International Journal of Interdisciplinary Innovative Research &Development (IJIIRD)
ISSN: 2456-236X
Vol. **07** Issue **01** | **2022**

A New Angiopsermic Host of *Dendrophthoe falcata* (Lf) Ettingsh (Loranthaceae) From Katepurna Wildlife Sanctuary, Akola (M.S)

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ABSTRACT

Dendrophthoe falcata (L.f.) Ettingsh is a partial stem parasite which occurs on number of host plants belonging to different families. Present paper deals with the enumeration of new host species of Dendrophthoe falcata (L.f.) Ettingsh which were observed during the rigorous survey. The new hosts reported is Boswellia serrata Roxb. ex. Coleb from Katepurna wildlife sanctuary Akola.
KEYWORDS: Partial stem parasite, *Dendrophthoe falcata* (L. f.) Ettingsh , New host species, etc.

1. INTRODUCTION

Katepurna Wildlife Sanctuary spread over an area of 73.69 sq.km. and the sanctuary derives its name from the Katepurna River, which flows south to Northward almost through the central part of the sanctuary. This sanctuary area is a catchment of Katepurna reservoir and it forms aquatic habitat for many floral and faunal species. The landscape is undulating and offer interesting contrast between the plateau and the plains. 50 tree species, 23 herb and shrub species, 8 climber species, 18 grass species under floral diversity.(Kamble et al 1988). The main species are Ain, Dhawada, Kalamb, Salai, Haldu, Medshing, Tendu etc. Trees of Vad, Umber, Arjun, Kalamb are found in the moist areas. The Sanctuary attracts large number of winter migratory birds. The administration and management of this sanctuary comes under the control of Divisional Forest Officer (Wildlife), Akola.

Honey suckle mistletoe *Dendrophthoe falcata* (L.f) Ettingsh (Loranthaceae) syn *Loranthus longiflorus* Desr is the most common parasitic plant of trees in India. *D. falcata* is a strongly branched and glabrous shrub. The stem is thick, erect or flattened at the nodes and appears to arise in clusters at the point of attack. This clusters form a dense and bushy growth, which can be easily spotted on the trees. Sometimes, the parasite, instead of confining its attack to one point, produces a creeping branch, which grows closely along the host stem and forms haustoria at intervals. The flowers are borne in clusters. They are long and tubular, usually greenish white or red in colour according to species. The fruit is fleshy and contains a solitary seed. It is sweet and eaten by birds, cattle and other animals.

The flowers of *D. falcata* are pollinated by the Birds. The flower has a pollination mechanism that causes pollen to explosively spray on the plumage of the visiting bird. The seeds are also dispersed mainly by the frugivorous birds. The berries of *D. falcata* are usually swallowed whole and the seeds are voided after a rapid passage through their gut in about 3-4 min (Murphy et al 1993). The voided seed has a sticky coating and the bird applies its vent to the surface of a suitable perch and may turn around so as to get rid of the seed, which then sticks onto the branch where it may subsequently germinate (Raju and Rao 2004).

The known host range of *D. falcata* is the second largest among all angiosperms, following *Viscum album* (452, Barney et al 1998). Hawksworth et al (1993) enumerated 401 host species (227 genera, 77 families) of *D. falcata*. Subsequent addition of hosts observed on host plants like *Chloroxylon swetenia, Madhuca longifolia, Anogissus latifolia* and rarely on other tree species like *Wrightia tinctoria, Terminalia bellerica, Buchanania lanzan*, from melghat by Rothe et al (2011). These host plants include many economically important.

2. MATERIALS AND METHODS

A complete survey of Katepurna wildlife region for the exploration of this parasite on the tree plants was done in last two years. Data recorded and photographs taken at flowering stage. *Dendrophthoe falcata* (L.f) Ettingsh with its different hosts was collected along with flowers and fruiting conditions. The collected material is dried and herbarium specimens are prepared and deposited in Department of Botany, Shri Shivaji College of Arts, Commerce and Science, Akola. This is the new report about the addition of host plants of *Dendrophthoe falcata* (L.f) Ettingsh on *Boswellia se*rrata Roxb. ex. Coleb Akola region. The plant material and its host specimens was

identified by using standard floras like Naik (1998), Singh and Karthikeyan (2000), Singh et al. (2001). The voucher specimens were preserved in the institute herbarium library.

