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PERISTYLUS GOODYEROIDES (D. DON) LINDL. (ORCHIDACEAE): A NEW ADDITION TO THE FLORA OF RAJASTHAN

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ABSTRACT

Peristylus goodyeroides (D. Don) Lindl. has been reported for the first time in the forest of Phulwari- ki- Nal Wildlife Sanctuary in the state of Rajasthan. A brief description, habitat notes, photographs and taxonomic keys are provided.

Key words: *Peristylus goodyeroides,* Phulwari- ki- Nal Wildlife Sanctuary, Udaipur, Rajasthan.

INTRODUCTION

Till 1991, six genera of orchids namely, *Aerides, Epipactis, Eulophia, Habenaria, Vanda* and *Zeuxine* have been reported from Rajasthan (Shetty & Singh 1991). During 2007, three more genera viz., *Peristylus, Nervilia* and *Acampe* were reported from Phulwari- Ki- Nal and Sitamata Wildlife Sanctuaries, located in southern Rajasthan, totaling the number of orchid genera to nine in the state (Sharma 2007). *Peristylus constrictus* under the genus *Peristylus* was reported for the first time in 2007 in Rajasthan (Sharma 2007) and details were published later in scientific literature (Sharma & Katewa 2008, Sharma and Kotia 2008, Sharma 2011). During the subsequent years two more species of the genus *Peristylus* were recorded from Rajasthan. Tiwari et al. (2009) reported *P. stocksii* from Mount Abu Sanctuary in Sirohi District and Kotiya et al. (2020) reported *P. lawii* from Phulwari-ki-Nal Sanctuary in Udaipur district. Therefore, as many as three species of *Peristylus* genus have been recorded from Rajasthan so far. In this communication we report the fourth species of *Peristylus* genus from the state of Rajasthan and the third one from the Phulwari- Ki – Nal Wildlife Sanctuary in particular.

MATERIAL AND METHODS

Recently, on July 24th, 2022 we were travelling to the Vanaz forest area of Gujarat state through the Lathuni- Ambavi- Daiya road, which passes through the Phulwari- Ki- Nal Wildlife Sanctuary. The road passes through a narrow valley with dense old *Madhuca indica* grove recorded as the largest in Rajasthan. This grove spreads from KatawaliJer (Dharawan B forest block) to Daiya and Kawel covering a stretch of about 10km and a width varying from 0.1km to 0.5km. Such Mahuwa groves are locally called *doran*. Towards the eastern side of the road is the Daiya Reserve Forest Block and on its western side is the Ambasa Reserve Forest Block, both running parallel to the road. Both forest blocks have 5A/C_{1a} – Very dry teak bearing forest towards their southern side while 5B/C_2 northern dry mixed deciduous forest towards their northern side.

While moving on the road, we identified four terrestrial orchids below the canopy of *Mahuwa* grove namely, *Nervilia aragoana, Peristylus constrictus, P. lawii* and *P. goodyeroides*. Three species of epiphytic orchids were also present on the thick boughs of the *Madhuca indica* trees viz., *Vanda tessellata, Acampe praemorsa* and *Aerides maculossum*. All the species were growing luxuriantly and were visible conspicuously. The soil of the site was deep, loamy to gravelly- loamy, rich in humus and litter. The canopy density of *Madhuca indica* trees varied from 0.7 to 1.0. Crown contact to crown overlapping stage was present in most parts of the Mahuwa grove. Tribal houses are scattered amidst the Mahuwa grove.

P. goodyeroides plants at flowering stage were observed minutely and the species was identified and confirmed with the help of various flora (Almeida 2009, Bose et al. 1999, Joseph 1987, Mukherjee 1984, Saxena and Brahman 1995, Shah 1978).

Studies on various flora of the state revealed that *P. goodyeroides* is a hitherto unrecorded orchid species from Rajasthan and hence worth recording (Bhandari 1990, Kotiya et al. 2020, Prasad et al. 1996, Sharma and Tiagi 1979, Sharma 2002, Shetty and Pandey 1983,Shetty and Singh 1991, Singh and Shrivastva 2007, Singh 1993, Tiagi and Aery 2007, Yadav and Meena 2011). The specimen was deposited in the PG Botany Department, Vidhya Bhawan Rural Society, Udaipur.

