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Diplocyclos palmatus (L.) Jeffrey: Morphological variations and medicinal values

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Abstract

The plant *Diplocyclos palmatus* (L.) Jeffrey is well known as Shivlingi. It is a seasonal climber plant which includes rich medicinal potentials. Current study is based on the morphological variations as well as the medicinal potential of Shivlingi. A Numerous seeds produced by the plant and are looking like Shivling so called Shivlingi also. It is also known as lollypop plant. The plant is found to be useful in several disorders.

Keywords: *Diplocyclos palmatus* (L.) jeffrey, shivlingi, climber, herb, medicinal plant

Introduction

Plants are performing their significant role in formation of biological diversity in certain ecological areas. It is based on the climatic condition and also is leading by the plant adaptability in specific natural habitat. Plant genes and environment both are leading factors for the appearance of any species in varied ecological habitat. It is variable in different ecological situations and is key components to making diversity of species. In term of life pattern, a growth behavior etc of the plants is also changeable and is differing between and within plant species. A facility needed for successful appearance as well as foe multiplication of the plants is provided by the local climates near the natural habitat of the plants which is supported by capability of the diverse plants to adapt in changeable climates. As all the species in nature are willing to sustain themselves in nature for long to long time for the same purpose. Plants are producing seeds which are differing in their size, shape, colour, weight etc. These are also showing variation in their dispersal pattern in nature.

In the presence of suitable climatic condition when a seed starts to germinate/grow it interacts with several factors like with water, temperature, light etc these are marked as abiotic environmental factors whereas some certain biotic factors also participating their significant role in development of the new individuals like their parental ones using their seeds. The degree of seed production and their seasonal growth is key factor which directly leading to development of plant community in specified ecological areas. Seeds are found to be best method for multiplication of varied plant species in nature. It is widely used as a plant propagules not only for multiplication but also it help further to protect and conserve the plant species. In nature a variety of plant species are capable to produce numerous seeds for the same purpose. Transfer of the seeds is also carried out by many biotic and abiotic agents in nature aimed for their species richness, transmission and for maintaining their existence in natural habitat.

There are several reasons which lead to loss of the plant species from their natural sites. Overexploitation, introduction of new species, climatic changes etc are directly affecting the species composition in nature. Among a wide plant community all the plants are not equally capable to produce such seeds in their life phages. The plants which cannot produce seeds are well adapted to regenerate their own individuals by potential application of their vegetative parts referred as vegetative mode of plant propagation. In this case plants vegetative parts are efficiently used for the same purpose.

There are several modifications in different vegetative plant parts like bulb, tuber, rhizome, corm etc. These modified structures of the plants are also performing as a major source of plant multiplication under the process of vegetative plant propagation. Both the methods of plant propagation support not only the plant multiplication but also in the process of their conservation in nature.

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Plants are marked for their utility in multifold directions such as for food, fodder, fuel, medicine etc.

Out of the mega plant diversity many are of a great significant in the term of their utility in treatment of certain disorders and are known as Medicinal and aromatic plants. Life pattern is variable for different plant species in nature and is determined by many factors and also supported by their genetic makeup.

Diplocyclos palmatus is a member of family Cucurbitaceae and the plant is annual in nature. Seeds germinating during of rainy season and gradually it is developing followed by the variation in their morphological structures as well as reproductive variations. In India the plant *Diplocyclos palmatus* is commonly growing and spreading in wild. The plant is further studied to achieve the goal.

Bhavani M. B., Leelavathi S. and Ismail Shareef M. 2013 ^[1] studied on Preliminary Phyto-chemical Investigation on A Few Cucurbitaceae Plants. Gupta P., Dwivedi S. and Wagh R. D. 2013 ^[2] analyzed Physicochemical Evaluation and Fluorescence Analysis of Stem and Leaves of *Diplocyclos palmatus* (L.) Jeffrey – Shivalingi. Tripathi J., Kumari R., Ashwlayan V. D., Bansal P. and Singh R. 2012 ^[7] studied on anti-diabetic activity of *Diplocyclos palmatus* Linn. in Streptozotocin-Induced Diabetic Mice. Vadnere G. P, Pathan A. R., Kulkarni B. U and Singhai A. K. 2013 recorded on *Diplocyclos palmatus*: A phyto-pharmacological review. Gowrikumar G. 1983 ^[5] find out *Diplocyclos palmatus* L: A new seed source of Punicic acid.

