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Host Variability of *Drynaria quercifolia* (L.) J.Sm. in Malnad Region, Karnataka, India

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Abstract: ***Epiphytic ferns were of interest for pteridologist in their diverse idioadaptations to withstand unfavorable conditions such as drought and substrate deficiency. Among many species, Drynaria quercifolia is one of the important fern the most serious threat for their life due to deforestation. In this aspect, tentative assessment of host variability and their composition were carried out in study area. The present study indicated that 11 species were reported as host species of D. quercifolia. Among these species Mangifera indica showed higher density of D. quercifolia compare to other 10 tree species. The D. quercifolia investigated here exhibit variation in their host with different tree species in Malnad region. Present data helpful in further research on D. quercifolia and future conservation steps.***

Keywords: Host Variability, *Drynaria quercifolia,* Karnataka

1. Introduction

Epiphytes are plants that never root in soil and completes its entire life cycle anchored to a host plants with receives mineral nutrients only from non-terrestrial sources. Epiphytic plants attached to their hosts high in the canopy have an advantage over herbs restricted to the ground where there is less light and herbivores may be more active. Epiphytes can have a significant affect on the microenvironment of their host and of ecosystems where they are abundant, as they hold water in the canopy and decrease water input to the soil. The second largest groups are the leptosporangiate system with about 2800 species (10% epiphytes). In fact, about one third of all ferns are epiphytes (Hogan, 2010).

Among epiphytic ferns, *Drynaria quercifolia* (L.) J.Sm. commonly know as the oakleaf fern, a species of basket fern in the family Polypodiaceae. *Drynaria quercifolia* is an important medicinal plant used in traditional medicinal system by different group of people to treat various kinds of health problems. In Ayurvedic system of medicine, it is called 'Ashwakatri' and it is used as pectoral, expectorant and anthelmintic agent. It is also used in the treatment of chest disease, cough, hectic fever, dyspepsia, loss of appetite, chronic jaundice and cutaneous affections (Nayar, 1959). The ethnomedicine uses of the fern *D. quercifolia* have been pharmacologically confirmed by several workers. Antibacterial and antidermatophytic (Ramesh *et al.,* 2001), anthelmintic activity, antipyretic activity, (Khan *et al.,* 2009), Anti-inflammatory and analgesic effects (Vankar, 2008). *Drynaria quercifolia* (L.) J.Sm. (Chandra and Kaur, 1987; Manickam and Irudayaraj, 1992; Nayar and Geevarghese, 1993; Rajagopal and Bhat, 1998; Chandra, 2007) is distributed in Sikkim, West Bengal, Manipur, Meghalaya, Assam, Karnataka (Ashwini and Parashurama, 2014) and Tamilu Nadu. The present investigation was aimed to document the host variability of *D. quercifolia* in Sagara taluk of Malnad region, Karnataka.

2. Materials and Methods

Several field trips were conducted in 2014 to certain areas of Sagara taluk of Shimoga district, Karnataka to survey the pteridophytic flora. Data on *D. quercifolia* in different trees were collected and analyzed through statistical methods (Shukla, 2001; Tuomisto 2000; Deepa *et al.,* 2012). Density is an expression of the numerical strength of a *D. quercifolia* where the total number of individuals in all the transects is divided by the total number of transects studied. Diagnostic features of all the tree species were studied and relevant field notes were made on fresh plant species. Host tree species were identified by referring to available floras. Flowering twigs were collected and brought to the laboratory and identified using standard identification manuals and by comparing Herbarium – Flora of the presidency of Madras, Flora of Chickmagalore district, Flora of Shimoga district and Hassan flora (Gamble, 1995, Yoganarasimhan *et al.*, 1982, Ramaswamy *et al.*, 2001, Saldana and Nicolson, 1976). Survey was carried out using standard method in different locations of study site. Vegetation zones and plant composition are important criteria to use when dividing a landscape for sampling.

3. Results and Discussion

The identification of *Drynaria quercifolia* confirmed by characters such as Rhizome 2 cm thick, the younger portions densely covered with dark brown scales. Scales of about 2 cm long, base peltate, narrowing to the apex and edge finely toothed. Nest fronds to 40 x 30 cm, lobed with the lobes broad and rounded. Foliage fronds with stipe of about 30 cm long, lamina to 100 x 40 cm, lobes to about 1 cm from the midrib and oblique. Sori in a regular row on each side of the main vein, round and 2 mm wide (Deepa *et al.,* 2012).

The present study indicated that 11 tree species were reported as host species of *D. quercifolia*. Among these species *Mangifera indica* L. showed higher population density of *D. quercifolia*, followed by *Ficus benghalensis* L. *Artocarpus heterophyllus* Lam., *Ficus glomerata* Roxb.,

Vateria indica L., *Terminalia arjuna* (Roxb. Ex DC.) Wight & Arn., *Syuzygium cumini* (L.) Skeels, *Xylia xylocarpa* (Roxb.) Taubert, *Lagestroemia lanceolata* Wall.ex C.B. Clarke, *Areca catechu* L. *and Aalbizia saman F.Muell.* Moraceae was representing dominant family (Table.1) including three species such as *F.benghalensis*, *A.heterophyllus* and *F.glomerata*. The remaining families consist of one host tree species of *D. quercifolia* each. The larger total area of *Mangifera indica* bark surface that Drynaria occupy allows a site to supporting more density compare to other hosts. The *D. quercifolia* investigated here exhibit variation in their host with different tree species in Malnad region. Present study helpful in drawing the conclusion about ecological status of *D. quercifolia* with further research and future conservation strategies.

