ISSN: 0976-7126
Dwivedi *et al.*, 12(3):72-78, 2021

International Journal of Pharmacy & Life Sciences
Open Access to Researcher

Diplocyclos palmatus L. Jeffrey (Shivalingi): Morphological features and Ethnomedicinal Importance

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Article info

Received: 18/02/2021

Revised: 23/03/2021

Accepted: 29/03/2021

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Abstract

Diplocyclos palmatus (L.) Jeffrey (Shivalingi) is an annual climber of Cucurbitaceae. The herb grows widely during rainy season and climb on shrubs and bushes. It is a unisexual, monoecious plant, having globose fruits with white lines, which become red and pulpy on ripe. Seeds are light, compressed having deep scar on both sides resembling to third eye of Lord Shiva. Fruits and seeds contain bitter principle bryonin and used in bilious attack, flatulence, constipation, intestinal inflammation and produce fertility in women. Fruits have been prescribed by natives to cure malarial fever and are an excellent remedy for chronic colitis. The present investigation was carried to study the morphological and ethnomedicinal importance of the plant.

Keywords: Shivalingi, Morphology, Ethnomedicinal Importance

Introduction

Shivalingi (*Diplocyclos palmatus*) is an annual climber of rainy season. The herb is well suited to all soils and climates, although it does not tolerate heat and frosts. In tropical, temperate and moist conditions, it has a very rapid growth rate. It grows sub spontaneously in humid areas transformed by humans, close to crops or human settlements. In our country it is widely grows during rainy season and climb on fencings, shrubs, bushes and trees with the help of tendril. [1-5]

Botanical Description

Diplocyclos palmatus is commonly known as Shivalingi, belongs to family Cucurbitaceae, is an annual, herbaceous climber, growing up to a height of 3-4 m. Stem glabrous, becoming thickened and white dotted on the ridges when older. Leaves are alternate, broadly ovate, palmately 3-7 lobed, 3.5-14 x 4-14.5 cm, lobes linear-lanceolate to elliptic, glabrous; margins often irregularly toothed petiole 1.5-9.0 cm long. Tendrils have 2 branches. Flowers small, pale yellow, unisexual, monoecious, male in sessile clusters of 2-8, along with 2-5 female flowers borne in the same axil. Calyx tube 3-4 mm long in male, 1.5-2.5 mm long in female, lobes smaller than tube. Corolla of male larger than female. Ovary ellipsoid, inferior, 5 mm long,. 2.5 mm broad, with longitudinal white stripes. and fruiting occur during August - November. [7-10]

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Fruit solitary or in clusters of 2-5, ovoid-subglobose, 1.5-2.5 cm diameter, at maturity it is red with white stripes. Seeds 5-6 x 2.5-3 mm. Flowering

Biology of *Diplocyclos palmatus*

Life span of a species can be determined by the biological phenomenon. The span and period of biology differ from species to species. It may require a short duration in cryptogams, which are dispersed by means of spores consisting usually of a single cell. These minute spores can travel a greater distance by the wind so that their actual dispersal becomes effective enough but this dispersal is fruitless if successful germination does not occur. Only minute food reserves are available in spores. With evolution of heterospory and the retention of the megaspore in the ovule the original, means of dispersal were lost to angiosperms, but is replaced by a new structure for broadcasting the species- the seed. Functionally the seed is an organ of propagation and pay an important role in biological phenomenon. [11-15]

Synonyms

- Shivalingi
- Native bryony
- *Diplocyclos palmatus* (L.) Jeffrey
- *Bryonia palmata* Linn.
- *Bryonopsis laciniosa* Auct.
- *Bryonopsis laciniosa* var walkeri Chakrav
- *Ilocania pedata* Merr.

Distribution

Diplocyclos palmatus (L.) Jeffrey is widely distributed throughout the world except in Antarctica. Native bryony is found in Tropical and North Africa, Tropical Asia, Malaysia, Philippines and Tropical Australia It is now naturalized in numerous parts of Europe and far north of Antsiranana province in Madagascar. It is absent from most of West Africa, Somalia, drier parts of Arabia and not known from Laos. The plant is widely grown many part of our country, except in desert parts for its valuable fruits and seeds during the rainy season. [16-21]

Floral Formula : + ♂ K (5) C(5) A 3
+ ♀ K (5) C(5) G(3)