Taxonomic Description

Peristylus goodyeroides (D. Don) Lindl. Gen. Sp. Orchid. Pl. 299.1835; Fischer in Gamble, Fl. Madras 3: 1475 (1030).1928; Sant. & Kapadia, Orch. Bombay 52. 1966.

Habenaria goodyeroides D. Don, Prod. 25. 1825; Hook. f. Fl. Brit. India 6: 161. 1890 (excl. syn. *A. grandis*); King &Pantle. Ann. Roy. Bot. Gard. (Calcutta) 8:326. t. 430. 1898, Duthie, Ann. Roy. Bot. Gard. (Calcutta) 9:192. 1906; Haines, Bot. Bihar & Orissa 207. 1950.

H. goodyeroides D. Don var. *affinis* (D. Don) King &Pantl. Ann. Roy. Bot. Gard. (Calcutta) 8:327. t. 430 (bis). 1898; Duthie, Ann. Roy. Bot. Gard. (Calcutta) 9:193. 1906.

H. affinis D. Don, Prod. 25. 1825.

Tuberous herb, *stem* upto 30-48cm (with inflorescence), stout,Tubers 1-2, oblong, stem green above ground, diameter upto 8mm above ground, with 3-5 sheaths below the cluster of leaves. Sheaths large, tubular with broad, oblique mouth; *Leaves* 4, elliptic, 15-25x5-6cm, shortly acute- tipped, sessile or scarcely petiolate. Leaves occupying 3.0 -5.0cm and clustered more or less into the middle of the stem in plants with flowering scape. Length of the scape is more than the part of the stem present below the upper most leaf. Inflorescence long, terminal spike with few sterile bracts, may grow up to 35cm. *Flowers* many, small, sessile, bracteate, dull whitish to white and fragrant.Bracts longer than flowers, persistent. Sepals and petals vary in measurements in the same inflorescence. Dorsal sepal *ca* 4.5 x 3mm, ovate- oblong, obtuse, 1- nerved, nerve extends at tip into a mucro or not. Lateral sepals *ca* 5x2mm, oblong, oblique at base, obtuse at tip with a sub-terminal mucro on the dorsal side. Petals gibbously ovate; lip tri-lobed, spur small, green, bulbous. *Capsules* stout, oblong or fusiform, 1cm long (Fig. 1-3).

The study area is prone to grazing and trampling resulting in heavy toll of terrestrial orchids. Many orchids were seen grazed and trampled in the area along the road. Such activities should be strictly checked. Soil digging is also a problem in few pockets and this activity also needs a proper check.

Fig.1. A patch of *Peristylus goodyeroides* growing below the crown of Mahuwa trees.

Fig. 2. Close up of a *P. goodyeroides* in flowering stage.

Fig. 3. Close up of a piece of inflorescence of *P.goodyeroides.*

Flowering and fruiting: July – August.

Habitat: Terrestrial, grows below the dense and old crop of *Madhuca indica* in deciduous forests. This species is confined to the foothills where soil deposition is good and gentle slope is available. Mahuwa *dorans* are an important micro habitat for this species in Phulwari- ki- Nal Sanctuary. Many *dorans* are present in Phulwari- ki – Nal and Sitamata Wildlife Sanctuaries. These *dorans* are also very important for the survival and existence of the Indian Giant Flying Squirrel (*Petaurista philippensis*) as well as epiphytic orchids (Sharma 2007). There are also many terrestrial orchids and other forms of tuberous plants growing below the canopy of the *dorans.*

Distribution: India:Himachal Pradesh, Uttar Pradesh, Andhra Pradesh, Gujarat, Sikkim, Meghalaya, Assam, Nagaland, Manipur, West Bengal, Bihar, Kerala, Karnataka, Maharashtra and Andaman. Nepal, Bhutan, Sri Lanka, Bangladesh, Myanmar, China, Philippines, Malaysia, Thailand, Indonesia and New Guinea.

Specimen examined: India**,** Rajasthan, Udaipur District, Jhadol Tehsil, Phulwari-ki-Nal Wildlife Sanctuary (Fig. 4), 24/07/2022, S. K. Sharma & D. Khandal, EA 681, PG Botany Department, Vidhya Bhawan Rural Society, Udaipur.

