



Research Paper

TAXONOMIC AND ETHNOBOTANICAL STUDIES OF GRASSES USED BY TRIBALS OF WAYANAD DISTRICT, KERALA, SOUTH WESTERN GHATS OF INDIA

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Abstract

Taxonomic and ethnobotanical study among the tribals inhabiting Wayanad district of Kerala brought to light a number of grass species used as edible food, thatching materials and as sources of medicines for human and veterinary use. The use of different kinds of medicinal plants including grasses to cure specific ailments has been in vogue from ancient times. But the main obstacle in their utilization is the lack of correct identification of the concerned plant species and evaluation of their medicinal properties. The present study brings to light 27 grass species which are common throughout the Wayanad district of South Western Ghats. 41 ethnobotanical uses of grasses are documented from 4 major tribal communities. The paper enumerates and discusses various ethnobotanical aspects of the grasses used by the tribals of Wayanad. Some important medicinal uses of grasses are for the treatment of mouth ulcers, neuralgia, tumours, diabetes, dysentery, skin problems, nasal bleeding, body pain, sinusitis, and kidney stone.

Key words: Taxonomy, Ethnobotany, Grasses, Wayanad District, Kattunaicka tribes, Paniya tribes, Kurichya tribes, Kuruma tribes, Ethnomedicine.

INTRODUCTION

The importance of grasses as objects of botanical research is mainly due to their biogeographical presence and economic as well as ecological importance since the very beginning of human civilization. Poaceae (Graminae) are an important family playing significant role in the life of human beings and other animals. The importance of it is that, it provides the grasslands, which occupy one third of the land surface (Schantz, 1954) and cereals upon which much of the world population depends on its food. A good number of grasses are cultivated for their grains. In terms of world production of crops today, the first four are grasses, *i.e.*, sugarcane, wheat, rice and corn. Grasses also occupy a significant place in many traditional medicines including Ayurveda but their importance is poorly documented.

Wayanad district is with a hilly terrain on the South Western Ghats and located in the north east part of Kerala (Fig. 1). The most characteristic feature of the district is its low ridges of hills, with sharp peaks and extensive valleys. The altitude varies from 700-2100 meters above mean sea level. It is located between 11°26'28" & 11°58'2" N latitudes and 76° 26' 11" & 76° 46' 38" East longitudes. It is bounded on the east by Nilgiris and Mysore district of Tamil Nadu and Karnataka respectively, on the north by Coorg district of Karnataka, in the south by Malappuram district and on the west by Kozhikode and Kannur districts of Kerala state. It has a geographical area of 2,131 sq km. Wayanad is the homeland of numerous tribal communities of

South India. Before the advent of tea and coffee plantations, these people lived mainly along the river valleys and cultivated paddy by clearing the forests, gathered food and also took to hunting. The numerically dominant tribal communities in the district are Mullukurumans, Uralikurumans, Kurichians, Adiyans, Kattunaickans, Paniyans and Kurumans.

The use of different kinds of medicinal plants including grasses to cure specific ailments has been in vogue from ancient times. But the main obstacle in their utilization is the lack of correct identification of the concerned plant species and evaluation of their medicinal properties.

MATERIALS AND METHODS

Extensive and intensive plant exploration trips are conducted throughout the study area (Fig.1). The present study is based on critical, minute and systematic study of the plants and their uses by tribal inhabitants of almost all corners of the district. Collections were made throughout the district during the period from June 2012 to August 2014. Field observations such as habitat, frequency, habit, colour, phenology, etc. were noted in the field book. Illustrations and descriptions were made in most cases using fresh specimen. Herbarium specimens were prepared for further study. Detailed observations were made under binocular stereomicroscope and specimens were identified with the help of flora and herbaria. Necessary drawing was made with the help of Camera Lucida. Colour photographs were also taken in the field for easy identification of the taxa. The nomenclatural corrections were made according to the latest International Code of Botanical Nomenclature (St. Louis Code, 2000). For abbreviations of authors, Brummit and Powell (1992) are followed. A full set of voucher specimens used for this investigation is deposited in St. Mary's College Herbarium (SMCH). Each species is described with a plate containing illustrations of the whole plant (habit), part of rachis, spikelets, glumes, lemma, palea, lodicules, stamens, pistil and grain. The illustrations were prepared from authenticated plant material. All diagrams (except habit sketch) were drawn using Camera Lucida. For ethnobotanical information, the practitioners amongst the inhabitants of the area including medicine men, elderly people of tribal community and others with knowledge of plants were consulted during the field survey. The systematic part contains a comprehensive treatment of grasses used by tribals of Wayanad. For this the classification of Clayton and Renvoiz (1986) is adopted, where the family is divided into six subfamilies of which three subfamilies are represented in the study area. So the treatment is restricted to these three subfamilies. An artificial key is provided for these subfamilies, genera and species whenever there are two or more taxa. The subfamilies, tribes, genera and species are treated in alphabetical order. For each species the correct nomenclature, relevant synonyms, detailed morphological description, vernacular names, flowering and fruiting time, habitat and distribution and ethnobotanical uses are provided.



Fig.1 Location map of Wayanad District



Fig.2 Tribal Medicine man (Kurichya) examine patient and preparation of medicine

Plate II



(a) *Apluda mutica*. (b) *Axonopus compressus*. (c) *Cymbopogon flexuosus*. (d) *Eleusine indica*
(e) *Cynodon dactylon* (f) *Panicum repens*. (g) *Paspalum scrobiculatum* (h) *Pennisetum hohoenackeri*
(i) *Sacciolepis interrupta*

RESULTS

3.1. Systematic Treatment and Observations

Key to the Species

1. Spikelets generally one or many flowered, falling without glumes; glumes persistent2
1. Spikelets generally two flowered, falling with glumes at maturity, articulated below the Glumes.....3
2. Spikelets mostly one flowered, glumes equal to subequal; lemma convolute or involute membranous.....**2. *Aristida setacea***
2. Spikelets mostly many flowered; glumes generally unequal; lemma chartaceous to coriaceous21
3. Spikelets unisexual, male and female spikelets in separate inflorescence or different positions of same the inflorescence **7. *Coix lacryma-jobi***
3. Spikelets bisexual, or with male or barren and bisexual spikelets mixed in the same inflorescence.....4
4. Spikelets similar, solitary or paired, glumes membranous, lower lemma more or less similar to the upper glume in texture; upper lemma usually without awn..... 5
4. Spikelets dissimilar, often in pairs or in threes, one sessile and the other pedicelled, rarely solitary but then the upper lemma awned13
5. Spikelets awned or subtended by bristles or atleast aristae6
5. Spikelets not awned and not supported by aristae.....11
6. Spikelets awned or aristate.....7
6. Spikelets subtended by a solitary or an involucre of bristles.....8
7. Spikelets crowded, in 3-4 rows; glumes often acuminate and awned.....
.....**13. *Echinochloa colonum***
7. Spikelets not crowded, in 1-2 rows; glumes acute; never awned.....
.....**19. *Paspalidium flavidum***
8. Inflorescence in open panicles or the panicles contracted, spiciform.....9
8. Inflorescence of spiciform subsequent racemes digitate or subdigitate, or scattered on a central axis, rarely solitary.....10
9. Panicle contracted, narrow, spiciform or cylindrical.....**24. *Sacciolepis interrupta***
9. Panicles often lax, rarely contracted but never spiciform.....**18. *Panicum repens***
10. Lower glume well-developed.....**5. *Brachiaria ramosa***
10. Lower glume absent or reduced to minute scale or rim.....12
11. Lower glume strictly absent, culms stoloniferous and mat forming.....
.....**3. *Axonopus compressus***
11. Lower glume reduced to minute scale; culms not as above.....
.....**20. *Paspalum scorbiculatum***
12. Second lemma more or less smooth; bristles falling with the spikelets.....
.....**21. *Pennisetum hohoenackeri***
12. Second lemma transversely rugose; bristles present.....
.....**26. *Setaria italica***

13. Inflorescence a true or false panicle.....14
13. Inflorescence a solitary, digitate or subdigitate raceme.....
.....**16. *Heteropogon contortus***
14. Panicle of racemes interrupted by spathes.....15
14. Panicle not interrupted by spathes.....17
15. Aromatic grasses; racemes paired.....16
15. Grass not aromatic; racemes fascicled..... **1. *Apluda mutica***
16. Awn of sessile spikelet well exerted.....**9. *Cymbopogon flexuosus***
16. Awn of sessile spikelet short and not exerted or absent....**8. *Cymbopogon citratus***

17. Spikelet unawned, racemes usually white hairy.....18
 17. Spikelet awned, racemes without white hair.... 19
 18. Lower glume villous; peduncle glabrous.....22. *Saccharum arundinaceum*
 18. Lower glume villous; peduncle glabrous.....23. *Saccharum spontaneum*
 19. Lower glume muriccate to spinulose dorsally or at least along the margins.....
27. *Vetiveria zizanioides*
 19. Lower glume not muriccate or spinulose20
 20. Joints and pedicles solid, without translucent median line.....
6. *Chrysopogon aciculatus*
 20. Joints and pedicles with a translucent median line.....
4. *Bothriochloa pertusa*
 21. Inflorescence of several digitate or sub digitate racemes or spikes.....22
 21. Inflorescence panicle.....23
 22 Spikelets awned, lowest floret of a spikelet bisexual, others reduced to awns or male or empty florets.....10. *Cynodon dactylon*
 22 Spikelets not awned; all florets of a spikelet fertile.....24
 23 Glumes unequal in size, panicle effuse, oblong or pyramidal.....
25. *Sporobolus wallichii*
 23 Glumes almost equal in size, panicle lax.....17. *Isachne miliacea*
 24 Inflorescence a solitary, or 2 to many digitate or sub digitate spikes.....26
 24 Inflorescence a panicle..... 25
 25 Spikelet sessile12. *Desmostachya bipinnata*
 25 Spikelet pedicelled or very rarely sub sessile.....15. *Eragrostis unioides*
 26 Spikes digitate or sub digitate lemmas aristate or awned; axis of the spikes ending in a sharp point.....11. *Dactyloctenium aegyptium*
 26 Spikes digitate, lemmas not aristate; axis of the spikes ending in a spikelet.....
14. *Eleusine indica*

1. *Apluda mutica* Linn Sp. Pl. 82. 1753; Fischer in Gamble, Fl. Pres. Madr. 1750. 1934 (Repr. Ed. 3: 1212. 1957); Bor, Grass. Bur. Cey. Ind. Pak. 93. T. 7. 1960; Manilal & Sivaraj. Fl. Calia. 344. 1982. *A. aristate* Linn. Ameen. Acad. 4: 303. 1756; Fischer in Gamble, Fl. Pres. Madr. 1750. 1934 (Repr. Ed. 3: 1212, 1937). *A. varia* Hack. In DC. Monogr. Phan, G: 197. 1889, nom. Superfl. Based on *A. mutica* Linn.; Hook. F. Fl. Brit. Ind. 7:150. 1896; Rang. & Tad. Handb. S. Ind. Grass. 171. t. 142-143.1921; Sreek. & V. J. Nair. Fl. Ker. Grass. 32. 1991. Moulik, Grass & Bamboos India 1: 305. 1997. Kabeer & V.J. Nair, Fl. Tamilnadu. Grass 359. 2009.

