

Tropical Forages

Alysicarpus monilifer

Scientific name

Alysicarpus monilifer (L.) DC.



Synonyms

Basionym: *Hedysarum moniliferum* L.

Family/tribe

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

Morphological description

Low growing, much branched, deep rooted annual or perennial herb, 5–15 (–50) cm tall. Branches pilose, hairs long and spreading. Leaf unifoliolate; broadly oblong or elliptic-oblong, rounded and mucronulate at the apex, subcordate at the base, 0.4–2.5 × 0.4–1.5 cm, prominently nerved, glabrous above, sparsely pubescent on the nerves beneath; petiole 3–6 mm long; stipules 3–8 mm long, lanceolate, scarious, striate. Racemes spicate, axillary and terminal, 1–15 cm long; flowers 4–10, lax to dense along racemes, pedicel to 2 mm long, calyx lobes lanceolate, ciliate; corolla pink to violet; standard to 5 × 2 mm; wings to 4 × 2 mm; keels to 6 mm long. Pods moniliform, 2- to 8-jointed, 1.2–2.5 cm long, turgid; glabrous or sparsely pubescent; articles 2.5–3 mm long and 2–3 mm wide, loment finely downy with minute hooked hairs, surface obscurely to distinctly veined. Seeds sub-globose or oblong, brown to yellow mottled; 350,000 seeds/kg.



Low growing, much-branched, deep rooted annual or perennial herb (ILRI 14522)



Flower and immature pod (ILRI 14522)



Immature seed pods (ILRI 14522)



Leaves, flowers and pods (CPI 106579)



Moniliform pod



Sub-globose or oblong mottled seeds

Common names

English: necklace-pod alyce clover

India: samervo (Gujarati), chatta-ki-ghas, juhi ghas, jhuhighas (Hindi), kallu naamada soppu, thalemaddina gida (Kannada), kacukkoti (Tamil), amera (Telugu)

Distribution

Native:

Africa: Ethiopia; Niger; Sudan

Asia: India (Madras, Jammu, Punjab, Gujarat, Madhya Pradesh and Uttar Pradesh); Pakistan; Myanmar

Indian Ocean: Mauritius; Réunion

Uses/applications

Forage

Common in mixed species native pasture. Could make useful contribution in moderately to heavily grazed, long-term and ley pastures in low to medium rainfall areas.

Other

Used in India as an anti-inflammatory, as a diuretic and as a cure for stomach ache; also considered a treatment for snakebite. The root is reported to be a substitute for liquorice.

Ecology

Soil requirements

Grows on a wide range of soil types from deep sands and stony soils to cracking clays with a pH range of 5.5–8. Appears during the rains in grassy places, rocky hillocks and wastelands.

Moisture

Perennial types from India are found in areas with 600–1,500 mm annual rainfall, and annual types from Sudan in areas with 200–400 mm, and a short (<3 months) growing season.

Temperature

Mainly tropical lowlands (0–1,000 m asl) with average daily temperature range of 26–29 °C. Perennial types are readily frosted but annuals because of early maturity largely avoid frost.

Light

Not tolerant of lenient grazing in legume-grass associations, suggesting a preference for full light.

Reproductive development

At 21 °S, flowering can occur at 60–70 days after establishment and seed can be mature at 90 days (annuals) and 110–115 days (perennials). Seed retention is poor with moniliform pods readily disarticulating between articles. A high percentage (>70%) of seed is hard at maturity. Flowers August–October (–November) at 21° N in India.

Defoliation

Prostrate types more tolerant of intensive grazing in permanent pastures while the more erect forms are better adapted to less intensive grazing.

Fire

Response to fire in the vegetative state is not known but heavy and early seeding should minimise the chances of loss from pastures that are inadvertently burnt.

Agronomy

Guidelines for establishment and management of sown forages.

Establishment

Moderate seed size and a relatively fast germination rate give quick and reliable establishment. Some form of seed scarification to break hard seed may be necessary. Not highly competitive with weeds or established perennial pasture plants.

Fertilizer

Could be expected to respond to P, K and S on soils that are deficient or respond to lime or dolomite if below the optimum pH range of 6–8.

Compatibility (with other species)

Appears best suited in combination with less vigorous grasses. Heavy grazing or extreme dry seasons that set back companion grasses may enhance legume persistence and spread. Seedling regeneration has been successful at low to medium rainfall sites in a sub-humid environment on the tropic where competition from grass was not extreme.

Companion species

Grasses: In India, *A. monilifer* is often found with *Bothriochloa*, *Dichanthium*, *Chrysopogon* and *Heteropogon* on rocky or eroded areas where grazing is heavy.

Pests and diseases

Leaves, petioles, axillary buds, stems and fruits parasitised by the wart fungus, *Synchytrium cookii* in India.

Ability to spread

Early seeding and probable ability to withstand heavy grazing could result in spread from sown areas.

Weed potential

Low growth habit limits its ability to dominate companion species.

Feeding value

Nutritive value

No information available.

Palatability/acceptability

Well eaten by cattle.

Toxicity

No record of toxicity.

Production potential

Dry matter

Low to moderate yields in experimental sowings in Queensland, Australia.

Animal production

No information available.

Genetics/breeding

While some provenance comparisons have been conducted in India, no breeding programs have been undertaken. $2n = 16$.

Seed production

Flowering & fruiting: August–October in India. Free seeding and relatively large seed, but difficult to harvest because of low growing habit and disarticulation of pod articles.

Herbicide effects

No information available.

Strengths

- Easily established.
- High palatability.
- Tolerant of moderately heavy grazing.

Limitations

- Low DM yield in mixed pastures.
- Frost tender.

Selected references

Gramshaw, D., Pengelly, B.C., Muller, F.W., Harding, W.A.T. and Williams, R.J. (1987) Classification of a collection of the legume *Alysicarpus* using morphological and preliminary agronomic attributes. Australian Journal of Agricultural Research 38:355–372.
doi.org/10.1071/AR9870355

Cultivars

None released.

Promising accessions

CPI 40612 Selected in N Australia. Origin Umm Heglig, North Kurdufan, Sudan (14°11' N, 26°38' E, rainfall 300 mm, mainly July–September). Annual with potential to regenerate in low (<800 mm) rainfall areas in permanent and ley pastures.

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