



RESEARCH ARTICLE

Morpho-anatomical Studies of *Woodfordia fruticosa* (L.)Kurz

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ABSTRACT

The present investigation deals with the study of morpho-anatomical studies in node and leaf of *Woodfordia fruticosa* (L.)Kurz belongs to family Lythraceae. The plant is widely used as medicinal purpose. The node has unilacunar one traced; anatomically the leaf shows several variations. The mesophyll cells are arranged loosely. The epidermis of leaf is covered with unicellular simple trichomes. The leaves are dorsiventral and hypostomatic stomata are more on lower surface of leaf. The mucilage cells are commonly occurs. The vascular bundle is bicollateral, solitary and arc shaped, parenchymatous cortex is present. These anatomical characters are useful for segregation of taxa that's why the anatomical studies of *Woodfordia* were undertaken.

Keywords: Nodal Anatomy, *Woodfordia fruticosa* (L.)Kurz

INTRODUCTION

The *Woodfordia fruticosa* (L.)Kurz belongs to family Lythraceae. It is one of the most useful medicinal plants distributed widely throughout the India (Kirtikar and Basu, 1935 Das P. K., 2007) the plant is beautiful shrubs, branched and 1-3 meter in height with most beautiful flowers. It is commonly called as 'Dhaiti' or 'Dhataki' in Maharashtra. The plant is abundantly present in India and also found in countries of North-East (Shankar *et. al.* 2013, Kirtikar and Basu, 1935) Study of evaluation of pharmacognostic and physiochemical parameters of *Woodfordia fruticosa* (L.)Kurz flower done by workers (Yogesh Bravallia *et.al.* 2011) The biological activities and chemistry studied by workers (Dinesh Kumar *et. al.* 2016). The phytochemical and preliminary evaluation of *Woodfordia fruticosa* (L.)Kurz studied by some workers (Y.H. Syed *et.al.* 2013) According to Indian system of medicine the plant parts is highly useful for medicine purpose. Their flowers are utilized on treatment of toothache, sedation ,fever leprosy and dysentery etc. (Rani *et.al.* 2015) The nodal anatomical features are widely utilized for systematic and phylogenetic studies (Sinott, 1914, Ozenda,1949, Dickson,1969, Takhtajan,1969) The nodal anatomy of *Woodfordia* studied by (Kshirsagar A., 2016) The present work is mainly focused on the anatomy of various parts of *Woodfordia fruticosa* (L.)Kurz and these anatomical features are widely utilized for taxonomic segregation of species.

MATERIAL AND METHODS

The plant material of *Woodfordia fruticosa* (L.)Kurz was collected from Gautala sanctuary of Kannad, Ellora Ghats and Andhaner regions of Kannad. The fresh material of node and leaf was used for anatomical studies. A serial section was taken. After selection of fine and thin section, these sections were passed through various grades of alcohol by staining with saffranin and light green. The sections were observed under Metzger microscope at high magnifications and the microscopic characters were noted. A line drawing was made by using camera Lucida. These anatomical characters were used for segregation of species.

Morphology of Plant

The *Woodfordia fruticosa* (L.)Kurz are commonly called as Dhaiti or Dhataki. It is woody shrub, medium size tree, leaves are opposite bifarious, ovate-lanceolate. Flowers in short, 2-15 flowered cymes in axils of leaves, calyx bright red, petals red, slightly longer than calyx teeth, sometimes absent. Seeds are numerous brown in colour and smooth. The flowers and fruits are generally appear in Jan-May. It is commonly occur in forest or at hills.

OBSERVATIONS AND RESULTS

1) **Epidermis and stomata:** The upper and lower epidermis has covered with unicellular and multicellular trichomes, they are numerous, hook shaped the leaves are hypostomatic. The type of stomata are anomocytic and observed only on abaxial surfaces of leaf. (Fig.1b.)