Annuals or perennials. Culms 30-140 cm or more long. Creeping or erect; nodes glabrous. Leaves elliptic-lanceolate or linear-lanceolate, 2-3.5 x 0.2- 1.5 cm, glabrous or shortly villous on nerves. Ligules membranous. False panicles 5-50 cm long, interrupted. Sessile spikelets 3.8 mm long, laterally compressed, awned; lower glume lanceolate, 3.8 x 1.2 mm, shortly bifid, chartaceous or coriaceous, 9-15-nerved, margins narrowly winged in the upper half; upper glume, boat shaped, 3-6 x 1-3 mm, beaked, keeled, chartaceous, faintly 5-11 nerved, keel glabrous; lower floret male. Upper floret bisexual. First lemma oblong-lanceolate, 2.5-5 x 0.5-1 mm, delicate, hyaline, faintly 3-5 nerved. Palea equal to lemma, 2-keeled, 2-nerved. Lodicules obovate, 0.25-0.5 mm, truncate. Stamens 3, anther 1-2mm long second lemma as long as the sessile spikelet, notched, delicate, hyaline, 3-nerved. Awn 5-15 mm long, glabrous; column 3-6 mm, chestnut - brown. Palea ovate - acute, 1.5-2.5 x 0.5-1 mm, 2-keeled, delicate, hyaline. Stamens 3. Ovary oblong, 0.5-1 mm; styles 1-2 mm long, slender; stigmas 1.5-3 mm. Pedicelled spikelet lanceolate or slightly falcate, 3-8 x 0.5-1.5 mm, 5-7 nerved, rarely pubescent, margins ciliate or ciliolate in the upper half. Pedicelled spikelet oblong - lanceolate, 3-6 x 1-1.5 mm; pedicel oblong, 2-5 mm long, flat, faintly 3-5 nerved, margins ciliolate. Lower glume lanceolate. 3-6 x 1-1.5 mm, 11-13 nerved. Upper glume ovate lanceolate, equal in size and

texture; 5-11 nerved, margins infolded. Florets more or less similar to those of sessile spikelet; upper lemma entire, unawned.

Vernacular name: Manda pullu.

Flowering and fruiting: Through out the year.

Distribution: Bhutan, Nepal, India, Pakistan, through out SE Asia to Australia.

Habitat: Very common, along the margins of streams, in scrub jungles of plains as well as hilly regions, in wasteland and hedges. Usually in shades.

Uses: The plant is used for making hats by Kattunaicka tribe. Kurichya and Kuruma tribe prepare the plant extract, by crushing the grass with little black pepper and is applied on the mouth sore of cattle.

Specimen examined: Kerala, Wayanad, Niravil puzha, 23rd November 2012, *Dileep 9110*(SMCH).

2. *Aristida setacea* Retz., *Obs. Bot.* 4: 222. 1786; Hook. f., *Fl. Brit. India* 7: 225. 1896;

Fischer in Gamble, *Fl. Pres. Madras* 1809. 1934 (Repr. ed. 3: 1252. 1957); Sreek. & V.J.Nair, *Fl. Kerala Grass* 328. 1991; Moulik, *Grass & Bamboos India* 2: 426. 1997. Kabeer & V.J.Nair, *Fl. Tamilnadu. Grass* 114. 2009.

Perennials. culms 30-150 cm high, tufted, erect; nodes glabrous. Leaves linear or lanceolate, whip like, 3-30 x 0.1-0.5 cm, acuminate, rounded or shallowly cordate at base, convolute, glaucous. Ligules rim of hairs or fimbriate membranes. Panicles flabelliform, 8-20 mm long, 1-3 mm long, bearded. Lower glume lanceolate or oblong-lanceolate, 6-12 x 0.5-1 mm, aristate, chartaceous, keeled, 1-nerved; arista 2-4 mm long. Upper glume lanceolate or oblong-lanceolate, 6-14 x 0.5-1 mm, aristate, chartaceous, keeled, 1-nerved; arista 2-4 mm long. Lemma linear or lanceolate, 8-12 x 1 mm, chartaceous, convolute 3-awned; awns 5-40 mm long. Palea small, oblong, hyaline. Stamens 3; anthers 2.5-4 mm long, bright yellow. Ovary oblong or linear, 1-2 mm long; styles 1-2 mm long; stigmas 3-4 mm long, pink.

Vernacular name: Thudappam pullu

Flowering & Fruiting: Through out the year.

Distribution: Sri Lanka, India, Myanmar and Malay Peninsula.

Habitat: Very common along the hill slopes, in open grasslands and dry rocky places.

Uses: Awns of these grasses are used for making brushes. Plant is used for making brooms by Kattunaicka, Paniya and Kuruma tribes. It is also used as a thatching material.

Specimen examined: Kerala, Wyanad District, Meppadi, 29 July 2013, *Dileep 9144*, 9th August 2014, *Dileep 9189* (SMCH).

3. *Axonopus compressus* (Sw.) P.Beauv., *Ess. Agrost.* 12: 154. 1812; Sreek. & V.J. Nair, *Fl. Kerala Grass* 219. 1991; Moulik, *Grass & Bamboos India* 1: 72. 1997. Kabeer & V.J.Nair, *Fl. Tamilnadu. Grass* 213. 2009. *Milium compressum* Sw., *Prodr. Veg. India Occ.* 24. 1788.

Perennials. culms 20-60 cm high, densely tufted, creeping, erect when flowering, forming mats; nodes bearded; internodes 0.5-5 cm long. Leaves linear-lanceolate, blunt at tip, cordate at base; midrib prominent; margins ciliate. Ligule thin, membranous. Leaf sheath 2-10 cm long, compressed, keeled. Inflorescence digitate or sub digitate, racemes 2-3 on a 5-15 cm long stock; rachis trigonous winged along angles. Spikelets oblong, elliptic or elliptic-lanceolate, 2-3 x 0.7-1 mm, with short pedicel. Florets 2, lower barren, upper bisexual. Lower glume absent. Upper glume elliptic-lanceolate, 2-3 x 0.75 mm, chartaceous, 5-nerved, softly hairy on dorsal side, along the nerves. First lemma ovate, elliptic or lanceolate, 2-3 x 1 mm, 3-nerved, hairy on dorsal side. Second lemma ovate-oblong, 1.5-2 x 0.75 mm, crustaceous, hairy at the apex. Palea 2 x 1 mm, crustaceous, shining; margin inflexed. Lodicules 2. Stamens 3; anthers 0.5 mm, white. Ovary oblong; stigma feathery, white. Grain oblong-elliptic, compressed, pale white.

Vernacular name: Kaalappullu

Flowering & Fruiting: Throughout the year.

Distribution: In Southern United States, Mexico to Brazil; introduced to India and naturalized.

Habitat: Very common along the banks of back waters, rivers, lakes and canals, roadsides and waste places, usually in wet situations.

Notes: It shows extreme variation in the shape of leaves. This shows gregarious growth and serves as a very good sand binder.

Uses: The plants are employed for wood suppression by Kattunaicka and Paniya tribes. The plants are used as a permanent cover and turf to moist, low fertility soil, particularly in shaded situations by Kaurichya Tribes. It is a low quality forage grass.. It is also used by Paniya tribes to prevent soil erosion.

Specimen examined: Kerala, Wyanad, Panamaram, 13 October 2012, *Dileep 9119*, 11 August 2013, *Dileep 9188* (SMCH)

4. *Bothriochloa pertusa* (Linn.) A. Camus in Ann. Soc. Linn. Lyon, n. s. 76: 164. 1931; Bor, Grass. Bur. Cey. Ind. Pak. 109. 1960. *Holcus pertusus* Linn. Mant. 2; 301. 1771. *Andropogon pertusus* (Linn.) Wild. Sp. Pl. 4(2); 922. 1806; Hook. f. Fl. Brit. Ind. 7: 173. 1896; Rang. & Tad. Hanab. S. Ind. Grass. 191. t. 152-153. 1921. *Amphilophis pertusa* (Linn.) Nash ex stapf in Agr. News. Bridge. 15: 179. 1916 et in Prain, Fl. Trop. Afr. 9: 175. 1917; Fischer in Gamble – Fl. Pres. Madr. 1731. 1934 (Repr. ed. 3: 1200. 1957). *Dichanthium pertusum* (Linn.) W. D. Clayton in Kew Bull. 32: 4. 1977; Sreek. & V. J. Nair. Fl. ker. Grass. 54, 1991; Moulik, Grass & Bamboos India 1: 267. 1997. Kabeer & V.J.Nair, Fl. Tamilnadu. Grass 373. 2009.

