Codariocalyx gyroides

Scientific name

Codariocalyx gyroides (Roxb. ex Link) Hassk.

Synonyms

Basionym: *Meibomia gyroides* (Roxb. ex Link) Kuntze; *Desmodium ciliare* (Willd.) DC.; *Desmodium gyroides* (Roxb. ex Link) DC.; *Desmodium papuanum* C.T. White; *Hedysarum gyroides* Roxb. ex Link

Family/tribe

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

Morphological description

A short-lived erect, leafy shrub with multiple stems growing 1–3 m tall. Old stems can reach 4 cm in diameter. Tops of stems and inflorescences usually covered with long hairs. Leaves with 1 or 3 ovate to elliptic, obtuse leaflets, up to 8 cm long and 5 cm wide, on petioles 1–3 cm long. Flowers usually double, on terminal or axillary dense inflorescences, 5–15 cm long. Flower colour starts light pink and then becomes darker, turning to violet-blue. Pods 2.5–5 cm long, 4–6 mm wide, densely covered with yellowish hairs; 5–12 segments/pod. Seeds 2.5 × 4.0 × 1.5 mm, light brown with dark brown mottles. About 190,000 seeds/kg.

Similar species

***C. gyroides*:** Terminal leaflet obovate or elliptic, 3.5–5 × 2.5–3 cm; legume long-pilose intermixed with dense short hooked hairs.

***C. motorius*:** Terminal leaflet narrowly elliptic or lanceolate, 5.5–10 × 1–2.5 cm; legume with sparse short hooked hairs.

Common names

Asia: kâm'phé:m (Cambodia); □□□□ yuan ye wu cao (China); karikut-ritkut (Philippines); sanagori, kadatuwa (Sundanese), julukan (Javanese) (Indonesia); leguni (Malaysia); thua desmodium (Thailand)

English: false tick trefoil, codarrio; telegraph plant (more commonly applied to *C. motorious*)

Latin America: cora-cora (Colombia); planta telégrafo (Spanish).

Distribution

Native:

Asia: Bhutan; Cambodia; China (Guangdong, Guangxi, Hainan, Yunnan (s.)); India, (Arunachal Pradesh, Assam, Bihar, Madhya Pradesh, Meghalaya, Nagaland, Orissa, Sikkim, Uttar Pradesh, West Bengal); Indonesia (Celebes, Java, Sumatra); Laos; Malaysia Malay Peninsula, Sabah); Myanmar; Nepal; Philippines; Thailand; Vietnam

Papuasia: Indonesia (Irian Jaya); Papua New Guinea

Cultivated:


Terminal and axillary inflorescences


Shrub about maximum height (3m)


Inflorescence a compact raceme


Indeterminate raceme with buds, flowers and immature pods; leaves simple or compound


Line illustration


Seeds light brown with dark brown mottles


Shrubs before grazing, north Qld Australia (CPI 49082)


Damaged stems after 5 days grazing, north Qld Australia (CPI 49082)

Also cultivated.

Uses/applications

Forage

Short-term legume used as cover crop, green manure and cut-and-carry feed. In Caquetá Department, Colombia, farmers strip the leaves off the twigs for cut-and-carry.

Environment

Usually grown as a hedgerow, as a ground cover and green manure crop in tea and rubber plantations, and sometimes for shade in establishing plantations of coffee and cocoa.

Ecology

Occurs in plains, grassy riverbanks and sparse forests on mountain slopes at alotitudes ranging from 100 to 500 m asl.

Soil requirements

Tolerant of low fertility, high Al, low pH and poor drainage. Can be grown in a range of soils including cracking clays, but may suffer from root-knot nematodes on sandy soils.

Moisture

Grown in the humid tropics with rainfall between 1,500 and 4,000 mm/yr. Can be grown up to 2,000 m in the tropics or in subtropical lowlands. It can persist through a dry season of up to 3 months but is not productive under drought conditions. Can tolerate short-term flooding.

Temperature

Occurs from lowlands to altitudes of 1,900 m asl in the humid tropics. Warm season growth with low production in the cool season. Good growth in the Colombian humid tropics (Caquetá Department) in a range of 20–34 °C. Not frost tolerant.

Light

Medium to low shade-tolerance. Away from the equator it flowers in the late wet season and early dry season. Late-flowering introductions set very little seed in the subtropics. In Indonesia, flowering occurs in April.