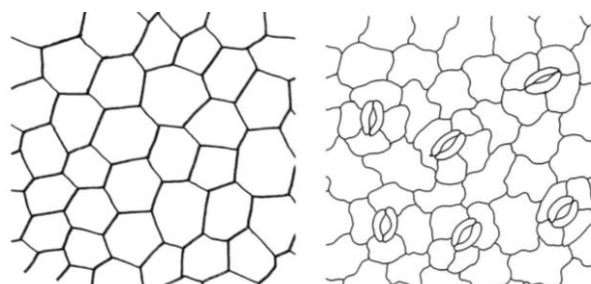


Fig. 1 a) Adaxial surface of leaf. Fig.1 b) Abaxial surface of leaf.

2) **T. S. of leaf:** Transverse section of *Woodfordia* leaf shows that both upper and lower epidermis is covered with unicellular hook shaped trichomes. (Fig.2c) The cells of epidermis is rectangular, square and tangentially elongated. An upper epidermis is covered thick cuticle with multi or unicellular trichomes. The epidermis is followed by 2-3 layers of collenchymatous cells with numerous clusters of calcium oxalate crystals. It is followed by parenchymatous layer. The vascular bundle is occupy at centre which is bicollateral. The bundle is encircled with sclerenchyma. It is also found in leaf lamina portion. Xylem is at centre which is surrounded by phloem. The stomata is anomocytic occurs only on lower surface of epidermis. (Fig.2d)

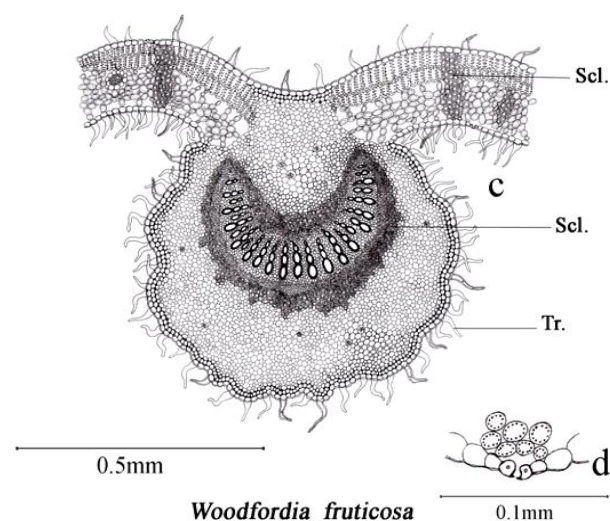


Fig. 2c) T. S. of Leaf and Fig. 2d) Stomata

3) **T. S. of Node:** The transverse section of node shows a unilacunar one traced at nodal region. The trace is an arc shaped and enters into the leaf. (Fig. 3 e,f,g, and h)

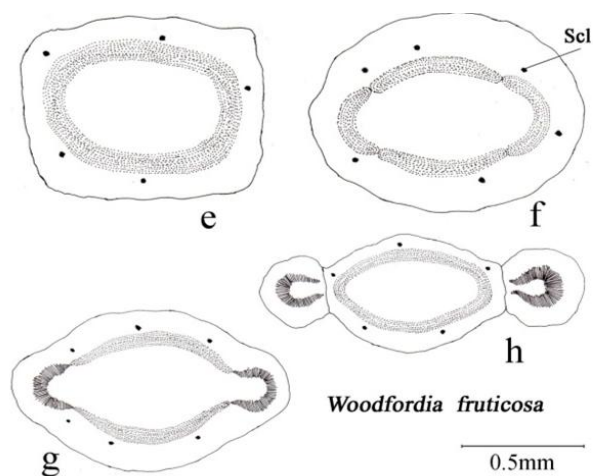


Fig.3 T. S. of Node (e,f,g,and h)

CONCLUSION

It is concluded that an anatomical studies are useful for the taxonomic segregation of plants species. Anatomical characters also plays very significant role in making anatomical and taxonomical dichotomous keys for delineation of plants.

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