Stoloniferous perennials. Culms 15-50 cm long, erect, creeping or geniculate; nodes bearded. Leaves lanceolate. 2-15 x 0.2-0.5 cm usually crowded at base, glabrous or hairy, glaucous, mid-rib prominent; sheaths keeled. Ligule short, membranous. Racemes 2-10 on a peduncle, digitate or subdigitate, each one 2-8 cm long, shortly pedunculate, densely villous; joints linear, 2-2.5 mm long, densely villous with long hairs. Sessile spikelets elliptic lanceolate, faintly 7-9 nerved, densely hairy below the middle, with a deep circular pit above the middle. Sometimes 2- pitted, keels shortly pectinate towards apex; upper glume boat shaped or oblong-lanceolate, equaling the lower, acuminate, faintly 3-5 nerved; lower floret empty; upper floret bisexual; first lemma empty; upper floret bisexual; first lemma ovate – lanceolate, 2.5-3 x 1 mm, delicate, faintly 3-5 nerved or rarely nerveless, hyaline; palea absent; second lemma stipitate, 1-2 mm, awn 15-20 mm long, column 6-8 mm, brown; palea absent; stamens 3, anthers 1-2 mm long, yellow; ovary oblong, 0.3 - 0.5 mm, styles 0.1 mm long, stigmas 1-2 mm long, feathery, pink; grain oblong. Pedicelled spikelet oblong or elliptic, 3-4 mm long; pedicels linear, 2-2.5 mm long, villous; lower glume oblong or elliptic, 3-4 x 1 mm, chartaceous, 13-15 nerved, margins hyaline, keels shortly pectinate; upper glume lanceolate, equaling lower, faintly 3-5 nerved, margins hyaline, villous; lower floret similar to that of sessile spikelets; upper floret male or empty; second lemma lanceolate, 3-3.5 x 0.5-0.75 mm, entire, delicate, hyaline, palea absent.

Vernacular name: Cheriya-korai pullu.

Distribution: Arabia to SE Asia and Tropical Africa, Sri Lanka, India.

Habitat: Very common in plains as well as hilly areas, usually along the bunds of fields, wetlands and also in open grass lands.

Flowering and fruiting: August – April.

Specimen examined: Kerala, Wayanad, Kuppadi hill, 29th November 2012, *Dileep 9120*(SMCH).

Uses: The plant extract mixed with leaves of *Moringa oleifera* for treating neuralgia by kuruma tribes. The extract is also used to cure headache by Kattunaykka tribes.

5. *Brachiaria ramosa* (L.) Stapf in Prain, Fl. Trop. Afr. 9: 549. 1919; Fischer in Gamble, Fl. Pres. Madras 1770. 1934 (Repr. ed. 3: 1226. 1957); Manilal & Sivar., Fl. Calicut 343. 1982; Sreek. & V.J. Nair, Fl. Kerala Grass 223. 1991; Moulik, Grass & Bamboos India 1: 78. 1997. *Panicum ramosum* L., Mant. Pl. 1: 29. 1767; Hook. f., Fl. Brit. India 7: 36. 1896. Moulik, Grass & Bamboos India 1: 78. 1997. Kabeer & V.J.Nair, Fl. Tamilnadu. Grass 220. 2009.

Annuals or perennials. culms 20-80 cm long, creeping nodes glabrous. Leaves lanceolate. Sheaths slightly keeled. Panicles 2-16 cm long, lax. Racemes 3-16, alternate 1-5 cm long, rachis angular, spikelets broadly elliptic, 2.5-3 mm. Lower glume ovate, 1-1.5 x 2 mm, 7-nerved. Upper glume ovate 2.5-3 x 1.5-2 mm, 7-nerved. Lower floret empty. Upper floret bisexual. First lemma broadly ovate, 2.5-3 x 2 mm, 5-nerved. Palea oblong, 2 x 0.5 mm, delicate, 2-nerved. Second lemma broadly ovate, 2-2.5 x 1.5-2 mm, rugose. Palea ovate 2 x 1 mm, muriculate, stamens 3, ovary 0.5 mm long, stigmas 0.5-1 mm long.

Vernacular name: Vaalan pullu, Pala pullu.

Flowering & Fruiting: August -March.

Distribution: In tropics of the Old world.

Habitat: Very common along the bunds of paddy fields, roadsides, wastelands and other moist habitats as a weed in cultivated lands.

Uses: The plant is used as animal fodder for cattle, goat, sheep and poultry by Paniya tribes.

Specimen examined: Kerala, Wyanad, Meppadi, 29 July 2013, Dileep 9144, 9 August 2013, Dileep 9144 (SMCH).

6. *Chrysopogon aciculatus* (Retz.) Trin., Fund. Agrost. 181. 1820; Fischer in Gamble, Fl. Pres. Madras 1738. 1934 (Repr. Ed. 3: 1205. 1957); Sreekumar & V.J. Nair, Fl. Kerala Grass 59. 1991; Moulik, Grasses & Bamboos India.1: 240. 1997. Kabeer & V.J.Nair, Fl. Tamilnadu. Grass 380. 2009.

Andropogon aciculatus Retz., *Obs. Bot.* 5: 22. 1789; Hook. F., *Fl. Brit. India* 7: 188. 1896.

Perennials, culms 20-70 cm long, creeping or decumbent. Leaves lanceolate, blunt at apex. Ligules annular. Panicles pyramidal, 5-10 cm long. Sessile spikelets lanceolate, 3-4 mm long. Lower glume lanceolate 3-4 x 1 mm. Upper glume boat shaped, 3-4 x 1 mm; ciliate. Lower floret empty, upper floret bisexual. First lemma obovate, 2.5-3 x 1 mm, margins ciliate. Second lemma ovate 2.5-3 x 1 mm, aristate. Palea oblong, 1.5-2 x 0.5 mm, delicate, lodicules obovate 0.5 x 0.25 mm, wavy at apex, stamens 2, ovary oblong, stigmas golden-yellow. Pedicelled spikelets lanceolate, 4-5 mm long unawned, lower glume lanceolate, 4-5 x 1 mm. Upper glume lanceolate 4-5 x 1 mm, margins ciliate. Lower floret empty, upper floret male, first lemma lanceolate, 3-4 x 0.5-1 mm, hyaline, margins ciliate. Second lemma lanceolate 2.5-3 x 0.5-1 mm. Stamens 3.

Vernacular name: Snehappullu, Asthrapullu.

Flowering & Fruiting: March to October.

Distribution: Widely distributed in the tropics of Asia in hills and plains.

Habitat: Common along the banks of back waters, rivers, streams and canals usually forming dense carpets.

Uses:: The plants are used as a fodder and forage by Kuruma tribe, and all other tribes. It is grown as an ornamental plant. The straw is used for weaving mats, hats and brushes and roots are woven along with bamboo stripes by Paniya and Kattunaykka tribes. The plant is used to prevent soil erosion on banks, because it is a vigorous plant that can spread extensively by means of its rhizomes and form a dense ground cover. *C. aciculatus* is used as a cover grass by Kattunaicka tribes. Rhizome powdered with 3-5 black pepper is made into paste and taken early in the morning on empty stomach for stomach ache and gastric disorders (gastro intestinal uses) by Kurichya tribes. It is also used for treating diarrhea and dysentery

Notes: This species has peculiar creeping and decumbent habit. The spikelets are easily disarticulating, acicular and the callus is extremely sharp, often gets attached to the skin of animals and clothes of human beings. Hence it is popularly called 'Love Grass' (Sreek. & V.J. Nair, 1991).

Specimen examined: Kerala, Wayanad, Kuppadi hill, 19th November 2012, Dileep 9109 (SMCH).

7. *Coix lacryma-jobi* Linn. Sp. Pl. 972. 1753; Hook. f. Fl. Brit. Ind. 7:100. 1896; Fischer in Gamble, Fl. Pres. Madr. 1705. 1934 (Repr. ed. 3: 1182. 1957); Bor, Grass. Bur. Cey. Ind. Pak. 264. 1960; Manilal & Sivaraj. Fl. Calic. 331. 1982; Sreek. & V.J. Nair, Fl. Kerl. Grass. 207. 1991; Moulik, Grass & Bamboos India 1: 175. 1997. Kabeer & V.J.Nair, Fl. Tamilnadu. Grass 390. 2009.

Annuals. Culms 25- 100 cm high, densely tufted; nodes glabrous. Leaves linear-lanceolate. Ligules ovate. Inflorescence of peduncled, false spikes. Spikelets unisexual. Male spikelets 2 or 3., elliptic, 5-15 x 2-4 mm, lower glume ovate 5-15 x 2-4 mm, narrowly winged along the margins. Upper glume elliptic-lanceolate, 5-12 x 2-3 mm. Lower floret male, upper floret male or barren. First lemma elliptic-lanceolate, acuminate, hyaline. Palea elliptic-lanceolate, 5-10 x 1-2 mm, delicate, 2-keeled. Stamens 3. Second lemma elliptic, delicate, hyaline. Palea oblong-lanceolate, delicate, hyaline. Stamens 3. Female spikelets globose, 5-15 mm long, bony, shining, white or grey. Lower glume ovate-oblong. Upper glume ovate. Lower floret female or barren, upper floret female. Second lemma ovate-oblong, palea ovate, delicate.

Vernacular name: Nayikolla, Kakkappalungu, Kattugothampu

Distribution: Native to tropical Asia, now widely distributed throughout tropics.

Habitat: Very common along marshy places, banks of rivers, streams, ponds and in paddy fields and other wetlands.

Flowering and Fruiting: July- March.

Uses: The roots and seeds are used for treating abdominal tumours, fever, diabetes, dysentery, gastro intestinal and lung diseases by Kurichya tribes. Seeds are used for making necklaces and other ornaments by Paniya tribes.

Kuruma tribes take coix grain with rice (boiled) as a food to prevent diseases, retarding aging etc.

Entire plant is cooked along with rice and taken by the Paniya tribe. Seeds are used as poultry feed by Kurumas. Leaves are used as fodder. *Coix* has been included in medicinal formulae for treating skin diseases such as acne and other swellings.

Kurichya prepared a simple food recipe for treating acne-60 gms of *Coix* with 30-60 gms of rice, cook and add sugar to taste.

Notes: It shows extreme variation in the habit, wings on the glumes and in the colour and texture of the involucre shells. '*Job's Tears*' is a very good fodder grass (Sreek. & V.J. Nair, 1991).

