Zornia glabra

Scientific name

Zornia glabra Desv.

Synonyms

Zornia diphylla (L.) Pers. var. *reticulata* Benth.

Family/tribe

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

Morphological description

Perennial herb, with stems ascending to erect, to 60 cm tall, branched, largely glabrous. Leaves bifoliolate, glabrous or puberulent; lower leaflets lanceolate, acute to 40 mm long, 8 mm broad; the upper leaflets narrower, usually punctate, glabrous above, glabrous or strigose below. Inflorescence a congested axillary spike; bracts lanceolate-ovate, acute, to 10 mm long, 4 mm broad, with short-acuminate auricle to 1 mm long, punctate, glabrous, sparsely ciliate; calyx to 4 mm long, largely glabrous; standard to 13 mm long, lemon yellow with red striations at the base. Loment with 5–7 articles, 2.0–2.5 mm long, 2.0 mm wide, 2.0 mm broad, with numerous retrorsely hairy bristles to 1.2 mm long. 650,000–1,000,000 seeds per kg.

Common names

Latin America: mariguana del Brasil, zornia (Brazil); alverjilla, cargadita, encarrugada, urinaria, zarzabacoa de dos hojas, zornia (Spanish)

Note: Many *Zornia* spp. have bifoliolate leaves and have been classified as or confused with *Z. diphylla*.
The above common names have been associated with *Z. diphylla.*

Distribution

Native:

South America: Brazil, French Guiana, Guyana, Suriname

Perennial herb, with ascending to erect stems to 60 cm tall.

Leaves bifoliolate, with lower leaflets along the stem lanceolate and upper leaflets linear.

Inflorescence a congested axillary spike (ILRI 11459)

FLower lemon yellow with red striations.

Immature pod (*specimen middle bottom*) (ILRI 11461)

Loment articles and seed of similar species, *Z. diphylla* showing retrorsely hairy bristles

Speckled to mottled seed

Growing with *Andropogon gayanus.*

Uses/applications

Forage

No evidence of use in sown perennial pastures but potential for improved pastures as well as in intercropping systems is suggested.

Ecology

Occurs on ultisols in its native environment, and has proven adapted to ultisols and oxisols in the wet tropics elsewhere. These soils have pH as low as 4, and are of low fertility.

Moisture

Z. glabra is mostly found in areas with annual rainfall >1,500 mm. Moderate drought tolerance.

Temperature

Collection and evaluation data show *Z. glabra* is adapted to the humid and moist subhumid tropics, in areas with average annual temperatures ranging from about 23 to 27 ºC.

Light

Little or no shade tolerance.

Reproductive development

Occasionally observed flower colour segregation suggests outcrossing potential. Free-seeding.

Defoliation

Tolerates defoliation.

Fire

Recovers from soil seed bank and below-ground crown.

Agronomy

Guidelines for establishment and management of sown forages.

Establishment

Seed sown at 2–3 kg/ha. Reported to nodulate readily with native rhizobia.

Fertilizer

Responds to applications of P, K, and S at 20, 20 and 10 kg/ha and FTE on infertile soils.

Compatibility (with other species)

Compatible only with (low-growing) bunch grasses.

Companion species

Grasses: *Andropogon gayanus*, *Megathrysus maximus*
Legumes: Not generally sown with other legumes.

Pests and diseases

Resistant to scab caused by the fungus, *Sphaceloma zorniae*, which causes scab lesions on leaves, petioles and stems, and eventually dieback, in other *Zornia* spp.; susceptibility to bacterial wilt caused by *Corynebacterium flaccumfaciens* has been reported.

Ability to spread

Good natural spread by self-sown seed.

Weed potential

Considered to be low; easy to control by herbicides.

Feeding value

Nutritive value

Leaf (3 months old): CP 23–27%, P 0.30–0.40%, Ca 0.61–0.92%. Digestibility around 50%.

Palatability/acceptability

Fairly low palatability, inferior to that of *Centrosema acutifolium*, and comparable to that of *Desmodium velutinum*.

Toxicity

No information available.

Production potential

Dry matter

Moderate DM yields in savanna climates (2–2.5 t/ha/season).

Animal production

No information available.

Genetics/breeding

Probably $2n = 20$, as with other *Zornia* spp. assessed.

Seed production

Prolific seeder but no hard data available.

Herbicide effects

No information available.

Strengths

- Adaptation to acid, low-fertility soils.
- Tolerance of fungus *Sphaceloma zorniae*.
- Promiscuous rhizobial relationship.

Limitations

- Low palatability
- Low to moderate intake by grazing animals.
- Low to moderate productivity.

Selected references

Cadisch, G., Sylvester-Bradley, R. and Nösberger, J. (1989) ^{15}N-based estimation of nitrogen fixation by eight tropical forage-legumes at two levels of P:K supply. Field Crops Research 22:181–194. doi.org/10.1016/0378-4290(89)90091-9

Pizarro, E.A. (ed). (1992) Red Internacional de Evaluación de Pastos Tropicales RIEPT, 1a. Reunión Sabanas, 23–26 de noviembre de 1992, Brasília, Brasil. Documento de trabajo No. 117. CIAT, Cali, Colombia. hdl.handle.net/10568/56399

Schultze-Kraft, R., Lascano, C., Benavides, G. and Gómez, J.M. (1989) Relative palatability of some little-known tropical forage legumes. Proceedings of the XVI International Grassland Congress, Nice, France, 4–11 October 1989. pp. 785–786.

Cultivars

None released.

Promising accessions

CIAT 7847 Good performance reported in the Philippines, Llanos Orientales (Colombia), and Corrientes Province (NE Argentina). Agronomic evaluation on low pH (<5) oxisols. In Argentina, DM yields were reported as being comparable to those of *Stylosanthes capitata*.

CIAT 8279 and **CIAT 8283** Evaluation in Colombia determined that performance of these two accessions was similar to that of CIAT 7847 (see above).