Kadam P. and Bodhankar S. L. 2013 ^[6] found Antiarthritic activity of ethanolic seed extracts of *Diplocyclos palmatus* (L.) C. Jeffrey in experimental animals. Gupta P. and Wagh R. D. 2014 ^[3] Reviewed on Morphology, Phyto-chemistry, Pharmacology and Folk-lore uses of *Diplocyclos palmatus* (L.) Jeffrey. Magdalita, P. M., Bayot, R. G. and Villegas, V. N. 1990 ^[8] studied on *Diplocyclos palmatus* L. Jeffrey: a new weed host of papaya ringspot virus.

Physicochemical and preliminary phytochemical studies on the fruits of "Shivalingi" [*Diplocyclos palmatus* (Linn.) Jeffrey] was made by Venkateshwarlu G., Shanta T. R., Shiddamallayya N., Ramarao V., Kishore K. R., Giri S. K., Sridhar B. N. and Pavan K. S. 2011 ^[10]. Tripathi, J., Reena K., Vrish D. A., Bansal P. and Singh R. 2012 ^[9] recorded on anti-diabetic activity of *Diplocyclos palmatus* Linn. in streptozotocin-induced diabetic mice.

Material and Methods

Proper assessment on the plant *Diplocyclos palmatus* (L.) Jeffrey has been made for their morphological variations. Images were taken and are arranged in appendix. Medicinal qualities were recorded based on available literatures.

Result and Discussions

Diplocyclos palmatus (L.) Jeffrey is also called Lollypop plant, Striped cucumber in English. In Hindi it is referred as Shivlingi. It is also known as Lingini, Shivalingi, Chitraphalaa in ayurvedic. The plant is a herbaceous climber in nature with smooth stem. Old stem becomes thick and branched, slender, grooved and glabrous. Leaves of the plant are ovate, 3.5-15 x 4-15.5 cm, palmately lobed. Roots are tuberous. Stems are slender, glabrous type. Tendrils present. Flowering/Fruiting season of this plant is from August to December. The Plant is monoecious. Small male and female flowers developing together together in axils. Stamens are 3 and free, inserted on calyx tube, filaments short; anthers ovoid, one 1 celled, other 2 celled, anther cells linear, slightly flexuous. Female flowers staminodes 3, ovary ovoid, with 3 placentas. Fruits are ovoid. Flowers are small, milky-white or

yellowish in colour. Flowers developing in clusters. Fruit is solitary, or in clusters of 5-8 in number, rounded 1.5 - 2.5 cm. Un-ripened fruits are green and after ripening it converted in to red with longitudinal white stripes. It is looking like lollypop. Fruits are sub sessile globose and Smooth with presence of vertical lines of white in colour. Calyx glabrous and are around 2.5 mm long. Corolla 3 - 4 mm long. Each ripened seeds include Seeds that are in number 6-8 based on fruit size. Seeds are 5 -6 mm long, yellowish brown in colour. Seeds small and are looking like Shiv ling so called Shivlingi. The plant is propagated by its seeds.

Medicinal Uses

The plant is found suitable for treating diverse disorders following varied preparations. The plant is registered as their multifold utility among the society. It is potentially applied as several purposes like for Anti inflammation (Leaf) Antiasthmatic (Root), Analgesic (Stem and Leaf), Antimicrobial (Stem and Leaf), Antidotes (Root, Leaf) etc. The fruits and leaves are used to cure stomachache, stems are used as an expectorant, fruits are used as a laxative and seeds are febrifuge. The aerial plant parts are potentially utilized for several purposes such as for Aphrodisiac and tonic, Constipation, Stomach problem, Diarrhoea, Malaria fever etc.

Conclusions

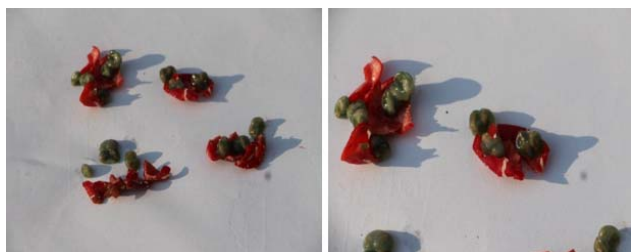
The plant *Diplocyclos palmatus* (L.) Jeffrey including enough potential applicable for efficient utility for several disorders in human community. Multifold medicinal application is reported by many researchers. The plant registered well regarding their multiplication using their seeds in the presence of favourable environmental conditions.

A numerous seeds are efficiently produced by the plant per year during the ending of their life phase indicating by the yellowing and drying of leaf. Many fruits developed which colour changes from green to red after their maturation. Focusing on the points of their medicinal application it should be protect in all possible manners.

Diplocyclos palmatus (L.) Jeffrey – Different stages



Diplocyclos palmatus (L.) Jeffrey: Young Plant with Flower and Fruits



Diplocyclos palmatus (L.) Jeffrey: Ripened Fruits



Diplocyclos palmatus (L.) Jeffrey: Seeds

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