Specimen examined: Kerala, Wayanad, Kallur, 10th March 2013, Dileep 9125 (SMCH).

8. *Cymbopogon citratus* (DC.) Stapf. In Kew Bull. 1906: 357. 1906; Fischer in Gamble, Fl. Pres. Madr. 1736. 1934 (Repr. ed. 3: 1216. 1957); Bor. Grass. Bur. Cey. Ind. Pak. 126. 1960; Hook. f. Fl. Brit. Ind. 7: 210. 1896; Sreek. & V. J. Nair. Fl. ker. Grass. 70. 1991; Moulik, Grass & Bamboos India 1: 213. 1997. Kabeer & V.J. Nair, Fl. Tamilnadu. Grass 393. 2009. *Andropogon citratus* DC. Cat. Hort. Monsp.: 78. 1813.

Perennials. Culms 50-200 cm height, erect; nodes glabrous. Leaves linear-lanceolate, 15-60 x 0.8-1.5 cm, narrowed at base, glaucous. Ligules membranous. Panicles lax, 10-50 cm. racemes 1-1.5 cm long; joints 2.5-3 mm long, slender, densely villous. Sessile spikelets linear-lanceolate or lanceolate, 5.0 x 0.75 mm, callus shortly bearded; glume ovate-lanceolate or lanceolate, 5 x 1 mm, chartaceous, 5-nerved; upper glume lanceolate, 4.5 mm, coriaceous, 3-nerved, margins ciliate; lower floret empty; upper floret bisexual; second lemma lanceolate, 4 x 1 mm, delicate, 2-nerved, hyaline, margins ciliate. Pedicelled spikelets linear-lanceolate or lanceolate 4-6 x 1 mm; pedicels 2-4 mm long, slender, densely villous; floret male; lemma similar to that of the sessile spikelet.

Vernacular name: Chaya pullu.

Distribution: Cultivated in South America, Africa, Myanmar and Many part of south India.

Habitat: In margins of forests and in grasslands.

Flowering & fruiting: July-December

Uses: The plant extract is used for treating Lumbago (painful muscular rheumatism) by Kurichya tribe. The leaf commonly used in tea and curries by Paniya tribes. The plant extract is used as a nasal drop to cure nasal bleeding by Paniya and Kattunaykka tribes.

Specimen examined: Kerala, Wayanad, Kuppadi hill, 29th November 2012, Dileep 9126 (SMCH).

9. *Cymbopogon flexuosus* (Nees ex Steud.) Will. Watson in E.F.T. Atk., Gaz. N. W. Prov. Ind.: 392. 1882; Fischer in Gamble, Fl. Pres. Madr. 1756. 1934 (Repr. ed. 3: 1216. 1957); Bor. Grass. Bur. Cey. Ind. Pak. 127. 1960; Sreek. & V. J. Nair. Fl. ker. Grass. 71. 1991; Moulik, Grass & Bamboos India 1: 213. 1997. Kabeer & V.J. Nair, Fl. Tamilnadu. Grass 394. 2009.

Tufted, rhizomatous perennials. Culms 120-200 cm height, erect with thick woody base; nodes brownish towards apex. Leaves linear-lanceolate, 35-50 x 0.5-1.5 cm, narrowed at base. Ligules membranous. Panicles more or less reddish brown, large and effuse, 10-60 cm. Racemes 1.4-1.8 cm long; joints 1.8-3 mm long, slender, densely villous. Sessile spikelets ovate to elliptic-lanceolate, 5.0 x 0.75 mm, callus shortly hairy. Lower glume ovate-lanceolate or lanceolate, 3.5 x 4.3 mm, acuminate, 2-nerved. Upper glume ovate-lanceolate, 4.5 mm, coriaceous, 3-nerved, margins ciliate; lower floret empty; upper floret bisexual; second lemma lanceolate, 4 x 1 mm, delicate, 2-nerved, hyaline, margins ciliate. Pedicelled spikelets ovate to lanceolate, 3-4 x 0.6

mm, acuminate, greenish yellow unawned. Floret 2; lower male, upper reduced to hyaline lemma. Lower lemma similar to that of the sessile spikelet.

Vernacular name: Vasana pullu, Inchi puulu, Therava pullu.

Distribution: Asia, America, Myanmar, Thailand and many other countries.

Habitat: Frequent along grassy hill slopes, margins of forests and in grasslands.

Flowering & fruiting: July-April

Uses: The leaves are commonly used by Paniya tribes for making shampoo. It is used as a lure to attract honey bees by Kattunaykka tribes. Kurichya tribe also used the plant as an insect attractant.

The grass oil is used as a pesticide. The oil is produced by steam distillation of the freshly cut leaves and is used for body pain by Paniya and Kurichya tribes.

C. flexuosus used against cough and cold by adding the leaves to boiled water for nebulisation.

Specimen examined: Kerala, Wyanad District, Meppadi, 29 October 2013, Dileep 9179, 9 July 2014, Dileep 9189(SMCH).

10. *Cynodon dactylon* (L.) Pers., Syn. Pl. 1: 85. 1805; Hook. f., Fl. Brit. India 7: 288. 1896; Fischer in Gamble, Fl. Pres. Madras 1835. 1934 (Repr. ed. 3: 1270. 1957) *excl. var. intermedius*; Manilal & Sivar., Fl. Calicut 339, 1982; Sreek. & V.J. Nair, Fl. Kerala Grass 360, 1991; Maulik, Grasses & Bamboos India 2: 566, 1997. Kabeer & V.J. Nair, Fl. Tamilnadu. Grass 195, 2009.

Panicum dactylon L., Sp. Pl. 58. 1753.

Stoloniferous, creeping perennials. Culms slender 10-40 cm, high, with rhizomes, nodes glabrous. Leaves linear-lanceolate sheaths keeled. Racemes 3-6, digitate 1-6 cm long, rachis flat. Spikelet elliptic-lanceolate. Lower glume lanceolate 1.5-2 x 0.25-0.5 mm, 1-nerved. Upper glume lanceolate 1.75-2 x 0.5-0.75 mm, 1-nerved. Lemma boat shaped, 2-3 x 1.5-2 mm keeled, hairs simple. Palea boat shaped 2-2.5 x 0.5-1 mm, 1-2 nerved. Stamens 3, anthers 1-1.5 mm long, dirty white. Ovary oblong 0.25-0.5 mm, stigma 0.5-1 mm long, pink.

Vernacular name: Karuka, Balikaruka, Arugam pullu.

Flowering & Fruiting: Through out the year.

Distribution: Through out the warm regions of the world.

Habitat: Common on open wastelands, banks of rivers and streams.

Uses: Kurichya tribes takes a paste of *C. dactylon* juice with turmeric powder to cure skin problems such as skin rashes, itches and Leprosy. The regular usage of its juice is good for nervous system.

The juice of *C. dactylon* and honey(10 ml) is taken 3-4 times a day to control heavy menstrual periods by Kurichya tribes. They take the juice of grass (3-4 table spoon) with water at early morning in empty stomach to cure acidity, stomach ulcers and stomach infections. They prepare a decoction of *C. dactylon* (3 table spoon), black pepper(4-6 in number) and a pinch of cumin, and this is used twice a day with coconut water to reduce weight.



PLATE III

For stomach pain, Paniya tribes drink the juice (3-4 table spoon) with little amount of ginger powder on empty stomach. The juice is mixed with some quantity of water and taken as a medicine to detoxify the body by releasing toxins from the body.

It is fast growing and tough, so it is used for sports field by Kuruma and Kurichya.

Dogs and cats search for this grass for stomach ailments.

Kuruma tribes take a mixture of this grass juice (5ml) with neem leaf juice (5ml) to control blood sugar level and reduce fatigue.

This genus is an excellent sand binder and a very popular lawn grass, an excellent fodder and an effective sand binder. Locally this grass is used for certain religious ceremonies and rituals, hence called 'bali karuak'.

Specimen examined: Kerala, Wayanad, Kallur, 11th November 2012, *Dileep 9107*(SMCH).

11. *Dactyloctenium aegyptium* (L.) P. Beauv. Ess. Agrost. Expl. Pl. 15. 1812; Fischer in Gamble, Fl. Pres. Madr. 1840. 1934. (Repr. ed. 3: 1273. 1957); Hook. f. Fl. Brit. Ind. 7: 295. 1896; Bor. Grass. Bur. Cey. Ind. Pak. 489. T. 54. 1960; Manilal & Sivaraj. Fl. Calic. 337. 1982; Sreek. & V.J. Nair, Fl. Kerl. Grass. 367. 1991; Moulik, Grass & Bamboos India 2: 585. 1997; Kabeer & V.J.Nair, Fl. Tamilnadu. Grass 122. 2009.

Annuals. Culms creeping, 10-50 cm high, rooting at nodes. Leaves oblong or linear, sheaths keeled. Spikes digitate 1-6, each 1-6 cm long. Spikelets ovate 2-4 cm long, 2-4 flowered. Lower glume boat shaped, 1.5-2 x 1-1.5 mm keel minutely winged. Upper glume ovate-elliptic 1.5-2 x 1-1.5 mm, aristate, 1-1.5 mm long. Lemma ovate 1-5-2 x 1-1.5 mm, aristate, 1 mm long. Palea ovate-lanceolate 1-1.5 x 1 mm stamens 3. Grain obovate, 1 mm long, transversely rugose.

Vernacular name: Thudappam pullu

Distribution: NE Africa, India.

Habitat: Very common on roadsides, wet lands, banks of streams.

Flowering and Fruiting: Throughout the year.

Uses:. Worm infection and wounds. To relieve kidney pain and healing ulcer.

Specimen examined: Kerala, Wayanad, Kakkavayal, 25th May 2013, *Dileep 9155*(SMCH); Varyad, 16th June 2013, *Dileep 9166* (SMCH).

