



JOURNAL OF BIODIVERSITY AND CONSERVATION

Host plants of orchid species: a conservation approach

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ARTICLE INFO

Article History

Received: 9 December 2018

Received in revised form: 24 December 2018

Accepted: 24 December 2018

Keywords: Conservation, restoration, host trees,
Orchidaceae

ABSTRACT

Orchids are the most beautiful flowering plants in the plant kingdom. They are mostly epiphytic and terrestrial. Epiphytic orchids are host-specific. Urbanisation and deforestation are going on everywhere resulting in cutting off the host trees of many orchid species, leading to a loss of wild orchid diversity. Keeping this in view, an attempt has been made to enumerate host trees; a survey was made in Odisha state and nearby areas of Bengaluru. Results revealed that about 10 commonly available wild orchids have four specific host trees. The enumerated trees are important for orchid conservation. The paper suggests that the host trees should be restored to conserve the wild orchid species.

INTRODUCTION

The family Orchidaceae includes a wide variety of flowering plants with frequently vibrant and fragrant blossoms (Lehnebach and Robertson 2004). Orchids may be

easily differentiated from other plants. Orchid has bilateral symmetry of flower (zygomorphism), several resupinate blossoms, the labellum, which is almost invariably a highly modified petal, fused

stamens and carpels, and incredibly tiny seeds (Davenport and Kohanzadeh 1982). In the tropics and subtropics, majority of the orchids are perennial epiphytes which grow attached to trees or bushes. The bulk of the temperate orchids and other terrestrial orchid species can be found in habitats like meadows and woods (Adhikari et al. 2015). All orchids are myco-heterotrophic during germination and seedling growth, although a small number of species are achlorophyllous, holoparasites, and even photosynthetic, mature plants can continue to absorb carbon from their mycorrhizal fungi (Rasmussen et al. 2015). Orchids depend on the fungus for nutrition, carbohydrates, and minerals, the symbiosis is often maintained throughout the orchid's lifetime (Yamamoto et al. 2017). Orchids are utilised for food, medicine, and ornamental purposes in addition to being ecological indicators (Swain et al. 2019). The above facts indicate that the orchids are important and their conservation is needed. Most of orchids are epiphytic and terrestrial in nature. Some epiphytic orchids are host specific in wild. Therefore, the availability of host trees is important for maintaining their diversity. Due to deforestation and other anthropogenic activities, host trees are disappearing which is leading to biodiversity loss. Therefore, the present

study is designed to enumerate the host trees of some common wild orchid species of India.

METHODOLOGY

A survey was made in 2017-2018 in different parts of Odisha and nearby Bengaluru and host trees of some common wild orchids were listed. Enumerated host trees were identified using published literature. Results are tabulated and presented here with photographs.

RESULTS AND DISCUSSION

The survey results revealed that 10 common native orchid species of India select *Shorea robusta*, *Diospyros melanoxylon*, *Madhuca longifolia* and *Schleichera oleosa* as host trees. During field survey, it was noticed that all the enumerated host trees have *Vanda tessellata*. This availability proved that *Vanda tessellata* tolerates more stress and can be used for restoration in different landscapes. Details are listed in Table 1.

Less reports are available on the host-orchid interactions. Therefore, this communication will be useful.

CONCLUSION

The present study highlights the importance of host tree when whole world is facing biodiversity loss problems. The

enumerated species could be used to restore the orchid species of our country.

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Table 1: Host trees of some common orchid species of India

Orchids	Host plants
<i>Acampe praemorsa</i>	<i>Shorea robusta</i> , <i>Diospyros melanoxylon</i>
<i>Aerides multiflora</i>	<i>Shorea robusta</i> , <i>Madhuca longifolia</i> , <i>Diospyros melanoxylon</i>
<i>Aerides odorata</i> (Plate 2)	<i>Shorea robusta</i>
<i>Bulbophyllum crassipes</i> (Plate 3)	<i>Shorea robusta</i>
<i>Cymbidium aloifolium</i>	<i>Shorea robusta</i> , <i>Diospyros melanoxylon</i>
<i>Dendrobium herbaceum</i> (Plate 4)	<i>Shorea robusta</i>
<i>Papilionanthe teres</i>	<i>Shorea robusta</i>
<i>Rhynchostylis retusa</i> (Plate 1)	<i>Diospyros melanoxylon</i>
<i>Vanda tessellata</i>	<i>Shorea robusta</i> , <i>Madhuca longifolia</i> , <i>Diospyros melanoxylon</i> , <i>Schleichera oleosa</i>
<i>Vanda testacea</i>	<i>Shorea robusta</i> , <i>Schleichera oleosa</i> , <i>Madhuca longifolia</i>



Plate 1: *Rhynchostylis retusa* (Fox tail orchid) on *Madhuca longifolia* (Mahula)



Plate 2: *Aerides odorata* on *Madhuca longifolia* (Mahula)



Plate 3: *Bulbophyllum crassipes* on *Shorea robusta* (Sal)



Plate 4: *Dendrobium herbaceum* on *Shorea robusta* (Sal)