Morphology

Root	Tap root system with secondary roots and numerous root hairs. Seldom fibrous roots arise from the nodes of vines.
Stem	Herbaceous, glabrous, branched, obscurely mottled, becoming thickened and white dotted with darker green white-punctate on the ridges when old.
Leaf	Leaves are alternate, petiolate, broadly ovate with palmately 3-5 lobes and palminerved. The lobes are linear-lanceolate to elliptic, glabrous; margins often irregularly toothed. Tendrils have 2 branches.
Inflorescence	Flower unisexual, monoecious. Male flowers in clusters of 2-8, arrange in cymose manner, along with female flowers in the same axil.
Flower	Pedicellate, acinomorphic, unisexual, epigynous, incomplete, pentamerous, and pale yellow in colour.
Male flower Calyx	Sepal -5, gamosepalous, quincuncial aestivation, often narrow and pointed, odd sepal posterior, calyx tube 3-4 mm long.
Corolla	Petal -5, alternating with the sepal, gamopetalous, imbricate aestivation.
Androecium	Stamens apparently -3, two with dithecous anther and one with monothecous anther, dehisce by extrose longitudinal slits.
Female Flower Calyx	Sepal -5, gamosepalous, quincuncial, calyx tube 1.5-2.5 mm long, adnate to the ovary wall and often produced beyond it.
Corolla	Petal -5, alternating with the sepal, gamopetalous, imbricate aestivation, and inserted on the calyx tube.
Gynoecium	Carpel – 3, syncarpous, ovary inferior, trilocular ellipsoid, with longitudinal white strips having numerous ovules borne on thick, fleshy, bifurcating parietal placenta, style single, stigma forked and epigynous nectary present.

Fruit	Special type of berry known as pepo, solitary or in clusters, globos, 2.5-3.5 cm diameter, at maturity it is red with white stripes having 5-7, compressed seeds.

Systematic Position

Flower present, Bitegmic ovule. Seed enclosed in ovary	Angiosperm
Tap root system, Two cotyledons, Reticulate veinated leaves, Pentamerous flowers	Dicotyledons
Herbaceous plants	Lignosae
Climbing by means of tendril , Leaves palmately and palminerved, Flower unisexual, monoecious, Sepal and petal -5, fuesd, Carpel – 3, syncarpous, ovary inferior, unilocular	Cucurbitales
Herbaceous climber , Male flowers in clusters of 2-8, arrange in cymose manner, along with female flowers in the same axil., Carpel – 3, syncarpous, ovary inferior, unilocular Epigynous nectary preent in female flower	Cucurbitaceae
Annual herb with palmately lobed leaves , Flowers unisexual, monoecious, pale yellow, Sepal, petal –(5) and stamen – 3, Carpel -3-, syncarpous, inferior ovary, Numerous ovules borne on massive, bifurcating parietal placenta. , Fruits solitary or in clusters, globose to elliptical at maturity it is red with white stripes. Seeds flat, triangular having deep scar on both sides.	*Diplocyclos palmatus* (L.) Jeffrey

Fig. 1: *Diplocyclos palmatus* (L.) Jeffrey: Plant

ISSN: 0976-7126
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Fig. 2: *Diplocyclos palmatus* (L.) Jeffrey: Ripe Fruits

Fig. 3: *Diplocyclos palmatus* (L.) Jeffrey: Seeds

ISSN: 0976-7126
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Fig. 4: *Diplocyclos palmatus* (L.) Jeffrey: Unripe Fruits

Fig. 5: *Diplocyclos palmatus* (L.) Jeffrey: Ripe Seeds

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Fig. 6: *Diplocyclos palmatus* (L.) Jeffrey: Fruits

Ethnomedicinal Importance

- The leaves of the plant are used to treat inflammation
- Tribal women have used the seeds for helping conception and prevent miscarriage.
- Traditional healers used of seeds once daily by women, in empty stomach for 1 to 2 months to beget a male child.
- Tribes worship this plant and they consider that, this herb is boon for the childless parents.
- Traditional healers suggest Shivalingi seeds in female infertility.
- The seeds of *Shivalingi* are potentially contraceptive.

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Cite this article as:
Dwivedi S., Sohani S., Akram M. and Dwivedi S.N. (2021). *Diplocyclos palmatus* L. Jeffrey (Shivalingi): Morphological features and Ethnomedicinal Importance, *Int. J. of Pharm. & Life Sci.,* 12(3):72-78.

Source of Support: Nil
Conflict of Interest: Not declared
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