3. OBSERVATION AND RESULT

Present investigation is to explore the host species of *Dendrophthoe falcata* (L.f) Ettingsh from Katepurna wild life sanctuary from Akola region. The parasitism of *Dendrophthoe falcata*, (L.f) Ettingsh a leafy parasite of Loranthaceae family has been done by various workers from India (Saxena, 1971). They found that *Dendrophthoe falcata* (L.f) Ettingsh shows diffuse type of parasitism and occur on a number of different hosts belonging to Angiosperms. The principle hosts of *Dendrophthoe falcata* (L.f) Ettingsh vary in different parts of the country e.g. *Diospyrous melanoxylon*, *Mangifera indica*, etc. Previous record of the hosts of *Dendrophthoe falcata* (L.f) Ettingsh from the East Melghat forest was 19 (Rothe et al., 2011). At different altitudes diversity of host species of *Dendrophthoe falcata* (L.f) Ettingsh varies in the tropical dry deciduous forest. At 1552-2647 ft. Altitude the occurrence and distribution of *Dendrophthoe falcata* (L.f) Ettingsh is common, The previously recorded host species of *Dendrophthoe falcata* were *Albizzia lebbeck, Anogeissus latifolia, Boswellia serrata, Buchanania lanzan, Cassia fistula, Chloroxylon swetenia, Diospyrous melanoxylon, Lagerstroemia parviflora, Madhuca longifolia, Mallotus philippensis, Mangifera indica, Schrebera sweteniodes, Terminalia bellerica, Terminalia chebula, Terminalia tomentosa, Toona ciliata, Wrightia tinctoria*, etc. In the present paper, details of new host species of *Dendrophthoe falcata* have been enumerated. (Table No. 1). The size of gall formed at the junction of host and parasite was (10 × 8cm wide). The wilt symptom was expressed and infected twigs were dried. During survey one host plant of D. falcata was recorded.

Table 1. Parasitism of *Dendrophthoe falcata* (L.f) Ettingsh on *Boswellia serrata* Roxb. ex. Coleb.

Host species	Total	Infected D. falcata per host	Size of gall (cm)	Wilted host
Boswellia serrata Roxb. ex. Coleb (Salai)	13	6	10 × 8	1

Photo: *D. falcata* on Boswellia serrata Roxb. ex. Coleb

4. DISCUSSION

Mistletoes are the taxonomically diverse group of parasitic plants found in fire families Loranthaceae, Viscaceae, Misodendraceae, Eremolepidaceae and Santalaceae (Restrepoet. al., 2002). Most of them are stem partial parasite capable of photosynthesis but dependent on their host for water. One of the most interesting aspects of mistletoes system is the relationship between the parasites and their hosts and disperser**.**

The point, at which the haustorium penetrates, often swells to form a gall. These galls vary in size according to the age of the parasite. The host branches infected with D. falcata show a gradual reduction in growth and diameter. This mistletoe does not have its own root system and is dependent on its host for water and minerals. Nutrient dynamics have shown a higher level of N, P, K, Mg and Na in the leaves in the mistletoe than the leaves of uninfected and infected hosts which may be due to differential translocation of elements within the host phloem (Karunaichamy et al 1999).

During survey it was noted that there is a vast diversity in occurrence of mistletoes as a semi partial parasite on different host plants. Probably this is due to continuous dispersing of seeds by the number of birds. It was also observed that when in and around the areas no availability of principles host then the plants occurs as parasite on secondary host and the minor host plants. The occurrence of Mistletoes as a parasite is common in certain bits of forest they are consider as a principle host and at some where their occurrence is on the substitute host with rare

are consider as secondary host, while the bushy, shrubby or stunted host plants considered as the minor host. In all, way of infection is same that they are occurring on the stem branches, where the seeds get attached or fall.
Mistletoes are aerial partial stem parasite found on trees. They have unique ecological arrangements with the host plants, they parasitize and the dispersal of seed take place by birds, but the mistletoes often detrimental to their hosts and can even kill them. Co-evolution has led to resistance mechanism in host and specialization by mistletoes. Birds acts as disease vector for the mistletoes, host in a mutuality relationship, to disperse their seeds. Mistletoes attract and manipulate the bird vector in ways that are typical of both plants and parasites. Mistletoes are important elements on the landscape that influence the spatial distribution and complex interaction make their biology to understand and their management. Due to selection and occurrence of mistletoes on variety of host, number of medicinal and economically important plants and their branches are weakened. Spreading of mistletoes in the Katepurna wildlife sanctuary increasing year after year that will dangerous for richness of forest flora.

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