

Tropical Forages

Grona triflora

Scientific name

Grona triflora (L.) H. Ohashi & K. Ohashi



Synonyms

Basionym: *Hedysarum triflorum* L.; *Desmodium triflorum* (L.) DC.; *Meibomia triflora* (L.) Kuntze

Family/tribe

Family: *Fabaceae* (alt. *Leguminosae*) subfamily: *Faboideae* tribe: *Desmodieae*.

Morphological description

Prostrate, mainly perennial herb, forming mat 3–5 (–50) cm tall, strong, woody taproot. Stems slender, reddish, white or cream pubescent, much branched, extending to 50 cm, frequently rooting at the nodes. Leaves pinnately trifoliolate (lower leaves sometimes unifoliolate), leaflets 3–10 (–15) mm long and 3–9 (–14) mm wide, obovate to obcordate, base cuneate, apex truncate or emarginate, glabrous above, finely pubescent below; lateral leaflets smaller than terminal leaflet; petiole 4–8 (–15) mm long, pubescent; stipule c. 5 mm long, ovate-lanceolate; rachis 3–6 mm long; petiolules 2–3 mm long. Flowers 5 mm long, in short axillary racemes of 1–3 (–5); corolla pink to purple, rarely white; pedicel puberulent, 3–8 mm long, to 13 mm at fruiting. Pods flat, segmented, 5–12 (–18) mm long and 2–3.5 mm wide, comprising 3–5 (–7) articles, covered with minute hooked hairs; upper suture straight, lower suture constricted between the articles; articles nearly quadrate, reticulately veined, separating when ripe. Seed yellow, reniform to orbicular c. 1.2 × 1.7 mm.

Similar species

Grona triflora: terminal leaflet obcordate, obtriangular, or obovate, 2.5–10 mm long and 2.5–10 mm wide, base cuneate, apex truncate, slightly emarginate; silver blaze absent.

Grona heterophylla: terminal leaflet broadly elliptic or broadly elliptic-obovate, 10–30 mm long and 8–15 mm wide, base obtuse, apex rounded or nearly truncate, often emarginate; silver blaze on midrib common.

Common names

Africa: kelen, ka-sêlaem, kōli niki, xinyogi (Sierra Leone); èpà-ìlè (Nigeria)

Asia: smau kaè lolook (Cambodia); □□□ san dian jin (China); delilan (Javanese), djukut djarem, jukut jarem (Sundanese), daun mules, sisik betok (also *G. heterophylla*), udu pelian bule (Indonesia); hai-makie-hagi (Japan); rumput barek sisek putih, sisek tenggiling (Malaysia); gumadep (Ifugao), himbispuyo (Visayas), kaliskis-dalag, pacpaclangao (Tagalog) (Philippines); ya-klethoi, ya-tanhoi, ya-tansai (Thailand); cây hàn the ba hoa, hàn the ba hoa, tràng quã ba hoa (Vietnam)

English: black clover, creeping tick trefoil, three-flower beggarweed, lesser clover-leaved desmodium, matty desmodium, tropical trefoil

Europe: desmodium à trois fleurs, petit oseille marron, trèfle gazon, trèfle petit, trèfle rampant, trèfle savane (French); dreiblütiger Wandelklee (German)



Strongly stoloniferous growth habit



Stems and petioles pubescent; flowers in short racemes, corolla pink to purple; pedicel puberulent



Pods comprising mostly 3-5 articles



Seeds

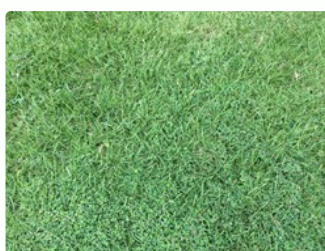


Desmodium triflorum (L.) DC. - 1, habit; 2, part of branch; 3, flower; 4, fruit.

Line illustration



With *Axonopus compressus*, north Queensland Australia



In mixture with *Zoysia* sp. lawn

Indian Ocean: kodalia, outoupilli, trèfle des chasseurs (Mauritius); trèfle noir (Reunion)

Indian subcontinent: kodalia (Assamese); chalani, kudaliya, salpani (Bengali); motha, kudaliya (Hindi); kaadu menthe, kaadu pullampurasi, kaadu pullam purasi (Kannada); ■■■■ ■■■■ raan methi (Konkani); ■■■■■■■■■■ nilamparanda, cherupalladi, cherupulladi, kunnappalai, munta-mandu, nilampulladi, nilamparanta (Malayalam); ■■■■■■ chipti, ■■■■■■ ■■■■ jungali methi, ■■■■ ■■■■ raan methi (Marathi); bawngekhlo (Mizo); ■■■■ ■■■■ bute kanike, nimphuli (Nepali); kansisna, bawngekhlo (Oriya); ■■■■■■■■ tripadi, ■■■■■■■■ hamsapadi (Sanskrit); heen-undupiyali (Sinhalese); ■■■■■■■■■■ ankuca-pati, ciru pullati, sirupulladi, sirupullati (Tamil); moohoodoo, muntamandu, mooodoo (Telugu); bawngekhlo

