

First report of *Pseudoidium* sp. (*Erysiphe* sp.) causing powdery mildew on *Vigna vexillata* (L.) A. rich.in India

Linge SS¹, Thite SV^{2*}

¹ Department of Botany, Karmaveer Bhaurao Patil Mahavidyalaya, Pandharpur Dist. Solapur, Maharashtra, India

Corresponding author: Thite SV

Abstract

In October 2025, leaves of *Vigna vexillata* with typical symptoms of powdery mildew were collected from Yawateshwar Hill Satara (MS), India. Based on its morphological characters, the pathogen was identified as *Pseudoidium* sp. (*Erysiphe* sp.). This is the first report of powdery mildew on *Vigna vexillata* in India.

Keywords: *Vigna vexillata*, *Pseudoidium* sp., *Erysiphe* sp

Introduction

Vigna vexillata (L.) A. Rich. belongs to the family Fabaceae. It is commonly known as zombi pea or wild cowpea. It is a perennial, climbing or trailing herb distributed throughout tropical and subtropical regions of Africa, Asia, Australia, and the Americas (Verdcourt, 1970) [2]. *V. vexillata* is primarily recognized as an underutilized food legume, recent phytochemical and pharmacological studies indicate that it possesses considerable medicinal potential. The plant contains several biologically active compounds, including isoflavones, flavonoids, phenolic acids, sterols, triterpenoids, tannins, and alkaloids, which are responsible for its therapeutic properties (Kuo *et al.*, 2012).

During routine survey of the district the occurrence of powdery mildew in its anamorph stage was observed on *V. vexillata* at Yavateshwar hill (17°41'02.91" N 73°56'58.15" E, elevation 1042.1 m). The disease appeared as small irregular, white powdery spots with very thin effused mycelium on adaxial and abaxial surfaces of leaves (Fig.1 a, b). Infection initiates after first few showers of monsoon and found frequently till December. Infection cause yellowing of leaves, severe infection results defoliation. Based on microscopic investigations, the asexual powdery mildew morph on *V. vexillata* was easily identifiable as *Pseudoidium* sp.

Material & Methods

Infected leaves were collected and symptoms were examined by light microscopy. A reference specimen (HAL-2939 F) was deposited in the Geobotany Herbarium of Martin Luther University, Halle, Germany.

Result and Discussion

Pseudoidium sp. (*Erysiphe* sp.) on *V. vexillata* is morphologically characterized as follows:

Mycelium amphigenous, effuse or in irregular patches, white, persistent; hyphae wide, hyaline, branched, septate, hyphal appressoria bilobed (Fig.1 g), conidiophores arising from the upper surface of mother cells, foot-cells cylindrical, straight or curved about 41–61 $\mu \times 4 - 9 \mu$, followed by 1–2 shorter cells, forming conidia singly (Fig.1 c), conidia ellipsoid-ovoid to doliiform-cylindrical, about 27–32 $\mu \times 10 - 18 \mu$. Fibrosin bodies absent (Fig.1 d). Chasmothecia were not observed. Germination site was always terminal or sub-terminal also described as shoulder but never lateral (Fig.1 e, f). According to the combination of these features, this profile indicates that the present pathogen is identified as *Pseudoidium* sp.

Previous reports indicate that powdery mildew fungi have been recorded on several species of the genus *Vigna* viz. *Oidium* sp. has been reported on *V. catjang*, *V. mungo*, and *V. umbellata* (Jamaluddin *et al.*, 2004) [3]. *Sphaerotheca phaseoli* has been reported on *V. radiata* and *V. unguiculata* (Sharma & Khare, 1992; Bappammal *et al.*, 1995) [4, 5], whereas *Sphaerotheca fuliginea* has been recorded on *V. radiata* by (Pande & Rao, 1998) [6].

However, an extensive review of the available literature revealed no previous record of *Pseudoidium* sp. infecting *V. vexillata* either from India or elsewhere in the world (Bilgrami *et al.*, 1991 Jamaluddin *et al.*, 2004 Paul & Thakur, 2006 Pande, 2008 Hosagoudar & Agarwal, 2009 [7, 3, 8, 9, 10]

Braun & Cook, 2012) [11]. Therefore, the present study states that this is the first report of *Pseudoidium* sp. causing powdery mildew on *V. vexillata*.

Acknowledgement

The authors sincerely thank Prof. Uwe Braun for providing literature and valuable suggestions.

