MORPHOLOGICAL VARIATION OF RICE BLAST PATHOGEN *Pyricularia oryzae* AND EFFICACY OF FUNGICIDES, BOTANICALS AND BIOAGENTS ON ITS GROWTH AND SPORULATION *in-vitro*

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Executive summary

Rice blast caused by *Pyricularia oryzae* (Po) is a destructive disease of rice in Bangladesh. An experiment was carried out to determine morphological variation of rice blast pathogen Po and to determine the efficacy of some selected fungicides, botanicals and bioagent against the growth of the Po isolates *in vitro* during the period from August 2018 to July 2019. Twelve fungicides namely Folicur 250EC, Amistar top 250EC, Nativo 75WP, Tropper 75WP, Blastin 75DG, Azonil 56SC, Seltima, Autostin 50 WDG, Filia 525SE, Differ 300 EC, Dithane M-45 and Knowin 50 WP were evaluated against mycelial growth of *Magnaporthe oryzae in-vitro* following poisoned food technique. Aqueous extracts of eight botanicals namely kalijira, turmeric, ginger, garlic, onion, neem, allamanda and aloevera were evaluated against Po *in vitro* following poisoned food technique. The experiment was done following Complete Randomized Design with three replications. Nineteen monoconidial isolates were identified and their morphological and cultural characteristics were determined. All the isolates were found pathogenic to a susceptible rice cultivar BRRI dhan28. The highest (8.22 mm/day) and the lowest (4.55 mm/day) growth rate were found in the isolates Po19 and Po8, respectively. Among the twelve tested fungicides Folicur 250EC, Seltima, Filia 525SE and Differ 300EC showed the highest efficacy in controlling radial mycelial growth of Po. Percent growth inhibition under different water extracts of botanicals ranged from 7.86% to 74.29% at 7 DAI, 2.50% to 83.12% and 10 DAI and 11.45% to 86.57% at 14 DAI. The highest efficacy in controlling radial growth was found in 1:1 ratio of turmeric extract at 14 DAI. It was found that ethanol extracts of garlic showed the highest efficacy (92.68%) in compare to other botanicals in controlling radial growth of the fungus followed by neem extracts and allamanda extracts on PDA. Antagonistic effect of *Trichoderma harzianum* was tested *in vitro* and the bioagent was found effective in suppressing radial growth of Po. A field trial is therefore suggested for testing the field performance of turmeric water extract, neem ethanol extract along with chemical fungicides Folicur 250 EC, Seltima, Filia 525 SE and Differ 300 EC to control rice blast in field condition.

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