Latin America: amor-do-campo, amorzinho-seco, trevinho-de-campo (Brazil); acaba pangola, alfalfilla, alfalfillo de llano, cuartillo, estacal, hierba cuartillo, morlomin, pequeño trébol desmodio de hoja plateada, desmodio plateado, desmodium español (Spanish)

Madagascar: kodiadiamborona, tsimathatrandrivamanitra

Pacific: konikoni, vakathengu (Fiji); agsom, apo (Guam); olmud (Palau); kihikihi (Tonga)

Distribution

G. triflora is widespread throughout the world tropics and subtropics, extending into continental regions that experience extremes of hot and cold. Attempts have been made to define the limits of indigineity, but these are somewhat blurred by encroachment of areas of naturalization.

Uses/applications

Forage

A component of short (grazed) native and sown pastures, where it can form up to 50% of the herbage. Creeping mat can provide good ground cover during the wet season, especially in mown or closely cut uses.

Environment

Maintains a stable ground cover in association with stoloniferous grasses under constant heavy grazing or regular mowing such as under plantation crops and in lawns.

Other

Considered to have medicinal properties for treating dysentery, rheumatism, fever, jaundice, stomach ache, skin problems, wounds and ulcers (in particular in India and China).

Ecology

Soil requirements

Found on a wide range of soil types, including acid, high Al soils.

Moisture

G. triflora largely occurs in moist, well-drained soils in the humid and subhumid tropics and subtropics with annual rainfall above 700 mm; it behaves as perennial under well-distributed rainfall and as an annual in the strongly seasonally dry tropics. While it survives mid-season dry periods, leaf drop serves as a survival mechanism in even moderately dry periods.

Temperature

It is well-adapted to warm environments, being found largely between the Tropics, although it has been found about 28° S in Australia and possibly at similar latitude north of the equator in Iran. Leaves are readily frosted, but plants recover with the onset of warmer conditions.

Light

Very shade-tolerant, being more dominant than grasses under the shade of shrub canopies. Persists under plantation crops in the Pacific.

Reproductive development

Flowers and sets seed over a long period making seed production difficult.

Defoliation

Resistant to heavy grazing and frequent mowing or cutting.

Fire

Pastures containing *G. triflora* are rarely burned with a hot fire because of low fuel loads, but the plants can re-establish from rootstocks or seed.

Agronomy

Guidelines for establishment and management of sown forages.

Establishment

G. triflora is rarely sown commercially. It spreads naturally through seed in dung or by adhering to the coats of grazing animals.

Fertilizer

Responds well to P (and S).

Compatibility (with other species)

Compatible with prostrate grass and legume species.

Companion species

Grasses: Found in association with many grasses including *Axonopus* spp., *Bothriochloa pertusa*, *Cynodon* spp., *Ischaemum timorense*, *Heteropogon contortus*, *Paspalum notatum*.

Legumes: *Alysicarpus vaginalis*, *Grona heterophylla*.

Pests and diseases

No information available.

Ability to spread

Occurs in most land uses in regions to which it is well adapted such as pastures, roadsides, lawns. It is found throughout the tropics.

Weed potential

May be considered a weed in cultivation and in lawns.

Feeding value

Nutritive value

14–18% CP.

Palatability/acceptability

Very palatable to all classes of livestock, including poultry.

Toxicity

No reports of toxicity.

Production potential

Dry matter

In most situations *G. triflora* produces so little dry matter, it is unlikely to be seriously considered in any sown pasture or forage program. Nevertheless yields of up to 4 t/ha DM have been recorded.

Animal production

Widespread and persistent under heavy grazing and so likely to markedly improve the diet of livestock on heavily grazed native pastures such as those found on communally owned and managed grazing land.

Genetics/breeding

$2n = 22$.

Seed production

No commercial seed production due to limited or no demand, low growth habit and the extended period over which flowering and seed set occurs.

Herbicide effects

No information available.

Strengths

- Tolerant of heavy grazing.
- Very palatable.
- Natural spread under grazing.
- Adapted to wide range of soils.
- Excellent ground cover in heavily grazed areas.

Limitations

- Low growing habit.
- Little dry matter production.
- Difficult seed production.

Selected references

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Cultivars

None released to date.

Promising accessions

None reported.

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