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Editorial

Common associated plants of grasses in Odisha, India

Sanjeet Kumar
Ambika Prasad Research Foundation, Odisha, India
Email-Id: sanjeetaprf@gmail.com; ORCID: https://orcid.org/0000-0001-9538-397X
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Grasslands and habitats of grass species of Odisha, India, represent one of the most dynamic and ecologically significant ecosystems in the state. These areas, often spread across plains, wetlands, foothills, and agricultural fallows, are dominated by members of the family *Poaceae*, which form the primary vegetation cover along with sedges (Figure 1). However, beneath and around these grasses thrives a remarkable diversity of associated herbaceous plant species belonging to different families, each playing a unique role in maintaining ecological balance, enhancing biodiversity, and sustaining the overall health of the grassland ecosystem (Behera et al., 2025). The common associated plants of grasses in Odisha include a wide range of species adapted to varied microhabitats (dry, open fields to moist depressions and marshy lands). Among the frequently observed associated plants, members of the family *Plantaginaceae* such as *Limnophila indica* (Ambulia), *Bacopa monnieri* (Brahmi), *Adenosma indianum* (Indian scent-wort), *Scoparia dulcis* (Sweet broom), and *Limnophila rugosa* (Wrinkled marshweed) are particularly prominent (Table 1). These species often occur in moist soils, forming dense mats along with grasses and contributing to soil stabilization. Similarly, species of *Lentibulariaceae* like *Utricularia bifida*, *Utricularia caerulea*, and *Utricularia minutissima* are fascinating carnivorous plants that thrive in nutrient-poor wetlands, indicating the ecological diversity present in Odisha's grassy habitats. The family *Fabaceae* also exhibits strong representation through plants such as *Tephrosia purpurea* (Common tephrosia), *Indigofera linifolia* (Narrowleaf indigo), *Alysicarpus vaginalis* (White moneywort), *Smithia sensitiva* (Sensitive smithia), and *Chamaecrista mimosoides* (Feather-leaved cassia). These legumes enrich the soil with nitrogen and provide essential fodder for grazing animals, thereby supporting the productivity of the grassland ecosystem. In addition, species like *Cyperus rotundus* (Nutgrass) and *Fimbristylis dichotoma* (Forked fimbry) from the family *Cyperaceae* are commonly interspersed with grasses, particularly in moist or semi-aquatic conditions, playing an important role in preventing soil erosion. Members of *Rubiaceae*, including *Oldenlandia corymbosa* (Diamond flower), *Spermacoce mauritiana* (False buttonweed), and *Spermacoce ocymoides* (Purple-leaved buttonweed), contribute to floral diversity and often act as indicators of soil fertility and moisture. Medicinal herbs like *Phyllanthus niruri* (Stonebreaker), *Eclipta prostrata* (False daisy), and *Sida cordifolia* (Flannel weed) are also widespread, reflecting the ethnobotanical richness of these landscapes. Carnivorous species such as *Drosera burmanni* (Burmese sundew) and *Drosera*

indica (Indian sundew) occur in open, damp grasslands and represent unique ecological adaptations to nutrient-deficient soils.

Table 1: Common associated plants of Grasses

Common name	Name	Family
Ambulia	*Limnophila indica*	Plantaginaceae
Ammannia waterwort	*Bergia ammannioides*	Elatinaceae
Asthma weed	*Euphorbia hirta*	Euphorbiaceae
Baby jump-up	*Mecardonia procumbens*	Plantaginaceae
Bifid bladderwort	*Utricularia bifida*	Lentibulariaceae
Blistering ammannia	*Ammannia baccifera*	Lythraceae
Blue bladderwort	*Utricularia caerulea*	Lentibulariaceae
Brahmi	*Bacopa monnieri*	Plantaginaceae
Burmese sundew	*Drosera burmanni*	Droseraceae
Chickweed lobelia	*Lobelia alsinoides*	Campanulaceae
Coinwort indigo	*Indigofera nummulariifolia*	Fabaceae
Common tephrosia	*Tephrosia purpurea*	Fabaceae
Creeping cradle plant	*Cyanotis axillaris*	Commelinaceae
Creeping marshweed	*Limnophila repens*	Plantaginaceae
Creeping tick trefoil	*Grona triflora*	Fabaceae
Dense flower witchweed	*Striga densiflora*	Orobanchaceae
Dense-flowered rotala	*Rotala densiflora*	Lythraceae
Diamond flower	*Oldenlandia corymbosa*	Rubiaceae
Dwarf morning glory	*Evolvulus nummularius*	Convolvulaceae
False buttonweed	*Spermacoce mauritiana*	Rubiaceae
False daisy	*Eclipta prostrata*	Asteraceae
Feather-leaved cassia	*Chamaecrista mimosoides*	Fabaceae
Five-angled pipewort	*Eriocaulon quinquangulare*	Eriocaulaceae
Flannel weed	*Sida cordifolia*	Malvaceae
Forked fimbry	*Fimbristylis dichotoma*	Cyperaceae
Fringed false pimpernel	*Bonnaya ciliata*	Linderniaceae
Indian hoppea	*Hoppea dichotoma*	Gentianaceae
Indian scent-wort	*Adenosma indianum*	Plantaginaceae
Indian sundew	*Drosera indica*	Droseraceae
Japanese mazus	*Mazus pumilus*	Mazaceae
Jointed sedge	*Schoenoplectiella articulata*	Cyperaceae
Malaysian lindernia	*Torenia crustacea*	Linderniaceae
Minute bladderwort	*Utricularia minutissima*	Lentibulariaceae
Narrowleaf indigo	*Indigofera linifolia*	Fabaceae