12. *Desmostachya bipinnata* (L.) Stapf in Dyer, Fl. Cap. 7: 632. 1900; Fischer in Gamble, Fl. Pres. Madr. 1819. 1934; Bor. Grass. Bur. Cey. Ind. Pak. 491. 1960; Sreekumar & V.J. Nair, Fl. Kerala Grass 101. 1991; Moulik, Grasses & Bamboos India 2: 588. 1997. Kabeer & V.J.Nair, Fl. Tamilnadu. Grass 124. 2009.

Briza bipinnata L. Syst. Nat. ed. 10.2: 875. 1759.

Decumbent rhizomatous perennials. Culms 40-70 cm high; lower nodes rooting. Leaf blade lanceolate, 53 x 0.7 cm, acuminate to attenuate, flat to inrolled, margins serrulate; ligule a rim of long hairs, basal leaf sheaths fastigiated, fan like, keeled, cauline ones terete. Panicle narrow, 26 x 3 cm, central axis ribbed, scabrid; nodes shortly hispidulous; peduncle 18-23 cm. Racemes 1.3-1.7 cm, rachis triquetrous, finely serrulate. Spikelets in clusters, compactly arranged, oblong 5-8 x ca. 1.3 mm, acute at apex, narrowly truncate or acute at base; entire spikelet disarticulating from rachis. Lower glume ovate, boat shaped, 0.8- 1 x ca. 0.6 mm, acute, chartaceous, 1-nerved, keeled towards apex, keel serrulate. Upper glume ovate, boat shaped 1.2 x 0.4 -0.6 mm, acute, chartaceous, greenish purple. Florets 9 - 15, greenish yellow. Lemma ovate- oblong, 1.7-0.8 mm, acute, chartaceous, with one prominent midnerve and 2 faint lateral ones, 1-keeled, serrulate on keel. Palea ovate -oblong, 1.6-1.7 x 0.6 mm, acute, chartaceous, 2-nerved, 2-keeled, keel serrulate, lodicules 2, truncate. Stamens- 3 yellowish brown, ovary elliptic, truncate on ends. Stigma plumose, yellowish white.

Vernacular name: Dharbha pullu.

Flowering & Fruiting: August - January.

Distribution: Iran, Arabia, Africa, Myanmar, Nepal, India.

Habitat: In drier parts; road sides, usually in drier situations.

Uses: To treat dysentery, Menorrhagia (abnormal menstrual flow) and as a diuretic. It is also used in geriatric care.

Specimen examined: Kerala, Wayanad, Kuppadi hill, 19th September 2012, Dileep 9119(SMCH).

13. *Echinochloa colonum* (L.) Link, Hort. Berol. 2: 209. 1833; Fischer in Gamble, Fl. Pres. Madras 1776. 1934 (Repr. ed. 3: 1230. 1957); Manilal & Sivar., Fl. Calicut 342. 1982; Sreek. & V.J. Nair, Fl. Kerala Grass 245. 1991; Moulik, Grass & Bamboos India 98. 1997. Kabeer & V.J.Nair, Fl. Tamilnadu. Grass 252. 2009.

Panicum colonum L., Syst. Nat. ed. 10. 2: 870. 1759; Hook. f., Fl. Brit. India 7: 32. 1896. Rang. & Tadul., Handb. S. Ind. Grasses: tt. 89, 90. 1921.

Annuals, culms 10-90 cm high, erect, nodes glabrous. Leaves lanceolate. Sheaths keeled, ligules absent, panicles linear 2-15 cm long, racemes 4-12, each 0.5-3 cm long. Spikelet ovate, greenish-yellow. Lower glume ovate, 1-2 x 1-1.5 mm, 5-nerved, hispid. Upper glume boat shaped 2-4 x 1.5-2 mm, 7-11 nerved, hispid. Lower floret barren. Upper floret bisexual. First lemma ovate, 2-4 x 1.5-2 mm, 7-nerved. Palea ovate 1.5-2 x 1 mm, hyaline, 2-nerved. Second lemma ovate 2-3 x 1 mm. Palea ovate 1.5-2 x 1 mm, 2-nerved. Stamens 3, ovary oblong 0.25-0.5 mm long, stigma 0.5 mm long, pink.

Panicum colonum L., Syst. Nat. ed. 10. 2: 870. 1759; Hook. f., Fl. Brit. India 7: 32. 1896.

Vernacular name: Adipul

Flowering & Fruiting: June-November.

Distribution: Widely spread in the tropics of Asia and Africa.

Habitat: Very common in the paddy fields, wastelands and along the bunds of paddy fields.

Uses: Food in times of scarcity. This is a very good fodder grasses before flowering. The shoots are eaten as vegetable by Paniya tribes.

Notes: Commenting on the specific epithet of the plant, Bor (1960) said that the correct form of the specific epithet is *colonum*, a contraction of *colonarum* and not *colona* (Sreekumar & V.J. Nair, 1991).

Specimen examined: Kerala, Wayanad, Panamaram, 20th December 2012, Dileep, 9113(SMCH).

14. *Eleusine indica* (L.) Gaertn., Fruct. 1: 8. 1789; Hook. f., Fl. Brit. India 7: 293. 1896; Fischer in Gamble, Fl. Pres. Madras 1839. 1934 (Repr. ed. 3: 1273. 1957); Manilal & Sivar. Fl. Calicut 340. 1982; Sreek. & V.J. Nair, Fl. Kerala Grass 371. 1991; Moulik, Grass & Bamboos India 2: 591. 1997. Kabeer & V.J.Nair, Fl. Tamilnadu. Grass 128. 2009

Cynosurus indicus L., Sp. Pl. 72.1753.

Annuals. Culms tufted, erect 7-60 cm long, nodes glabrous. Leaves lanceolate, blunt at tip. Sheaths keeled, ligules narrow. Spikes digitate or subdigitate 1-15, each 1-15 cm long. Spikelets ovate, 3-6 flowered. Lower glume oblong 1.5-2 x 0.5-1 mm, 3-nerved. Upper glume oblong 2-3 x 1-1.5 mm keeled, 5 nerved, lemmas ovate-oblong 2-3 x 1.5-2 mm, 3 nerved. Palea oblong-elliptic 2-2.5 x 0.5-1 mm, delicate, 2-keeled, 2-nerved. Stamens 3, dirty yellow. Ovary elliptic 0.25-0.5 mm long, stigma 0.5 mm long, violet. Grains ovate to elliptic, trigonous.

Vernacular name: Kattu thina, Njandu pullu.

Flowering & Fruiting: Throughout the year.

Distribution: Tropical and subtropical regions.

Habitat: Very common along roadsides, wastelands, margins of streams and as a weed in cultivated fields.

Notes: 'Crab Grass' or 'Crawfoot Grass' is characterized by loosely packed subdigitate spike and unexposed grains (Sreekumar & V.J. Nair, 1991).

Uses: Stems are employed for mats, hats and baskets by Paniya tribes. They take, 20 gms of decoction of roots boiled and added to a litre of water, 4-5 glasses per day to cure fever. They also use the leaf extract for reducing blood sugar level. It is used as a cereal and vegetable by Paniya.

The decoction of fresh plant is used for the treatment of dysentery by Kurichya tribes. The plant is used as a fodder and forage by Kuruma tribes. They also used this plant to prevent soil erosion.

Specimen examined: Kerala, Wayanad, Kaattikulam, 27th November 2013, *Dileep 9192*(SMCH).

15. *Eragrostis unioides* (Retz.) Nees ex Steud. Syn. Pl. Glum. 1: 264. 1854; Fischer in Gamble, Fl. Pres. Madr. 1826. 1934 (Repr. ed. 3: 1264. 1957); Stapf in Hook. f., Fl. Brit. Ind. 7: 317. 1896; Bor, Grass. Bur. Cey. Ind. Pak. 515. 1960; Manilal & Sivaraj. Fl. Calic. 347. 1982; Sreek. & V.J. Nair, Fl. Kerl. Grass. 392. 1991. Moulik, Grass & Bamboos India 2: 609. 1997. Kabeer & V.J. Nair, Fl. Tamilnadu. Grass 155. 2009.

Annuals or perennials. Culms tufted 5-70 cm high, erect, nodes glabrous. Leaves lanceolate, ligules narrow rim. Panicles narrowly oblong 2-30 cm long lax. Spikelets ovate-oblong, 2-4 mm wide, 6-40 flowered, green or purplish. Lower glume 1-1.5 x 0.5 mm 1-nerved. Upper glume 1-2 x 0.5-0.75 mm, 1-nerved. Lemma broadly ovate, 1-2.5 x 0.75-1.5 mm, 3-nerved. Palea elliptic 1-2 x 1 mm stamens-3, violet, stigma 0.5-1 mm long, white. Grains obovoid, reddish brown.

Vernacular name: Karayam pullu

Distribution: Widespread in tropical Asia, Africa, Myanmar, Nepal, Sri Lanka and India.

Habitat: Very common in roadsides, paddy fields and cultivated fields.

Flowering and Fruiting: Throughout the year.

Uses: The extract is produced from the grass is taken along with betel leaf is supposed to cure asthma by Paniya tribes. The plant is used as a forage and green manure by Paniya and Kuruma tribes. The leaves of the grass are crushed into paste and is applied for wound healing in traditional medicine by all tribes.

Notes: The plant shows much variation in habit, colour, size and shape of spikelets and number of floret. But the plant is recognized easily by its lax, purplish panicles and ovate spikelets (Sreekumar & V.J. Nair, 1991).

Specimen examined: Kerala, Wayanad, Varyad, 14th January 2013, *Dileep 9177*(SMCH).

16. *Heteropogon contortus* (L.) P.Beauv. ex Roem. & Schult., Syst. Veg. 2: 836. 1817; Fischer in Gamble, Fl. Pres. Madras 1773. 1934 (Repr. ed. 3: 1188. 1957); Manilal & Sivar., Fl. Calicut 113. 1982. Sreekumar & V.J. Nair, Fl. Kerala Grass 101. 1991; Moulik, Grasses & Bamboos India. 1: 226. 1997. Kabeer & V.J. Nair, Fl. Tamilnadu. Grass 427. 2009.

Andropogon contortus L., Sp. Pl. 1045. 1753; Hook. f., Fl. Brit. India 7: 199. 1896; Rang. & Tadul., Handb. S. Indian Grass. 207. t. 162-163. 1925.