Reproductive development

Individual plants are reported to survive for 2–4 years. In Belize, uncut plants behaved as annuals. In the germplasm collection, wide range in time to flower (140–>250 days since transplanting of seedlings). Flowers September-October, fruits October-November in S China.

Defoliation

Although it has been reported to have persisted during 5 years under grazing, it is generally considered to be grazing intolerant. Cattle tend to strip off the leaves injuring the stem. Stems must not be cut too low if the plant is to sprout again and persist: Cutting height should not be below 0.5–1.0 m, cutting frequency not less than 6–10 weeks. Plant persistence under cutting heights of 5, 25 and 50 cm was 0%, 33% and 50% respectively. Persistence was high in Caquetá Department, Colombia, when cut at 80 cm, but there was considerable variation among accessions. Poor persistence has been suggested in part due to damage from insect larvae burrowing in stems, fungal diseases and root-knot nematodes, the latter found particularly on sandy, well-drained soils.

Fire

As a hedgerow, it would not normally be burned, but has survived and recovered from fire when growing in *Imperata* grasslands in Indonesia.

Agronomy

Guidelines for establishment and management of sown forages.

Establishment

Seed can be planted for a hedgerow or at spacings of 0.5 m × 1.0 m. Initial growth is slow. The species nodulates with native cowpea rhizobia.

Fertilizer

No information available but probably responsive to P fertilization.

Compatibility (with other species)

No detailed information available but because of slow initial growth in the establishment phase competition from associated vegetation is probably critical.

Companion species

Has been grown with para grass (*Urochloa mutica*) on wet lands (Belize); or as hedgerows with *U. humidicola* (Caquetá Department, Colombia).

Grasses: *Urochloa humidicola*, *U. mutica*.

Pests and diseases

The plants can be damaged by insect larvae burrowing in the stems, by fungal diseases and by root-knot nematodes (*Meloidogyne javanica*) in lighter soils, being particularly sensitive during longer dry periods.

Ability to spread

Virtually no spread but there may be some seedling recruitment under lightly defoliated plants.

Weed potential

Probably nil.

Feeding value

Nutritive value

Generally good crude protein (18–24%) and mineral concentrations (P 0.22%, Ca 0.51% and K 1.96%) but low nutritional value because of high concentration of extractable condensed tannins in the foliage (8.4–18.1%); IVDMD 32–45% irrespective of leaf maturity.

Palatability/acceptability

Information in the literature is somewhat controversial. Reports from Belize indicated high acceptability by Brahman cows and calves when in mixture with *Urochloa mutica*, in the Colombian humid tropics (Caquetá Department) dairy cattle accepted it only as long as sufficient grass was available but rejected when it was tested as sole feed. Palatability problems are suggested to be due to high tannin concentration. Very poor acceptability/rejection under grazing with planted grasses, but better with low-quality native grasses.

Toxicity

None reported.

Feedipedia link

April 2020: Page under construction

Production potential

Dry matter

High early productivity. In the Colombian humid tropics (Caquetá Department), a typical 18-month-old stand yielded 2 t/ha of edible DM containing 3% N, equivalent to 385 kg/ha protein. In the Colombian Llanos Orientales, it has yielded over 1 t/ha of protein over a 40-week period.

Animal production

No information available.

Genetics/breeding

2*n* = 20, 22; some level of outcrossing possible (>20% off-types observed in Colombia).

Seed production

High seed production potential. First-harvest yields reported from Belize are 23,000 hand-harvested seeds/plant (c. 120 g/plant).

Herbicide effects

No information available.

Strengths

- Adapted to acid soils.
- Tolerates waterlogging.

Limitations

- Poor persistence under heavy cutting, especially sensitive to cutting height.
- Low palatability.

- Lack of conclusive information on long-term persistence.

Internet links

https://uses.plantnet-project.org/en/Codariocalyx_gyroides_(PROSEA)

Selected references

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Cultivars

'Cora-Cora' (CIAT 3001, CF 29, CPI 76104, ILRI 12455) was informally released in Caquetá Department, Colombia (1996). CIAT 3001 has been evaluated widely elsewhere.

Promising accessions

CIAT 13547, CIAT 33131 and CIAT 23746 Selected from trials in the Amazonian foothills region (Caquetá Department, Colombia) under an 80 cm cutting height on poorly drained very acid soils.

A highly variable 30-accession germplasm collection is available at CIAT.