ABSTRACT

The present research work was carried out for the taxonomical and anatomical studies of ferns collected from District Kotli, AJK. Total nine ferns were collected during October 2021 to July 2022. The ferns were identified as *Adiantum pedatum* L., *Adiantum capillus-veneris* L., *Adiantum caudatum* L., *Pteris multifida* L. *Pteris vittata* L., *Asplenium platyneuron* L., *Christella dentata* Forssk, *Dryopteris carthusiana* Vill, *Aleuritopteris argentea* Fee. *Adiantum pedatum* L., *Adiantum capillus-veneris* L. and *Asplenium platyneuron* L. had spores on the lower side of pinnae while *Adiantum caudatum* L. had spores on the apex of pinnae. Anatomical characters of species were observed under light microscope. The results showed that transverse sections of both petiole and stem had cuticle, epidermis, cortex, endodermis, pericycle, parenchyma, sclerenchyma, collenchyma, metaxylem, protoxylem and phloem. Trichomes were found on the outer surface of epidermis in *Pteris vittata*, *Dryopteris carthusiana*, *Christella dentata* and *Aleuritopteris argentea*. Dictyostele was found in all the species except *Adiantum pedatum* and *Adiantum caudatum* which have amphiphloic siphonostele. Mesarch xylem was found in *Adiantum pedatum*, *Adiantum capillus-veneris*, *Aleuritopteris argentea*, *Adiantum caudatum* and *Christella dentata*. While diarch xylem was present in *Pteris vittata*, *Pteris multifida*, *Asplenium platyneuron* and *Dryopteris carthusiana*. Length of cortical cells was highest in *Dryopteris carthusiana* in both petiole and stem sections i.e. 2.04μm and 2.01μm respectively. Similarly, highest width of cortical cells was observed in Dryopteris carthusiana i.e. 1.82μm and 1.88μm respectively. In petiole, length of metaxylem was greater in *Pteris vittata* while the width of metaxylem was greater in *Adiantum caudatum*. The length of protoxylem was greater in *Pteris multifida* while the width of protoxylem was greater in *Pteris vittata*. In stem, length of metaxylem was greater in *Adiantum caudatum* but width was greater in *Dryopteris carthusiana*. The length and width of protoxylem was more in *Pteris vittata* as compared to other species.