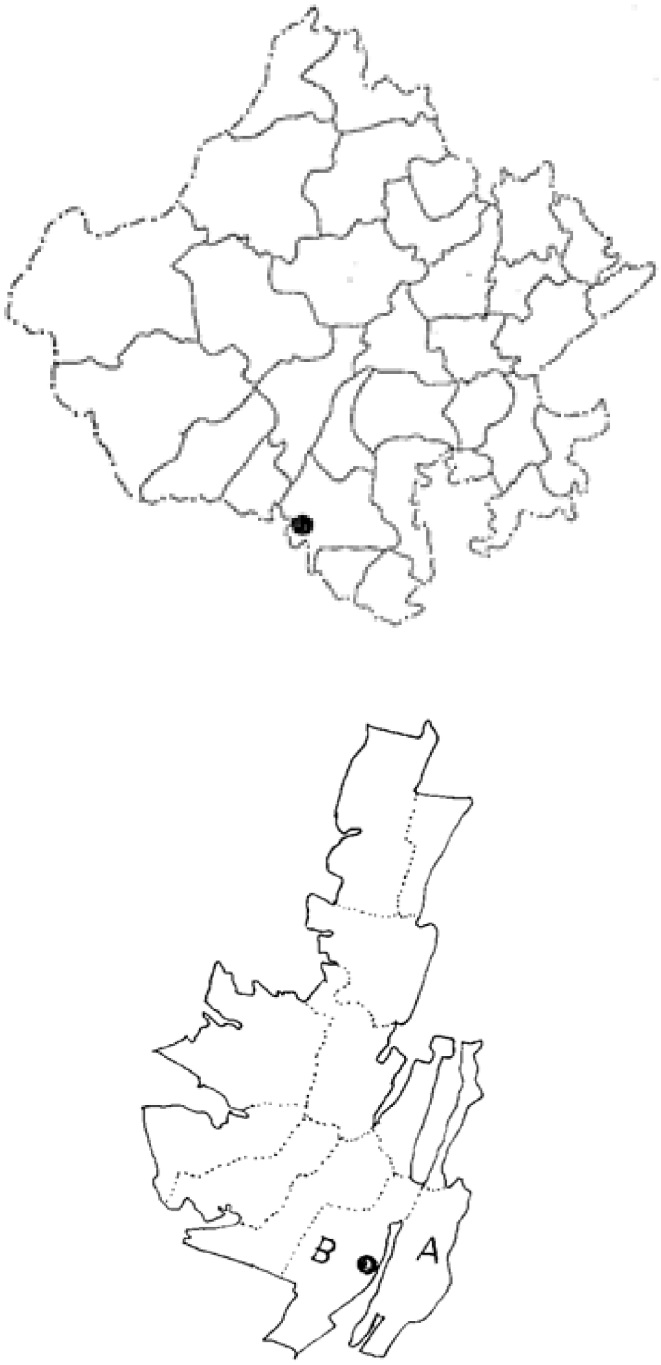

Fig. 4: Location of Phulwari –ki- Nal Wildlife Sanctuary in Udaipur District of Rajasthan (above) and collection sites of *Peristylus goodyeroides* in the Sanctuary (below) (A= Daiya Forest Block, B = Ambasa Forest Block).

Taxonomic keys for the species confined to Rajasthan: Now four species under *Peristylus* genus are known to Rajasthan viz., *P.constrictus, P. goodyeroides, P. lawii* and *P. stocksii.* To identify these species, taxonomic keys are provided below:

1a. Leaves with wavy margins; flowers dull green or yellowish- green.....*P. stocksii*

1b. Leaves without wavy margins; flowers white or creamy-white or pale-yellow

2a. Flowers conspicuous; lateral lobs of lip of the flowers falcate or somewhat diverging at their tip.....*P. constrictus*

2b. Flowers not conspicuous; lateral lobs of lip of the flowers non-falcate and not diverging at their tips

3a. Plants below 30cm tall; leaves narrowly oblong- elliptic, 1.8-8.6x0.6-1.8cm; lateral sepals without mucro.....*P. lawii*

3b. Plants more than 30cm tall; leaves broadly ovate, elliptic, obovate, large, 7.0-19.0x4.0-6.8cm; lateral sepals witha sub-terminal mucro.....*P. goodyeroides*

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