Table 1: Host and frequency of *Drynaria quercifolia* in Malnad region, Karnataka, India

Sl. No	Host Name	Family	Status of *Drynaria quercifolia* (L.) J.Sm.
1	*Areca catechu* L.	Araceae	+
2	*Artocarpus heterophyllus* Lam.	Moraceae	+++
3	*Ficus benghalensis* L.	Moraceae	+++
4	*Ficus glomerata* Roxb.	Moraceae	+++
5	*Lagestroemia lanceolata* Wall.ex C.B. Clarke	Lythraceae	+
6	*Mangifera indica* L.	Anacardiaceae	++++
7	*Syuzygium cumini* (L.) Skeels	Myrtaceae	++
8	*Terminalia arjuna* (Roxb. Ex DC.) Wight & Arn	Combretaceae	++
9	*Vateria indica* L.	Dipterocarpaceae	++
10	*Xylia xylocarpa* (Roxb.) Taubert	Mimoaceae	++
11	*Aalbizia saman F.Muell.*	Fabaceae	++

Note: +: Less frequent; ++: Frequent; +++: Abundant; ++++: More Abundant


1. Aalbizia saman


2. Ficus benghalensis


3.Artocarpus heterophyllus


4. Vateria indica

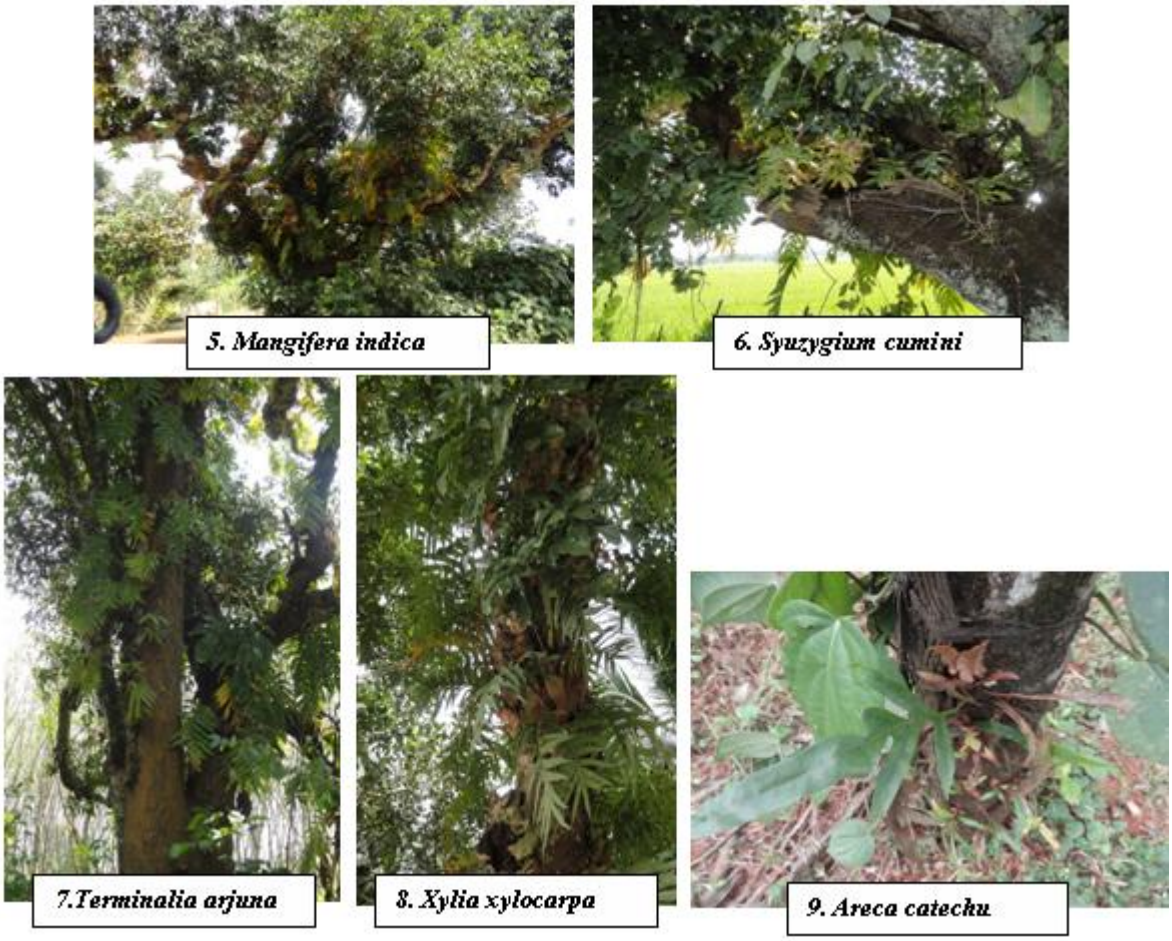

Figure 1: Growth of Drynaria quercifolia on different hos species in Malnad Region, Karnataka, India

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