Perennials. Culms 15-70 m high, densely tufted, erect, nodes glabrous. Leaves linear, lanceolate or linear-lanceolate, acute, ciliate along margin, base rounded; upper surface sparsely hairy; midrib prominent. Sheath truncate, narrow, membranous. Racemes 2-5 cm long (excluding awn), with lower homogamous spikelet pairs and upper heterogamous spikelet pairs; homogamous sessile spikelets linear-lanceolate, 5-8 x 1 mm. Florets 2, lower empty, upper male.

Lower glume linear-lanceolate, 5-8 x 1 mm, chartaceous, several nerved; upper glume lanceolate, 5-6 x 1 mm, chartaceous, 3-nerved; margin hyaline, ciliate. First lemma lanceolate, delicate, hyaline, 3-nerved; margin ciliate. Second lemma linear-lanceolate, 4.5-5 x 1 mm, delicate, 1-nerved; margin ciliate. Lodicules 2. Stamens 3; anthers 2-3 mm long, yellow. Homogamous pedicelled spikelets elliptic-lanceolate; pedicel 1-2 mm long, glabrous. First glume oblong-lanceolate, 4-7 x 1-1.5 mm, chartaceous, several nerved, tubercle based hairs on dorsal side, winged on margins. Upper glume elliptic-lanceolate, 4-6 x 1 mm, chartaceous, 3-5 nerved, ciliate on margins; margins hyaline. Florets and lemmas similar to sessile spikelets. Heterogamous sessile spikelets linear or linear-lanceolate, awned; awn 5-8 mm long; callus sharply acute with brown hairs. Florets 2, lower empty, upper female. Lower glume oblong, 4-6 x 1 mm, coriaceous, rounded at apex, many nerved, pubescent on dorsal surface, brown coloured. Upper glume linear, 4-6 x 1 mm, blunt at apex, keeled, 3-nerved, coriaceous, pubescent on dorsal surface. First lemma oblong, 1-3 x 0.5-1 mm, acute, hyaline, faintly 1-nerved, ciliate towards apex. Second lemma oblanceolate, hyaline, base of awn 2-3 mm long, 1-nerved, awn 5-10 cm long, hairy. Ovary oblong; styles 1-2 mm long; stigmas 1-5 mm long, brown.

Vernacular name: Soochi pullu, Pani pullu.

Flowering & Fruiting: through out the year.

Distribution: All over India and other tropical countries.

Habitat: Very common and one of the dominant species in open grass lands, in dry rocky places, wet lands, road sides; usually in drier situations.

Uses: Used as a stimulant and diuretic. The plant extract is used to cure toothache. Roots of the plant are used for the treatment of snake-bite by Kurichya tribes.

Notes: It is a fodder grass, but when awns are formed it is avoided by grazing animals (Bor, 1960).

Specimen examined: Kerala, Wayanad, Meppadi, 30th November 2012, Dileep 9110(SMCH).

17. *Isachne miliacea* Roth. ex Roem. & Schult., Syst. Veg. 2: 476. 1817; Hook. f., Fl. Brit. India 7: 25. 1896; Fischer in Gamble, Fl. Pres. Madras 1797. 1934 (Repr. Ed. 3: 1244. 1957); Sreekumar & V.J. Nair, Fl. Kerala Grass 424. 1991; Moulik, Grasses & Bamboos India 2: 546. 1997. Kabeer & V.J.Nair, Fl. Tamilnadu. Grass 331. 2009.

Annuals or perennials, culms erect, 10-40 cm high, nodes bearded. Leaves ovate-lanceolate. Sheaths ciliate along the margins. Panicles lax, 1-10 cm long. Spikelets obovoid, 1.5-2 mm long. Lower glume oblong 1.5-2 x 1 mm many nerved. First lemma ovate-oblong, 1-5-2 x 1 mm palea oblong, 1.5 x 1 mm, delicate. Second lemma ovate 1-1.5 x 1 mm. Stamens 3, anthers cream with violet margins or dirty-yellow. Stigma violet or pink.

Vernacular name: Chama pullu

Flowering & Fruiting: June-December.

Distribution: Through out India and South East Asia, extending to China.

Habitat: Very common marshy plant, frequent in paddy fields, on river fringes and in canals.

Uses: The plant extract is used in the treatment of sinusitis. The grains are given as a bird food by Paniya tribes and is also used as a green manure.

Specimen examined: Kerala, Wayanad, Kallur, 19th October 2012, Dileep 9136(SMCH).

18. *Panicum repens* Linn. Sp. Pl. ed. 2: 87. 1762; Fischer in Gamble, Fl. Pres. Madr. 1783. 1934. (Repr. ed. 3: 1235. 1957); Hook. f. Fl. Brit. Ind. 7: 49. 1896; Bor, Grass. Bur. Cey. Ind. Pak. 330.

1960; Manilal & Sivaraj. Fl. Calic. 349. 1982; Sreek. & V.J. Nair, Fl. Kerl. Grass. 271. 1991. Moulik, Grass & Bamboos India 2: 426. 1997. Kabeer & V.J.Nair, Fl. Tamilnadu. Grass 277. 2009.

Perennials, culms 30-100 cm long, erect or trailing, stoloniferous, rooting at lower nodes. Leaves linear lanceolate sheaths ciliate along margins, ligules membranous. Panicles oblong 7-20 cm long, branches 4-10 cm long. Pedicels angular spikelets ovate 2.5-3 mm, greenish. Lower glume broadly ovate 0.75 x 1.75 mm. Upper glume ovate 2.5-3 x 1.25-1.5 mm, acute, 5-9 nerved. Lower floret male, upper floret bisexual. First lemma ovate 2.5-3 x 1.25-1.5 mm, 7-9 nerved. Palea oblong, 2-2.5 x 0.75-1 mm, acute. Stamens 3, second lemma oblong, 1.75-2 x 0.75-1 mm, shining. Palea elliptic 1.5-1.75 x 0.5-0.75 mm. Stamens 3, ovary ovate, stigmas 0.5-0.75 mm long.

Vernacular name: Bhathala pullu

Distribution: Tropics and subtropics.

Habitat: The species shows a wide range of adaptability. And commonly seen in bunds of paddy fields, banks of streams and rivers, occasionally in wetlands and marshes.

Flowering and Fruiting: January – December.

Uses: Seeds are used as a poultry feed by Kurumas. Fresh rhizome of *P. repens* along with black peppers is crushed in to paste, is taken on an empty stomach to cure stomach ache and gastric disorders by Kurichya tribe.

Specimen examined: Kerala, Wayanad, Varyad, 28th November 2012, Dileep 9143 (SMCH).

19. *Paspalidium flavidum* (Retz.) A.Camus in Laconte, Fl. Gen. Indo-China 7: 419. 1922; Fischer in Gamble, Fl. Pres. Madras 1774. 1934 (Repr. ed. 3: 1229. 1957); Manilal & Sivar., Fl. Calicut 343. 1982; Sreek. & V.J. Nair, Fl. Kerala Grass 278. 1991; Moulik, Grasses & Bamboos India 1: 125. 1997. Kabeer & V.J.Nair, Fl. Tamilnadu. Grass 281. 2009.

Annuals or perennials. Culms 10-70 cm long, tufted, erect or geniculate, nodes glabrous. Leaves linear-oblong or linear, blunt at apex, flat rounded or shallowly cordate at base. Sheaths compressed, strongly keeled. Ligule annular. Inflorescence 5-30 cm long, spiciform; Spikes 3-10 in number, alternate, each 0.5-2 cm long, distant by 2-4 times of their length. Rachis narrowly winged, midrib triquetrous. Spikelets ovate, 1-3 mm long. Lower glume ovate or orbicular, 1-1.5 x 0.5-1 mm, chartaceous, 3-nerved. Upper glume ovate, 2-3 x 1.5-2 mm, chartaceous, 3-9 nerved. Lower floret barren; upper floret bisexual. First lemma ovate, 2-3 x 1.5-2 mm, chartaceous, 5-nerved; palea ovate-elliptic, 1.5-2 x 1 mm, crustaceous, faintly 5-7 nerved, granulose. Palea elliptic, 1-2 x 0.5-1 mm, crustaceous or subcoriaceous, 2-keeled; margins inflexed. Stamens 3; anthers 1 mm long. Ovary oblong.

Vernacular name: Arisi pullu.

Flowering & Fruiting : July-December.

Distribution: Tropical Asia and Africa.

Habitat: Common in wet localities, paddy fields, ditches and banks of streams.

Uses: Grains are edible. Seeds are boiled and eaten as a substitute for rice by Kattunaicka and Paniya tribes.

Notes: This species has a wide range of adaptability. It is quite distinct from other species of the genus having leaves with blunt apices, distantly placed spikes and gibbously ovate spikelets (Sreekumar & V.J. Nair, 1991).

Specimen examined: Kerala, Wayanad, Kallur, 19th October 2012, Dileep 9163(SMCH).

20. *Paspalum scrobiculatum* L., Mant. Pl. 1: 29. 1767; Hook. F., Fl. Brit. India 7: 10. 1896; Fischer in Gamble, Fl. Pres. Madras 1772 1934 (Repr. ed. 3: 1227 1957); Manilal & Sivar., Fl. Calicut 337. 1982; Sreek. & V.J. Nair, Fl. Kerala Grass 287. 1991; Moulik, Grasses & Bamboos India 1: 134. 1997. Kabeer & V.J.Nair, Fl. Tamilnadu. Grass 288. 2009.

P. orbiculare Forst., Fl. Inst. Aust. Prodr. 7. 1786; Fischer in Gamble, Fl. Pres. Madras 1772. 1934 (Repr. ed. 3: 1227. 1957).

