spikes slender, often purplish peduncle. Spikelets linear smooth sessile. Flowering glume relatively longer and broader, boat-shaped. Chemical Composition:  $\beta$ -sitosterol, D-glucoside, stigmaterol acetate, phyton, sodium,  $\beta$ -ionone, 2-propionic, 4-hydroxybenzoic, 2-propionic acid.

**Part used:** The whole plant.

**Biological Activities:** Astringent, diuretic, demulcent, aperient, haemostatic, suppurative.

**Ethnomedicinal uses:** 1) Decoction of the root is given in urinary problems. 2) Decoction of the whole plant is given in fever, cold and cough.

#### (6) *Cymbopogon martini* (Roxb.)

**Family:** Poaceae

**Local name:** Roshaghas

**Fls & Frs:** August to December

**Field note:** Common in the study area during monsoon season.

**Description:** Root perennial, with long wiry fibers, leaves very long tapering, Smooth, delicate texture spike spathaceous, terminal interrupted racemes.

**Chemical composition:** Geraniol, butyrate, geranyl acetate, linalool

**Part Used:** Whole plant

**Biological Activities:** Bitter, acrid, diuretic, depurative, febrifuge, carminative.

**(7) *Desmostachya bipinnata* (L.).**

**Family:** Poaceae

**Local name:** Dabh, Dabhado.

**Fls & Frs:** Major part of the year.

**Field note:** Throughout common in hot and dry places.

**Description:** rigid, tufted, perennial herbs. Leaves many basal, fascicled, very long, rigid long acuminate tips, filiform, margins hispid. Spikelets sessile, biseriate, green often tinged, violet-purple or whole panicle violet purple.

**Chemical Composition:** Protein, crude fiber.

**Part Used:** Whole plant

**Biological Activities:** Bitter, sweet, cooling, diuretic, astringent, stimulant, acrid, aphrodisiac.

**Ethnomedicinal uses:** 1) Root decoction is employed in asthma, jaundice. 2) Clubs are useful in dysentery, strangury. 3) Culms are useful in dysentery.

**(8) *Eragrostis diarrihena* (Schult.)**

**Family:** Poaceae.

**Fls & Frs:** November to March.

**Field note:** Throughout common in moist places of the study area.

**Description:** glabrous annual or perennial grass. Leaves narrow flat sheath glabrous close, ligule a fimbriate, membrane. Panicle erect contracted branches filiform, often tinged with red, pedicellate, rachilla articulate between the flowering glumes glabrous disarticulating from above downwards.

**Ethnomedicinal uses:** plant paste is applied on boils, swelling, erysipelas, ulcers and headache.

**(9) *Eragrostis japonica* (Thunb.)**

**Family:** Poaceae.

**Fls & Frs:** throughout the year.

**Field note:** Common in the study area.

**Description:** glabrous annual or perennial grass. Leaves narrow flat sheath glabrous close; ligule a fimbriate, membrane. Panicles which are made up of whorled branches and lemma less than 0.2 cm long. The flowering glumes glabrous disarticulating from above downwards.

**Part Used:** Whole plant.

**Ethnomedicinal uses:** 1) Decoction of plant is useful in

burning sensation, flatulence, colic, dyspepsia, helminthiasis, bleeding piles, strangery, knee joints pain, gonorrhoea, fever and leprosy. 2) Juice of plant is given in diabetes. 3) Paste of plant or poultice of plant is applied on boils, swelling, erysipelas, ulcers and headache.

**(10) *Eragrostis tremula* (Lam.)**

**Family:** Poaceae.

**Fls & Frs:** August to February

**Field note:** Common in the study area.

**Description:** annual tufted, slender erect or geniculate, ascending, glabrous. Leaves linear-lanceolate, tapering to a fine point sheaths bearded at the mouth. Panicles large, ovate, very diffuse branches solitary filiform. Spikelets straight or falcate, linear, compressed silvery – white or pale – brown.

**Chemical Composition:** Protein, carbohydrates.

**Part Used:** The whole plant.

**Biological Activities:** Diuretic.

**Ethnomedicinal uses:** The whole plant is used in dysentery and menorrhagia.

**(11) *Imperata cylindrica* L.**

**Family:** Poaceae.

**Local name:** Sar – ghas, chhai.

**Fls & Frs:** October to May.

**Field note:** Common in study area.

**Description:** erect, simple, slender herbs with creeping stoloniferous rootstocks. Leaves narrowly, linear, flat, glabrous. Panicles spike-like, cylindrical, compact branches and branchlets numerous, crowded appressed Spikelets lanceolate.

**Part Used:** Rhizome.

**Biological Activities:** Diuretic, febrifuge.

**Ethnomedicinal Uses:** Decoction of the rhizome is used for urodynia.

**(12) *Panicum antidotale* Retz.**

**Family:** Poaceae.

**Local name:** Dhunsado, dhun.

**Fls & Frs:** Throughout the year

**Field note:** A common conspicuous grass throughout the area growing amongst Capparis and other shrubs, bushes and hedges.

**Description:** tall perennial grass, reaching 1.5 m high from creeping often stout and thick rootstock. Culms solid, woody later smooth, thickened at nodes. Leaves linear, flat, tapering from the rounded base to fine point, rigid, smooth glabrous on both surfaces. Panicles effuse, pyramidal rachis very slender, angular glabrous or slightly scabrous, branches usually fascicled rarely solitary. Spikelets laxly crowded, ovoid, acute glabrous.

**Part Used:** Whole plant.

**Biological Activities:** Antidote, antiseptic, fumigant.

**(13) *Setaria tomentosa* (Roxb).****Family:** Poaceae**Local name:** Chitku**Fls & Frs:** July to December.**Field note:** Common in study area during monsoon season.**Description:** Slender, erect or ascending, glabrous tufted herbs. Leaves linear-lanceolate, flat, glabrous or sparsely softly hairy, scabrous on margin. Panicles erect, dense-flowered, narrowly pyramidal. Spikelets ovoid, sub-acute.**Chemical Composition:** Albuminoids, carbohydrates.**Part Used:** The whole plant.**Biological Activities:** Diuretic, astringent.**Ethnomedicinal uses:** Extract used in rheumatism.**(14) *Sorghum halepense* (L.)****Family:** Poaceae**Local name:** Baru**Fls & Frs:** July to January**Field note:** Common in moist places in the study area.**Description:** A perennial herbs. Leaves linear to linear-lanceolate flat, glabrous, serrulate, sheaths glabrous, ligule short membranous ciliate. Panicles oblong-pyramidal. Spikelets, lanceolate, pale – brown or straw-colored.**Chemical Composition:** starch and protein.**Part Used:** Seed, stem.**Biological Activities:** Diuretic, demulcent.**Ethnomedicinal uses:** Roasted seeds are given in coughs and bronchitis. Flour is warmed and applied as a poultice on boils. Children chew stem.

During the present investigation a total of 14 grass species were identified as traditionally useful in treating various diseases and disorders. This documentation will help for further pharmacological investigation of active ingredients of important for human well-being.

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