



Study of *Dryopteris* (*Nephrodium filix*), Male Fern from Melghat Tiger Reserve, Maharashtra State

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Abstract

Melghat forest has biodiversity in flora and fauna. Melghat means meeting of ghats. The Pteridophytes formed a dominant part of Earth's vegetation in the historic past (280-230 million years ago). Melghat lies on the southern shoots of the Satpuda range of hills. This part of Satpuda is known as Melghat; consists of succession of hill and vallies. Rare and endemic flora of North, East and Western Ghats are also found here. The entire area of the Melghat is covered by the forest of the "Dry deciduous Teak Forest." The forest of Melghat is dry tropical forest. *Tectona grandis* is the most important and dominant species. The environment of Melghat forest is favourable for the flourishes of Pteridophytes well.

Key words- *Pteridophytes, Melghat, forest, Nephrolipis, Athyrium.*

Introduction -

Melghat means meeting of ghats. Pteridophytes formed a dominant part of Earth's vegetation in the historic past (280-230 million years ago). In the present day flora, excluding the non vascular plants, they rank only next to the spermatophytes. The present day fern have managed to conserve the former diversity and glory of their ancestors. The Melghat forest composed of Gugamal National Park (core area) with 361.28sq.km.area, Melghat Sanctuary (Buffer and tourism area) with 788.75sq.km. area and Multiple use area (Reserve forest) with 526.90 sq.km.area.

The geological formation represented in the Melghat Forest is the Deccan trap. The annual rain fall varies from place to place within short distances, with the change in altitude and aspects. The lowest rainfall is 964.3mm and highest rainfall is 1458.4 mm. The moisture percentage is high which is favourable for pteridophytes. The relative humidity in Melghat forest varies from 63.25-64.0. In such a favourable condition, *Dryopteris* flourishes very well. *Dryopteris* is also known as Male Fern.



Materials and Methods :

Pteridophytes formed a dominant part of earth vegetation in the historic past. The pteridophytes have a distinct charm and physiognomy to the landscap. The Melghat forest Tropical Dry deciduous Forest has high and low elevations of Valleys and diverse topography. The high altitude with heavy rain fall, high moisture, humidity, minimum moderate temperature, waterfalls, moist rocks and humus soil.

The plant specimens of *Dryopteris* were collected in every stage of their growth and habitats and reproduction from different localities of Melghat Forest area. A single specimen with rhizoids, rhizome, frond or tropophyll and sporophyll or sporocarp collected at maturity period of plants, which is necessary for identification. Also visited the different localities and habitats of *Dryopteris* for several times in a season. The plants are pressed and collected in collection bottle also and in bottle 4% formaline is used as a preservative.

The plants specimen pressed in blotting paper and are frequently changed after a fixed period. And then the specimen are mounted on herbarium sheets. The morphotaxonomical work or description of each taxon was done and identified with the consultation of different Pteridophytic Floras of India.

Observations :

Rhizome underground, creeping short obliquely placed, sub erect branched covered with brown soft scales. Fronds attained a height of 15 to 50 cm. They are circinnately coiled in young condition, young fronds covered with ramenta. The frond unipinnate, pinnae lobed more than half way to the midrib, veins in the lobes of pinnae forked, stipe soft, thick, chest nut colored; frond 10 x 6-8 inch long, oblong-lanceolate, truncate at the base, pinnae often widened at the base and narrow towards the apex. Frond segments oblong, sharply serrate and thin. Sori present towards the midrib.

When the fronds are matured the sori born on the under surface of the fertile pinnae, usually whole frond produced at this time are sporophylls. The sori born in two rows on two sides of the median vein of a pinnule in between the margin and the midrib. Each sorus covered by a kidney shaped indusium which is basal in origin forming and umbrella like structure covering the sorus. The primary root is short lived and replaced by adventitious roots. These are branched, thin, black and wiry structure.



Structure of Sporangium -

The sporangium distinguished into two parts. Stalk or Pedicel and Capsule or Spore sac. The stalk composed of three rows of elongated cells and bears water gland. A sporangium develops from a single initial cell in the typical leptosporangiate way. Each matured sporangium has a long slender stalk or three rows of cells and a biconvex capsule above. The wall of matured capsule one cell in thickness.

Discussion -

The pteridophytes treated as vascular cryptogams as they have a well developed conducting system. Dryopteris with feather like fronds. The vascular cryptogams possess an independent sporophytes with vascular system. The roots are adventitious, the primary roots being short lived. In spite of floristic work undertaken by various workers from Melghat. Dryopteris possess roots by which they are fastened to the soil and obtain nutrition.

The stem forms either an upright habit. The rhizome covered with hairs. Rhizome short, lamina long, rachis grooved on upper side. Frond 2-pinnate finely dissected. The sporangium distinguished into two parts. Stalk or pedicel and capsule. Each mature sporangium has a long slender stalk or three rows of cells and a biconvex capsule above. Spores brown, sori small.

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