Annuals or perennials, culms 12-80 cm high, erect or creeping, nodes glabrous. Leaves lanceolate. Sheaths keeled. Racemes usually 2, rarely 3 or 4, 1-10 cm long, rachis flat. Spikelets ovate 2-3 mm long. Lower glume absent. Upper glume ovate 2-3 x 1.5-2 mm, 3-5 nerved. Lower floret barren. Upper floret bisexual. First lemma ovate 2-3 x 1.5-2 mm, 3-nerved. Palea ovate 1.5-2 x 1-1.5 mm, inflexed. Stamens 3, yellow or brownish. Ovary 0.5 mm long, stigmas 0.5-1 mm long, cream yellow, reddish-brown or violet.

Vernacular name: Varaku.

Flowering & Fruiting: Through out the year.

Distribution: Old World tropics, Through out India.

Habitat: Very common along bunds of fields, wet lands and other water-logged areas, along the roadsides and sometimes cultivated.

Uses: Plants are used by Kurichya tribe to cure diabetes, and wound healing. Stem juice, rhizome and roots are employed for these purposes. Grains are also used in the treatment of diabetes. Grains are boiled and eaten by Kattunaicka, Kurichya, Kuruma and Paniya tribes.

Notes: There are two forms of this grass, one with round and another with ovate-oblong spikelets. They also vary in the size of the spikelets - some very small and others large. Some times the spikelets show variation in the number of glumes (Rangachariar & Tadulingam, 1921). This plant is cultivated on poorer soils in South India; grain is collected and eaten under the name 'Kodra'.

Specimen examined: Kerala, Wayanad, Muthanga, 20th October 2012, Dileep 9171(SMCH).

21. *Pennisetum hohoenackeri* Hochst. ex Steud. Syn. Pl. Glum. 1: 102. 1854; Fischer in Gamble, Fl. Pres. Madr. 1792. 1934 (Repr. ed. 3: 1241. 1957); Hook. f. Fl. Brit. Ind. 7: 84. 1896; Bor, Grass. Bur. Cey. Ind. Pak. 344. 1960; Sreek. & V.J. Nair, Fl. Kerl. Grass. 289. 1991. Moulik, Grass & Bamboos India 2: 426. 1997. Kabeer & V.J.Nair, Fl. Tamilnadu. Grass 292. 2009.

Perennials. Culms 50-150 cm high, erect, nodes glabrous. Leaves narrowly linear, 10-60 x 0.2-0.8 cm. Sheaths keeled, distichous. Panicles spiciform. Spikelets elliptic-lanceolate, 6-8 mm long. Lower glume ovate, 1-1.5 x 1 mm, 5-7 nerved. Lower floret male, upper floret bisexual. First lemma ovate, 6-8 x 2-3 mm, 9-13 nerved. Second lemma ovate 6-8 x 1-1.5 mm, 2-nerved. Stamens 3, yellow, ovary oblong, 0.5-1 mm long, stigmas 3-4 mm long.

Vernacular name: Maani pullu

Distribution: Tropical East Africa; introduced in many countries, India.

Habitat: Occasionally seen along the banks of streams and other water courses.

Flowering and Fruiting: February – August.

Uses: Plant is used for making brooms by Kattunaicka, Paniya and Kuruma tribes. It is also used as a thatching material. The leaf extract is mixed with coconut oil and is used for hair growth by Kurichya tribes.

Notes: This is uncommon and differs from other *Pennisetum* species by its peculiar tough culms and almost glabrous involucre bristles (Sreekumar & V.J. Nair, 1991).

Specimen examined: Kerala, Wayanad, Kaattikulam, 19th March 2013, *Dileep 9191*(SMCH).

22. *Saccharum arundinacium* Retz., *Observ.Bot.* 4: 14.1786; C.E.C Fisch. In Gamble, *Fl. Madras* 3: 1709.1934; Bor, *Grass. Burma . Ceylon. India.* Pakistan: 211. 1960; V J Nair in A.N. Henry & al., *Fl. Tamilnadu Anal.* 3: 136. 1989; S Moulik, *Grass, Bamb, India* 1: 319. 1997. Kabeer & V.J.Nair, *Fl. Tamilnadu. Grass* 463. 2009

Tufted perennials. Culms up to 2-4 m high. rigid; internodes solid. Leaf blade linear, 50 – 90 x 2.5-5 cm, acuminate at apex, midrib conspicuous, margins scabrid. Ligule membranous; leaf sheath margins ciliate. Panicle open, 30 -80 cm , rachis filiform. Spikelets paired, one sessile and other pedicelled, both more or less similar. Sessile spikelet lanceolate, 2.5 – 2.7 mm, falling entire from base; callus bearded, hairs white.. Lower glume lanceolate, as long as spikelet, 2 – keeled, villous, margins ciliate. Upper glume lanceolate, membranous, margins ciliate. Florets 2, lower barren, upper bisexual , joints and pedicels. Lower lemma linear, 2.4 -2.6 mm long, acute. Lodicules 2 . Stamens 3 . Ovary oblong. Pedicelled spikelet glumes. dorsally villous.

Vernacular name: Naayakarimbhu, Nayanghana.

Distribution : Old world tropics. India: most parts of India.

Habitat: Along forest margins and stream banks.

Flowering and Fruiting : July - April.

Uses: Root extract of this plant is used for treating kidney stone, root extract is mixed with juice of grass, *Desmostachya* for kidney stone by Kurichya tribes.

Specimen examined : Kerala, Wayanad District, Panchavayal , 10th April 2013, *dileep 9201* (SMCH).

23. *Saccharum spontaneum* L. *Mant. Pl.* 2: 183. 1771; Hook. f. *Fl. Brit. India* 7 : 118. 1896 ; C. E .C. Fisch. in Gamble, *Fl. Madras* 3 : 1708. 1934 ; Bor, *Grass. Burma . Ceylon. India.* Pakistan: 214. 1960; V. J. Nair in A. N. Henry and al., *Fl. Tamil Nadu Anal.* 3 : 137. 1989 P. Daniel and Umamahesw . *Fl. Gulf Mannar* : 582. 2001 ; Pallith., *Pock. Fl. Sirumalai Hills* : 290. 2001; Manickam and al., *Fl. Tirunelveli Hills* : 198. 2003. Moulik, *Grass & Bamboos India* 1: 322. 1997. Kabeer & V.J.Nair, *Fl. Tamilnadu. Grass* 465. 2009.

Tufted, rhizomatous perennials. Culms up to 1.6 m high. rigid ; nodes glaucous below when young. Leaf blade linear- lanceolate to narrowly elliptic – lanceolate, 43 – 60 x ca. 0.4 cm, attenuate and tail like at apex, narrowly truncate at base, midrib prominent, margins thick, cartilaginous. Ligule ovate, 2 – 3 mm, membranous; leaf sheath 15 – 28 cm, more or less ribbed, bearded with elongate white hairs at mouth, otherwise glabrous. Panicle ample, 25 -45 cm , basal racemes whorled, silver colored; Peduncle 12 – 28 cm , white villous hairy up to 6 cm below lower raceme node. Racemes 6- 9 cm. Spikelets paired, one sessile and other pedicelled, both more or less similar. Sessile spikelet ovate – lanceolate, 3.2 – 4 x ca . 1.2 mm, acute to acuminate at apex. Lower glume ovate to linear- lanceolate, 3.2 – 4.2 x 1.2 mm. Upper glume ovate – lanceolate, 3.2 – 4.2 x ca. 1.2 mm, acuminate, membranous to chartaceous. Florets 2, both epaleate ; lower barren, upper bisexual ; enclosed by elongated silvery hairs of callus, joints and pedicels. Lower lemma ovate to oblong – lanceolate, 2.8 -3.2 x ca. 0.7 mm, acute,

membranous. Lodicules 2. Stamens 3. Ovary oblong. Pedicelled spikelet similar to sessile spikelet.

Vernacular name: Kaattukarimbu.

Flowering and Fruiting : July - April.

Distribution : Old world tropics, most parts of India.

Habitat: Common in wet localities, paddy fields, ditches and banks of streams.

Uses: The Paniya tribes take the decoction of roots and rhizome of *S. spontaneum* to increase the milk in breast feeding mothers (galactogogue). The fresh juice of *S. spontaneum* is used to treat mental illness and mental disturbances by kurichya tribes. They used decoction of leaves to cure fever. The plant is used as a fodder for goats by Kattunaykka and Kuruma tribes.

The leaves are used for thatching of roofs by Paniya tribes. They also used the plant leaves to make ropes and mats. They also take the decoction of top parts of the plant to cure blood related disorders. The roots are a sweet tonic useful in the treatment of dyspepsia, burning sensation, piles, respiratory and gynaecological troubles.

The leaves are employed for making brooms by Paniya and Kuruma tribes.

Specimen examined: Kerala, Wayanad District, Punchavayal, 10th April 2013, Dileep 9203 (SMCH).

24. *Sacciolepis interrupta* (Willd.) Stapf in Prain, Fl. Trop. Afr. 9: 757. 1920; Fischer in Gamble, Fl. Pres. Madr. 1787. 1934. (Repr. ed. 3: 1238. 1957); Hook. f. Fl. Brit. Ind. 7: 40. 1896; Bor, Grass. Bur. Cey. Ind. Pak. 358. 1960; Manilal & Sivaraj. Fl. Calic. 341. 1982; Sreek. & V.J. Nair, Fl. Kerl. Grass. 299. 1991. Moulik, Grass & Bamboos India 1: 150. 1997. Kabeer & V.J. Nair, Fl. Tamilnadu. Grass 303. 2009.

Annuals or perennials. Culms 10-90 cm long, creeping rarely erect, rooting or floating spongy root stick, nodes glabrous. Leaves elliptic, ligules ovate, panicles spiciform, 3-35 cm long. Spikelets elliptic, 3-5 mm long. Lower glume ovate-oblong. Spikelets elliptic, 3-5 mm long. Lower glume ovate-oblong, 1-1.5 x 0.5-1 mm, 3-5 nerved. Upper glume ovate-lanceolate, 3-5 x 1-2 mm. Lower floret male or barren. Upper floret bisexual. First lemma similar to upper glume. Palea oblong 1-3 x 0.5-1 mm, delicate, hyaline, second lemma ovate-oblong 2-3 x 1-1.5 mm. Palea oblong, 2-3 x 1 mm; hyaline, stamens 3, violet or bluish. Ovary 0.5 mm long, stigmas 1-2 mm, pink.

