

CHAPTER VIII

SUMMARY

S U M M A R Y

Genus Acrostichum aureum L. is a very interesting one as it is one of the few representatives of ferns which thrive well on saline soils by the side of the sea-shores. It grows well in brakish water region but not as a member of the mangroves which grow in deep saline waters. In order to study the morphological and anatomical adaptation these plants may have developed during the course of evolution the present piece of work was undertaken. In Chapter II the morphological and anatomical work done on Filicales abroad and in India is reviewed.

Chapter III gives the details about the locality Aronda in Sindhudurga district from where the collections were made. It is small town 6 k.m. from the sea-shore where the river Terekhol joins Arabian sea. A. aureum grows as undergrowth in the mangrove vegetation located in this region. The salinity of the water is low where A. aureum grows.

The methodology used for morphological and anatomical studies of A. aureum is described in detail in Chapter III.

A. aureum is a very interesting genus for its halophytic mode of life as well as its systematic position. The position it occupies in different systems of classification

of Ferns is discussed in Chapter —IV.

The morphology of A. aureum is described in detail in Chapter V. It is a shrubby plant growing to the height of 5-6 feet. The stem is short, erect, rhizome bearing adventitious roots on the lower surface and spirally arranged pinnate fronds on the upper surface. The pinnae on the rachis are alternately arranged, nearly sessile, oblong lanceolate with retuse apex. The mid-rib is prominent and secondary veins form anastomosing network. The sorus is acrostichoid, covering entire ventral surface of the pinna. Sporangia remain naked without any indusium. Sterile paraphyses with a lobed head and stalk are intermixed with sporangia. Sporangia are stalked, with a pear-shaped body. The annulus is lateral and stomium consists of four rows of thin walled, horizontally placed cells. Spores are trilete, tetrahedral with granulose exine with varying number of papillae.

Chapter VI is the description of anatomy of sporophytes of A. aureum.

The epidermal appendages are ~~palsae~~ covering the rhizome of the plants. They remain persistent. They are attached by broad base and have a prominent mid-rib region, and thin wings. Marginally spinelike outgrowths are present.

The roots are protostelic with polyarch xylem strand. The inner cortex is sclerenchymatous while outer cortex is aerenchymatous. Rhizoids are absent.

The rhizomes are polycyclic dictyostelic at maturity. Number of meristemes are found scattered in ground tissue which is partly parenchymatous and partly sclerenchymatous. The main vascular cylinder get broken down into small meristemes on passing the leaf trace. In the central region there are medullary strands.

The rachis has number of meristemes arranged in more or less horse-shoe shaped structure. The single trace originating from the rhizome vascular cylinder divides into number of meristemes.

The pinna-trace originates marginally.

The leaf in C.S. shows upper and lower epidermis with thick cuticle. On the dorsal surface of leaf hypodermis consisting of a single layer of cells, nonchlorophyllous is present. The leaves being upright in orientation have palisade differentiated on both surfaces. The central spongy tissue is slightly loosely arranged.

Stomata are restricted to lower surface of the leaf and are of polocytic type.

The evolutionary significance of different morphological and anatomical characters is discussed in Chapter VII. A. aureum is an advanced genus in Pteridioid ferns. In possession of erect, short rhizome, pinnate leaves, reticulate venation, acrostichoid sorus, sporangial structure it stands at a higher level of evolution. Anatomically also it has attained the highest level of evolution. The presence of palae, polycyclic dictyostelic rhizomes and polocytic stomata are advanced features of A. aureum.

As a member of halophyte community it is a non-succulent plant. The leaves have no salt glands. It is a facultative halophyte and most of its life cycle is completed when the water has lowest salinity.