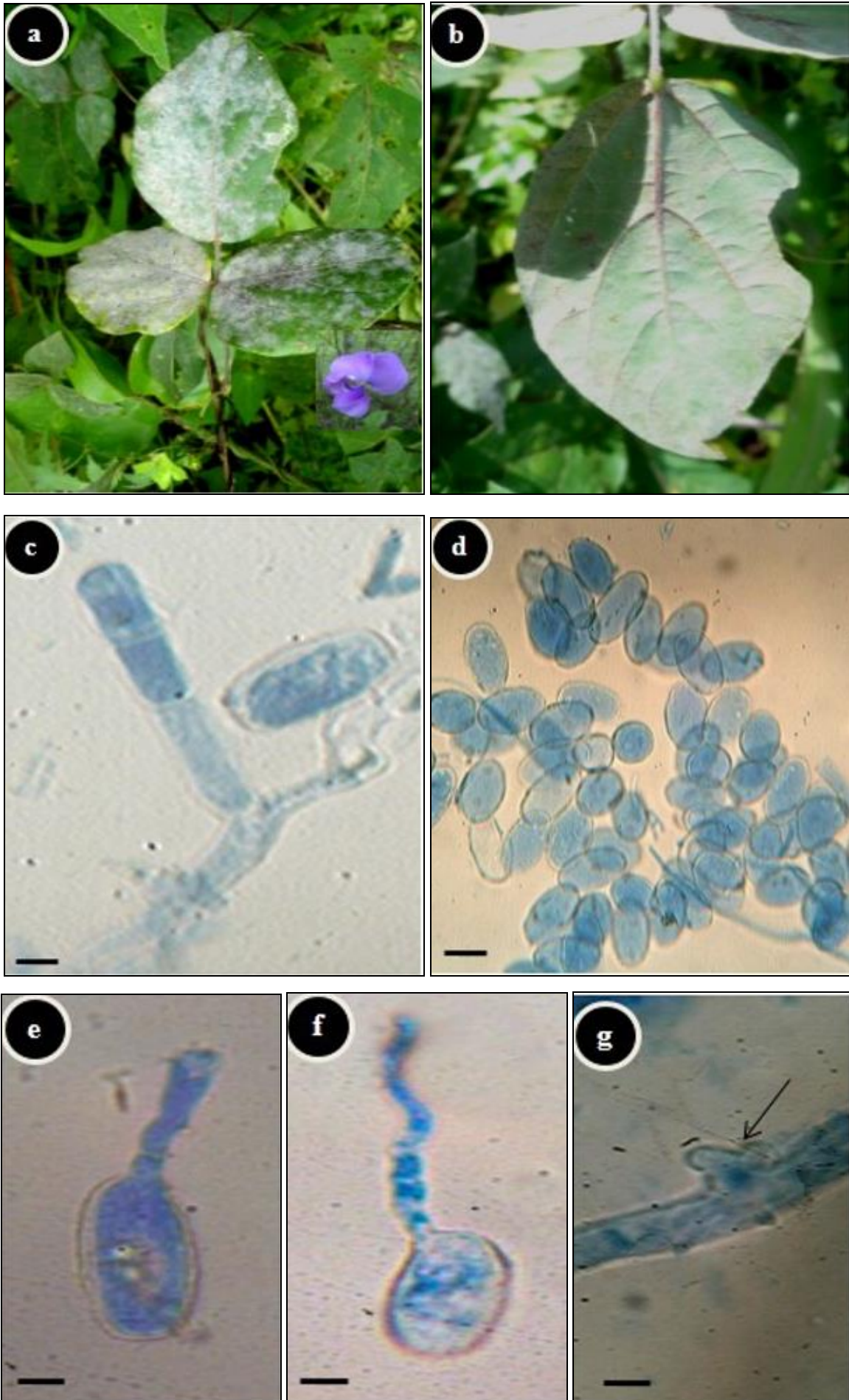


Fig1: a & b - Symptoms on adaxial & abaxial surface of leaf, c- Conidiophore with single conidium 45x, d - Conidia 45x (Bar = 20 μ), e & f- Germination pattern in conidia g- Arrow indicate bilobed hyphal appressorium (Bar, wherever marked = 20 μ).

References

1. Leu YL, Hwang TL, Kuo PC, Liou KP, Huang BS, Chen GF. Constituents from *Vigna vexillata* and their anti-inflammatory activity. *International Journal of Molecular Sciences*, 2012;13(8):9754-9768.
2. Verdcourt B. Studies in the Leguminosae–Papilionoideae for the "Flora of Tropical East Africa": III. *Kew Bulletin*, 1970;24(3):379-447.
3. Jamaluddin, Goswami MG, Ojha BM. *Fungi of India (1989–2001)*. Jodhpur: Scientific Publishers, 2004.
4. Bappammal M, Hosagoudar VB, Udaiyan K. Powdery mildews of Tamil Nadu, India. *New Botanist*, 1995;22:81-175.
5. Sharma ND, Khare CP. Morphology of anamorphs of some powdery mildew fungi of Jabalpur division. *Acta Botanica Indica*, 1992;20:269-277.
6. Pande A, Rao VG. *A Compendium Fungi on Legumes from India*. Jodhpur: Scientific Publishers (India), 1998:188.
7. Bilgrami KS, Jamaluddin MA, Rizwi MA. *The Fungi of India. Part III (List and References)*. New Delhi: Today and Tomorrow's Printer and Publishers, 1991. *Botanical Survey of India, Calcutta*, 2001:437-489.
8. Paul YS, Thakur VK. *Indian Erysiphaceae*. Jodhpur: Scientific Publishers, 2006.
9. Pande A. *Ascomycetes of Peninsular India*. Jodhpur: Scientific Publisher, 2008.
10. Hosagoudar VB, Agarwal DK. *Powdery mildews of India: Check list*. New Delhi: Associated Publishing Company, 2009.
11. Braun U, Cook RT. *Taxonomic manual of the Erysiphales (Powdery Mildews)*. Fungal Biodiversity Centre (CBS Biodiversity Series No. 11). Utrecht, 2012.