Vernacular name: Varinellu.

Distribution: Tropics of SE Asia.

Habitat ; Common in marshy fields, wetlands and stagnant waters and a weed in paddy fields.

Flowering and Fruiting: Throughout the year.

Uses: Grains are edible. Root of this plant are mixed with vetiver; the fumes are used for treating respiratory disorders.

Specimen examined: Kerala, Wayanad, Kolavayal, 28th August 2013, Dileep 9205(SMCH).

25. *Sporobolus wallichii* Munro ex Trin. J. Bot. 27:171. 1889; Hook. f. Fl. Brit. Ind. 7:248. 1896; Fischer in Gamble, Fl. Pres. Madr. 3:1817 (1258). 1934; Bor, Grass. Bur. Cey. Ind. Pak. 629. 1960; Mathew, Mat. Fl. Tamilnadu Carnatic 401. 1981. Moulik, Grass & Bamboos India 2: 482. 1997. Kabeer & V.J.Nair, Fl. Tamilnadu. Grass 176. 2009.

Annual, or perennial. Culms erect, or geniculately ascending; 90–120 cm long. Culm and nodes are glabrous. Lateral branches lacking. Leaf sheaths glabrous on surface; outer margin hairy. In leaf sheath oral ciliate hairs, 0.5 mm long. Leafblade margins smooth, glabrous. Leaf blade apex attenuates. Inflorescence a panicle. Panicle open; 25–45 cm long; 10–20 cm wide. Spikelets solitary, or in pairs. Fertile spikelets pedicelled. Pedicels 3–8 mm long. Spikelet with 1 fertile florets. Spikelets lanceolate; 2 mm long; breaking up at maturity. Glumes deciduous; lower glume elliptic, or oblong; 0.5–0.75 mm long; upper glume 0.5–0.75; membranous; veins absent. Lower glume margins are ciliolate. Upper glume elliptic; 1 mm long; membranous; veins absent. Fertile lemma ovate; 2 mm long; membranous; without keel; 1-veined. Palea 2-veined. Palea keels approximate. Anthers 3; 1 mm long. Caryopsis obovoid; quadrangular; 1 mm long; dark brown.

Vernacular name: Uppuruthanam pullu

Distribution: Asia-temperate: China. Asia-tropical: India and Indo-China.

Habitat: Along foot hills and steep slopes of scrubby forest.

Flowering and fruting: August to March.

Uses: The grains are used as food and the plant is used to enrich the blood by Kattunaykka tribes. The whole plants are bunched and used as a broom by Paniya tribes

Specimen examined: Kerala, Wayanad, Varyad, 20th May 2013, Dileep 9183(SMCH).

26. *Setaria italica* (L.) P.Beauv., Ess. Agrostogr.: 51, 170, 178. 1812; Hook.f., Fl. Brit. India 7: 78. 1896; Fischer in Gamble, Fl. Pres. Madr. 3.: 1789. 1934; Bor, Grass. Bur. Cey. Ind. Pak. 362. 1960; Sreek. & V.J. Nair, Fl. Kerl. Grass. 299. 1991; Moulik, Grasses & Bamboos India 1: 155. 1997. Kabeer & V.J.Nair, Fl. Tamilnadu. Grass 308. 2009.
Panicum italicum L., Sp. Pl.: 56. 1753.

Erect, solitary or rarely tufted perennials. Culms up to 1m high; nodes brown ring like, lower ones rooting. Leaves linear-lanceolate, acuminate, base narrowly truncate. Ligule a thin ovate membrane. Leaf sheath compressed, keeled. Panicle 11-26 cm long, spiciform, cylindrical, bristles soft when young. Spikelets ovate to elliptic, 2.2-2.4 x 0.8-1 mm; pedicels with 0.8-1 mm, angled, tip flat to cup shaped; bristles 3-9 mm, straight to curved, greenish, barbellate. Florets 2; lower male or barren and persistent, upper bisexual. Lower glume ovate, chartaceous to membranous. Upper glume 1.8 x 0.8-1 mm, chartaceous, greenish 5 nerved, acute. First lemma ovate-elliptic, greenish, 2.2 x 1 mm, acute, 7 nerved, chartaceous. First palea 1.2 x 0.4 mm, oblong lanceolate, acute. Second lemma obovate to elliptic, acute. Greenish yellow. Second palea oblong to obovate, granulose. Lodicules 2, broadly truncate. Stamen 3. Caryopsis oblong to elliptic, plumpy, yellow.

Vernacular name: Thina.

Flowering & Fruiting: June-December.

Distribution: Probably native to Old World, widely cultivated.

Habitat: Cultivated in hilly areas, waste places and similar other localities.

Uses:The entire panicle is given as a bird food by Kuruma tribes.The palnt is used as a fodder and forage by all tribes. Plant is diuretic.

The plant can be eaten as a sweet or savoury food.

The plant is used for the treatment of dyspepsia, poor digestion and bone fracture.

Specimen examined : Kerala, Wayanad, Kallur, 12th August 2013, Dileep 9210(SMCH).

27. *Vetiveria zizanioides* (L.) Nash in Small, Fl. S. E. U. S.: 1903; Fischer in Gamble, Fl. Pres. Madras 1733. 1934; Bor, Grass. Bur. Cey. Ind. Pak. 258. 1960; Sreekumar & V.J. Nair, Fl. Kerala Grass 59. 1991; Moulik, Grasses & Bamboos India 1: 256. 1997. Kabeer & V.J.Nair, Fl. Tamilnadu. Grass 488. 2009.

Phalaris zizanioides L., Mant. Pl.: 183. 1771. *Andropogon squarrosus* sensu Hook.f., Fl. Brit. India 7: 186. 1896, non L.f. 1781.

Tufted perennials. Culms up to 1.5 m high, yellowish green; nodes short furrowed ring. Leaf blade linear-lanceolate to narrowly elliptic – lanceolate, 63 – 90 x ca. 0.8 cm, attenuate and flat towards apex. Ligule ovate, membranous; leaf sheath 11 – 18 cm, more or less ribbed. Panicle 20-30 cm, effuse to compact, racemes many; peduncle 13-24 cm, smooth, straight. Racemes staright, 7-11 mm long, spikelets paired; rachis smooth. Sessile spikelet elliptic to oblong-lanceolate, 4-4.2 x 0.8-1 mm, acute with two clear stipules, muricate, greenish purple when young. Lower glume oblong lanceolate, boat shaped, 4 x 0.7 mm, acute, yellowish green. Upper glume boat shaped, 4 x 0.7 mm long, similar to lower glume, 3- 5 nerved, 1-keeled. Florets 2; lower barren and epaleate, upper bisexual. Lower lemma ovate-lanceolate, boat shaped. Upper palea ovate to oblong – lanceolate, fat, hyaline. Lodicules 2. Pedicelled spikelet ovate-lanceolate, acute to acuminate at apex, greenish purple.

Vernacular name: Ramacham

Flowering & Fruiting: August to February.

Distribution: Sri Lanka,SE Asia to tropical Africa and widely introduced elsewhere.

Habitat: In moist localities, like ditches, edges of ponds and lakes, in sandy dry soil, also cultivated.

Uses: The mats made of *V. zizanioides* roots are hung over windows and doors and were wetted with water to facilitate cool and fragrant air into rooms during summer season by Kurichya tribes.The grass is used as a flavouring agent

The plant grows exclusively downwards and therefore it helps to block the runoff surface water,and conserve soil. It is used to create boundaries for paddy field by Kuruma tribes. It protects the fields against pest and weeds.

Paniya tribes take a decoction of *V. zizanioides* to treat all kind of poisons.

Dried culms of the plant are used for thatching the roof. *V. zizanioides* used by all tribes to treat burns, epilepsy,snake bite, scorpion sting,sore in mouth,tooth ache, urinary tract infection and malaria. The decoction of root is used to treat high fever due to the cooling nature of root.

It is used by Kattunaykka tribes to make agarbatti, soap and perfumes. Oil is applied externally in sprains and rheumatism.

Notes: This species has peculiar creeping and decumbent habit. The spikelets are easily disarticulating, acicular and the callus is extremely sharp, often gets attached to the skin of animals and clothes of human beings. Hence it is popularly called 'Love Grass'.

Specimen examined : Kerala, Wayanad, Kuppadi hill, 10th October 2013, Dileep 9217(SMCH).

DISCUSSIONS

The present study reveals the occurrence of 27 taxa of grasses in Wayanad and enumerates their uses in 43 different ways by four major tribals of Wayanad. A total of 27 grass species are used by the communities to treat 24 common diseases; as food, in ethnoveterinary practices, for material uses and also to perform rituals. Among the 27 species used by tribals of Wayanad, *Cynodon dactylon*, *Cymbopogon flexuosus* and *Vetiveria zizanioides* are the most popularly used taxa by the tribal people of Wayanad, South Western Ghats of India.

Grasses are the most advanced family of flowering plants. And they show enormous specialisation in their external morphology, anatomy and phytochemistry. The phytochemical diversity of these plants is manifest in their local medicinal applications. The variety of medicinal uses the grasses mentioned here can be put to is tremendous. All the common ailments find a remedy amongst grasses. These grasses provide cures for neuralgia, headache, stomach pain, diarrhoea, dysentery, abdominal tumours, fevers, diabetes, lung and respiratory disorders, ageing, skin diseases, lumbago, nasal bleeding, rheumatism and body pain, cough and cold, kidney problems, dyspepsia, piles, asthma, sinusitis etc. They are also anthelmintics, diuretics, stimulants, diuretics, and antidotes for poisons. It is because of their chemical constitution that many of these species are used for flavouring teas and curries. They provide fodder, poultry feed and substitute rice as food. Veterinary use of some species is in the treatment of mouth ulcers in cattle. Apart from this, some species are used in making materials like hats, mats, brooms, thatches, necklaces, ornaments, agarbathi, soaps and perfumes by tribes showing the amount of indigenous knowledge lying latent with the tribes regarding the uses to which these plants can be put to. These species find use in agriculture as forage and cover crops and sand binders.

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