

## **IX SUMMARY**

Summary :

Genus Pteris is one of the common constituent of the fern flora of the present day vegetation. In India it is represented by nearly 57 species spread over tropical, subtropical and temperate regions of the country. In spite of its common occurrence except Bower's (1935) comparative account of morphology and anatomy of sporophytes and gametophytes of Pteris there is no recent detailed account on morphology and anatomy of the genus. Hence the morphology and anatomy of P. vittata, a species luxuriantly growing in Western Ghats was under taken.

Chapter II gives the distribution of the genus Pteris along with a list of species found in India.

The Pteridophytes being comparatively less economically important group of plants, their studies are mostly neglected by the botanists of today. It is the group Filicales that is most dominant in pteridophytes of today. The review of literature (Chapter III) gives an idea about the work so far done in world as well as in India on this group of Plants.

The material for the present study was collected from the botanical garden, Department of Botany, Shivaji University, Kolhapur. The methodology used for morphological and anatomical studies of P. vittata is described in detail, in Chapter IV.

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Chapter V deals with detail morphological description of different parts of sporophytes of P. vittata. It is a herbaceous fern of moderate size reaching upto the height of 3.5 - 4 feet. The rhizome is horizontally elongated structure with adventitious roots on the lower side and pinnate fronds, arranged spirally on the rhizome but forming two spaced rows on upper surface of the rhizome. The pinnae are arranged in opposite to slightly alternate manner. The pinnae are sessile, linear-lanceolate, gradually acuminate, with cordate to auriculate base. The venation is open dichotomous with the tips of the dichotomies united by marginal loops forming an intramarginal vein. The sori are borne towards margin of the pinnae of mixed type and indusiate with an upper flap of indusium only. Sporangia are with pear shaped body, long thin stalk-2 cells in thickness and with well defined annulus and stomium. Spores are trilete, tetrahedral with equatorial collar. Exine has more or less raised reticulum on distal surface with blunt spines in between the lumina.

Chapter VI gives the anatomy of sporophytes of P. vittata. The epidermal appendages are simple, flat scales. The margin is smooth and attachment is broad.

The roots are protostelic with diarch xylem having exarch arrangement of xylem-elements. Endodermis and pericycle are single layered and well defined. Cortex is divisible into inner thick walled and outer thin walled cells. The root hairs are unicellular as well as multicellular.

The rhizome is solenostelic in mature parts and dictyostelic in younger parts. The ground tissue is parenchymatous containing starch grains. The leaf trace is horse-shoe shaped and remains undivided throughout the length of the rachis. The leaf trace comes off bodily as a sector of vascular ring of rhizome, leaving a wide gap. The pinna trace is seen cut off from the horse-shoe shaped vascular strand of rachis as an obstruction from the margin.

The stomata are restricted to lower surface of lamina and are of polocytic type.

The systematic position of genus Pteris is discussed in chapter VII.

The evolutionary significance of the morphological and anatomical characters of P. vittata are discussed in chapter VIII. P. vittata is at lower stage of evolution with respect to rhizome and spore morphology. In soral morphology it has reached advanced stage of evolution. Anatomically except the origin of pinna-trace it is at intermediate stage of evolution.

on page 49 of the book  
said that the genus is at a higher stage  
where spore and rhizome are intermediate