



Research Article

Micro-morphological studies in some species of *Dichanthium***Willemet (Poaceae) from Maharashtra, India**

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Abstract: The present study was carried out to determine the micro-morphology of some species of *Dichanthium* Willemet (Poaceae) from Maharashtra. Species of *Dichanthium* were collected from the different localities of Maharashtra for detailed micro-morphological study. Epidermal studies pertain to epidermal cell size, presence and absence of micro-hairs, papillae, its types of silica bodies of species of *Dichanthium*. All the 7 studied members show the variation in the types and arrangement of the epidermal cells of leaf.

Key words: *Dichanthium*, Leaf, Maharashtra, Micro-morphology, Photomicrograph, Poaceae.

Introduction

Grasses belong to the family Poaceae consist of approximately 10,000 species and 785 genera (Yanis et al., 2010; The plant list, 2010; Hilu, 2006). The grass family is one of the largest of all plant families. Poaceae is the fifth most species rich flowering plant family (Tim, 1999). It ranged among the top five families of flowering plants in terms of the number of species, but they are clearly the most abundant and important family of the earth's flora (Campbell, 2014). Grasses are distributed worldwide and exhibited great variations in size and shape. Before the later part of the 19th century, taxonomists were confined to the use of the features of reproductive organs as floral characters were considered to provide the most valuable characters to taxonomic affinities (Nwokeocha, 1996). Leaf epidermal studies have proved to be very important in providing information of taxonomic importance. Leaf epidermis study provides valuable data regarding the identification of grasses and is recognized as a source of useful taxonomic characters, because of variations in leaf characters that are taxonomically useful (Barkworth, 1981). The leaf is the most widely used in plant taxonomy (Stace, 1984). Strivastava (1978) described the leaf epidermis as the second most important character after cytology for solving taxonomic problems. Metcalfe (1960) has described comprehensive general account of anatomy and micro-morphology for Poaceae members; also leaf anatomy for tribe Eragrosteae was studied in particular by Renvoize (1983). Earlier, Significance of microhairs as known from the work of Amarshinghe and Watson (1990). The present paper on micro-morphological studies of leaf epidermis is useful in evaluation of the patterns of anatomical variations in epidermis for species

identification, classification and also in establishing the taxonomic relationships between the seven species of *Dichanthium*.

Materials and Methods

Species of *Dichanthium* were collected from the different localities of Maharashtra for detailed micro-morphological study. Herbarium specimens are deposited in YCCSK herbarium (Department of Botany, Department of Botany, Yashwantrao Chavan College of Science, Karad, Dist. Satara, Maharashtra, India).

For micro-morphological study, the fresh and dried leaves were used throughout preparation. The leaves were boiled in 1:5 conc. H₂SO₄ with few crystals of Potassium Dichromate in test tube. After washing with Distilled Water, the peels were made by scraping pieces of treated leaves with the help of safety razor blade; the samples were stained with saffranin and mounted in glycerine (S. Suryanarayana & N. Krishnaswamy, 1948). Individual cells were identified and measured by micrometer. 20-25; peels were made from each species from several dozen of leaves. All peels were examined and the representative areas were photographed using Olympus research microscope, with 40× objective and measurements of different cells are taken.

Results

The species wise details of the epidermal complex and epidermal ornamentation are as under:

1. *Dichanthium annulatum* (Forssk.) Stapf

The amphistomatic type of leaf is present in *D. annulatum*. Stomata of upper and lower epidermis usually in a single row interrupted by the inter-

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