NIL	*Bonnaya veronicifolia*	Linderniaceae
Node flower allmania	*Allmania nodiflora*	Amaranthaceae
Nutgrass	*Cyperus rotundus*	Cyperaceae
Purple leaved buttonweed	*Spermacoce ocymoides*	Rubiaceae
Sensitive smithia	*Smithia sensitiva*	Fabaceae
Sessile joyweed	*Alternanthera sessilis*	Amaranthaceae
Slender dwarf morning-glory	*Evolvulus alsinoides*	Convolvulaceae
Sparrow lindernia	*Bonnaya antipoda*	Linderniaceae
Stonebreaker	*Phyllanthus niruri*	Phyllanthaceae
Sweet broom	*Scoparia dulcis*	Plantaginaceae
Touch-me-not	*Mimosa pudica*	Fabaceae
Tranquebar spur-anther	*Centranthera tranquebarica*	Orobanchaceae
Tridax daisy	*Tridax procumbens*	Asteraceae
White moneywort	*Alysicarpus vaginalis*	Fabaceae
Wrinkled marshweed	*Limnophila rugosa*	Plantaginaceae
Yellow-eyed grass	*Xyris indica*	Xyridaceae
Yellowseed lindernia	*Lindernia dubia*	Linderniaceae

The grass-associated flora also includes several small, creeping herbs and marsh-loving species like *Limnophila repens* (Creeping marshweed), *Cyanotis axillaris* (Creeping cradle plant), *Mecardonia procumbens* (Baby jump-up), *Bonnaya ciliata* (Fringed false pimpernel), *Mazus pumilus* (Japanese mazus), and *Torenia crustacea* (Malaysian lindernia). These low-lying herbs often form ground-cover vegetation that protects the soil from direct sunlight and reduces water loss through evaporation. Other notable associates such as *Tridax procumbens* (Tridax daisy), *Evolvulus alsinoides* (Slender dwarf morning-glory), *Mimosa pudica* (Touch-me-not), and *Alternanthera sessilis* (Sessile joyweed) are common in disturbed habitats, roadsides, and open grasslands, indicating their high adaptability and resilience to environmental fluctuations. The common associated plants are listed in Table 1. Ecologically, the associated flora of grasses in Odisha perform several vital functions. Many of them act as soil binders, preventing erosion and maintaining soil texture, particularly in regions affected by monsoonal run-off. Flowering species like *Tephrosia purpurea*, *Tridax procumbens*, and *Eclipta prostrata* attract pollinators, thus supporting insect populations and overall ecosystem productivity. Leguminous members contribute to nitrogen fixation, enriching the soil naturally and sustaining successive plant growth cycles. Moreover, many these plants have ethnomedicinal value and are used locally in traditional health practices for instance, *Bacopa monnieri* for cognitive enhancement, *Phyllanthus niruri* for liver ailments, and *Sida cordifolia* as an anti-inflammatory herb. Their abundance in grasslands highlights the interlinkage between ecological diversity and cultural heritage. The presence of families such as *Linderniaceae*, *Orobanchaceae*, *Droseraceae*, *Eriocaulaceae*, and *Xyridaceae* further signifies the complex ecological interactions within Odisha's grassland ecosystems. Species like *Striga densiflora* (Dense flower witchweed) and *Centranthera tranquebarica* (Tranquebar

spur-anther) are partial or complete parasites, illustrating fascinating plant survival strategies in nutrient-limited environments. Meanwhile, *Eriocaulon quinquangulare* (Five-angled pipewort) and *Xyris indica* (Yellow-eyed grass) mark the presence of seasonally inundated wet meadows that are characteristic of Odisha's monsoon landscapes. Overall, the associated herbaceous flora of grasses in Odisha reveals an intricate ecological web where each plant species contributes to the functional stability of the ecosystem. Their presence enhances biodiversity, regulates microclimate, supports fauna, and adds to the aesthetic and medicinal wealth of the region. However, increasing anthropogenic pressures, agricultural expansion, and habitat modification pose serious threats to these delicate plant communities. Conservation of Odisha's grassland flora, therefore, demands systematic documentation, periodic monitoring, and awareness among local communities regarding their ecological and cultural importance. The rich assemblage of associated plants from the tiny *Utricularia* species to the vibrant *Tephrosia* and *Tridax* stands as a living testimony to Odisha's floristic diversity and the resilience of its natural landscapes. Protecting these plant associations is vital not only for maintaining biodiversity but also for preserving the ecological integrity of grass-dominated ecosystems across the state.

Figure 1: A grassland in Odisha (*Oryza rufipogon* & associated species)

References

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