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## SHORT COMMUNICATION

# A new foliar pathogen- *Periconia macrospinosa* causing leaf yellow spot of Tulaipanji variety of *Oryza* from Raiganj, Uttar Dinajpur

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The Raiganj region of Uttar Dinajpur District is home to the distinctive Tulaipanji type of *Oryza* rice. Young leaves developed yellow dots on them. From the diseased leaf, a fungal pathogen with the was identified isolated and coded as ORYLD 2. Based on molecular identification, the isolate ORYLD 2 was identified as *Periconia macrospinosa* (PV668965) and submitted to NCBI Genbank. Koch's postulate was used to confirm the morphology of the foliar pathogen after *Periconia macrospinosa* was re-isolated from the diseased area of the leaves.

**Keywords** : Leaf yellow spots, necrosis, Tulaipanji variety of *Oryza*, *Periconia macrospinosa*

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## INTRODUCTION

Tulaipanji variety of *Oryza* is a unique variety of rice from Raiganj area of Uttar Dinajpur District. During July-August, 2024, yellow spots (5-9 mm) appeared on young leaves and then the spots were turned into grey ring like appearance resulting in leaf necrosis. On mature leaves, the symptoms initially manifested as round necrotic lesions. Dark brown colored margin was observed in the lesions (Fig. 1 A&B). The disease was reported from Birnagar area of Raiganj, Uttar Dinajpur, West Bengal. Temperatures between 28° and 30°C and a preferred relative humidity of 80% were ideal for the growth of the foliar pathogen.

## MATERIALS AND METHODS

The diseased leaf samples after surface sterilization with 0.1% HgCl<sub>2</sub> were transferred to Potato Dextrose Agar (PDA), amended with antibiotic Monocef-O 100. A fungal pathogen coded as ORYLD 2 was isolated from the infected leaf (Fig.1 C). The pathogen was characterized morphologically by using light and scanning

electron microscope. Grey colored mature mycelia were observed on PDA plate and blackish, globose conidia borne singly or in chain form (Fig. 2).

DNA was extracted from the culture. A single band of high molecular weight DNA was seen when the quality was assessed on a 1.8% agarose gel. Isolated DNA was amplified using 18s rRNA specific primers (ITS1- TCC GTA GGT GAA CCT GC GG and ITS4- TCC TCC GCT TAT TGA TAT GC). There was one distinct PCR amplicon band measuring about 600 bp. (Fig. 3 A). Using BDT v3.1 Cycle sequencing kit on ABI 3500Dx Genetic Analyzer, the PCR amplicon was purified and subjected to a bi-directional DNA sequencing procedure using ITS1 and ITS4 primers.

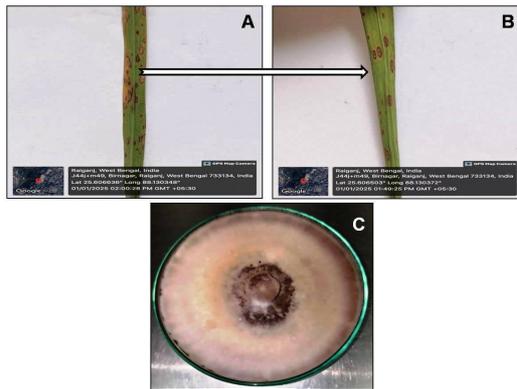
## RESULTS AND DISCUSSION

The isolate ORYLD 2 was identified as *Periconia macrospinosa* (PV668965), based on molecular identification and submitted to NCBI Genbank.

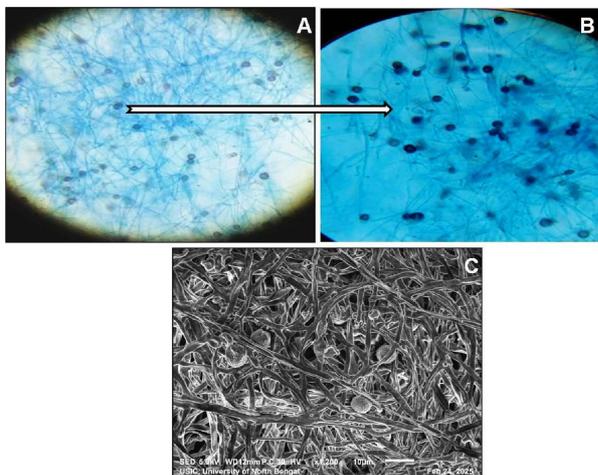
Leaf yellow spot symptoms were developed within 7 days on inoculated detached mature leaves of Tulaipanji variety of *Oryza*, whereas control leaves remained unaffected. *Periconia macrospinosa* was re-isolated from the infected

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**Fig. 1 :** Diseased leaf samples of Tulaipanji variety of *Oryza* (A); Enlarged view of leaf symptom on the infected leaves (B); Mycelial morphology of the fungal pathogen coded as ORY LD 2(C)



**Fig. 2:** Light microscopic view of mycelia and spore of fungal pathogen-ORY LD 2 isolate (A); Enlarged view of spore of ORYLD 2 (B); Scanning Electron Microscopic view of spore of ORYLD 2 isolate (C)

*macrospinos* ( $10^6$  conidia/ml) was used as inoculums. Although the method of inoculation was artificial, leaf yellow spot symptoms were similar to those observed in field grown plants of Tulaipanji variety of *Oryza*. The present finding represents the first report of a foliar pathogen-*Periconia macrospinos* causing leaf yellow spots turned into necrosis of Tulaipanji variety of *Oryza*. Although there were some reports on the pathogenicity of *Periconia* on other crops except rice plants (Kolomiets, 2008). Further intensive study is required to find out the mechanisms behind the mode of infection by *P. macrospinos* in rice plants. .

**ACKNOWLEDGEMENTS**

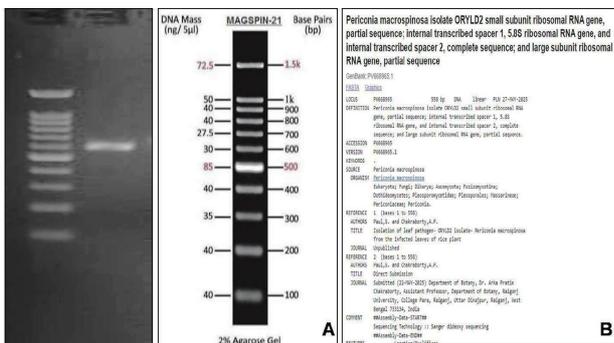
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**DECLARATION**

Conflict of Interest. Authors declare no conflict of interest.

**REFERENCES**

Kolomiets, T., Pankratova, L., Mukhina, Z., Kassanelly, D., Matveeva, T., Bogomaz, D., Berner, D. 2008. First report of leaf spot caused by *Periconia igniaria* on yellow starthistle in Russia. *Plant Dis.* **92**: 983.



**Fig 3:** 1.8% agarose gel showing single 600 bp of 18s amplicon of ORYLD 2 isolate (A); *Periconia macrospinos* (PV668965), submitted to NCBI GENBANK database (B)

region of the leaves and morphology of the foliar pathogen was reconfirmed through Koch’s postulate. Conidial suspension of *Periconia*