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INTRODUCTION

Murdannia lanuginosa (C. B. Cl.) Brucek. (Commelinaceae), an endemic plant to Western Ghats of Peninsular India. It is categorized as regionally endangered taxon owing to its restricted habitat and low population status in atheritic plateaus of Maharashtra and Karnataka. It is observed in higher abundance in lateritic plateaus and hilly slopes at an altitude range of 900 to 1600 m. *M. lanuginosa* found on open grassy plateaus along with herbs like *M. simplex*, *M. versicolor*, *Ischaemum impressum*, *Glyphochloa forficulata*, *Paspalum canarae*, *Smithia bigemina*, *S. purpurea*, *Rotala densiflora*, *Pogostemon deccanensis*, etc. Extent of occurrence of *M. lanuginosa* estimated to be 4,000 sq. km and found only at few locations. This paper presents morphological, anatomical, palynological as well as cytological studies on *Murdannia lanuginosa* (Wall.ex C. B. Cl.).

BACKGROUND INFORMATION

Murdannia is a pantropical monocot genus that is comprised of about 50 species. Morphologically, the genus is characterized by leaves that are arranged in a spiral, a sessile lamina, and a supervolute unfolding pattern. Its most distinctive feature is the presence of 3 fertile stamens attached in front of the sepals alternating with 3 sterile stamens (staminodes) attached in front of the petals. Anatomically, *Murdannia* shows much variation like 6 to 4 celled stomata, but some diagnostic features include the presence of a nearly continuous hypodermis, patterned cuticle, and marginal sclerenchyma. Pollen shows not much of variation.

MATERIALS AND METHODS

Flowering Times: Observations of the flower opening times in the greenhouse and infield were noted across multiple days.

Morphology: Descriptions of the plant were made from living collections at the Shivaji University Departmental Garden.

Palynology: Pollen grains were Acetolysed and observed/ photographed by SEM

Anatomy: For anatomy of leaf, stem and root hand cut sections as well as microtome technique is used.

Sections observed under light microscope and photography made.....

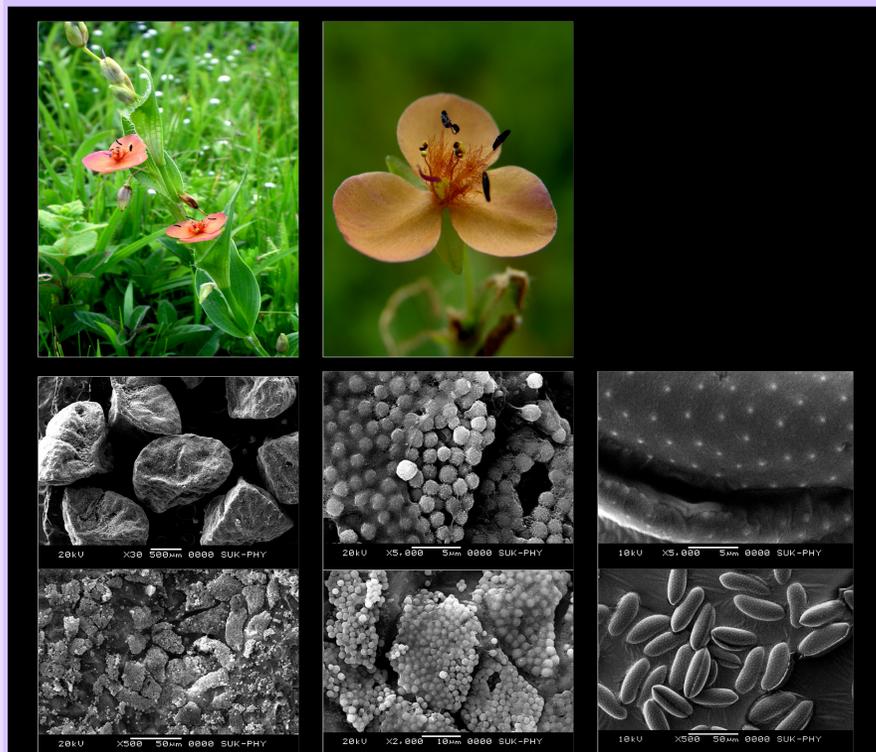
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A. MORPHOLOGY

06 to 16 inch., erect to ascending herb with tough tuberous roots. Stem pubescent, stout to prostrate. Leaves sessile, linear to linear lanceolate with broad base, finely acuminate, pubescent on both sides, margin undulate. Flowers hermaphrodite, axillary 1 to 5 from upper leaf sheaths, pedicellate, pink coloured at the time of opening then after turn orange yellow and blue when fading starts. Fertile stamens 3 densely bearded while 3 sterile faintly bearded and shorter than fertile one with lobed pseudoanthers. Ovary comes out from one side with short and curved style and simple stigma. Capsules 0.5 to 0.7 cm long, oblong, trigonous, long- cuspidate with style. Seeds biseriate, rectangular to pentagonal, grayish black with ridges; hilum elliptic; embryotegia lateral. Flowering and fruiting during August to November. Best seen at Kaas plateau. Dist. Satara. (Maharashtra) Phenology: Plant flower in the morning for three or more hours a day with overlapping time periods.

B. PALYNOLOGY

Pollens are monosulcate, elliptic to bean shaped. Scanning Electron Micrographs (SEM) show that the exine is spinulose and punctitectate. The spinules / warts are blunts & randomly arranged.



C. ANATOMY

Leaf Anatomy: Transverse section of the leaves show thin smooth cuticle, an upper & lower epidermis usually composed of more or less isodimetric of a single, adaxial palisade layer & an abaxial spongy mesophyll generally composed of three to four cell layers. A hypodermis present only in the midrib region & its too small. Sclerenchyma is present in between the midrib. Stomata are usually present on both surfaces. Six celled, irregularly arranged. Epidermal hairs simple, 3 to 4 celled also present on the both the surfaces.

Stem Anatomy: Cuticle ribbed like that of epidermis of the sheath. Epidermis shallow, slightly thick walled and like that on abaxial surface of sheath. Cortex 3 to 6 celled, very narrow without vascular bundles. Hypodermis differentiated into 1 to 3 layers. Chlorenchyma with well developed intercellular spaces. Inner limit of cortex represented by a distinct compact uniseriate parenchyma sheath commonly described as an endodermis. Central cylinder limited extremely by conspicuous 1 to 4 layered sclerotic cylinder. Peripheral vascular bundles having Metaxylem and which constitute 2 wide vessels likewise Cortical vas. bundles too. Both are embedded in sclerotic cylinder. Xylem lacuna are present in both the vascular bundles.

Root Anatomy: Exodermis large celled one layered. Cortex is of two types inner and outer both comprises of 3 to 6 celled containing number of Starch granules. Endodermis cells expanded tangentially. Cortical cylinder, due to diameter of root. Xylem cells arranged on peripheral region while phloem strands irregularly arranged. *Murdannia lanuginosa* strongly develop sclerenchyma in the central cylinder. Even the cells of neighboring vessels are sclerified.

D. CYTOLOGY

Murdannia lanuginosa (C. B. Cl.) Brucek.

n = 10. G. Rama. (Edited by. Askeell Love) *Taxon* 33 (2): 351-354. 1984.

