

Evaluation of some systemic fungitoxicants against rice sheath blight (*Thanatephorus cucumeris*)

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ABSTRACT : Eight systemic fungitoxicants viz., carbendazim 50 WP, diniconazole 25 EC, difenoconazole 25 EC, ediphenphos 50 EC, hexaconazole 5 EC, iprobenphos 48 EC, myclobutanil 10 WP and tricyclazole 75 WP were evaluated in-vitro and in-vivo against rice sheath blight (*Thanatephorus cucumeris*) under Kashmir conditions. The *in-vitro* evaluation of these systemic fungitoxicants through poisoned food technique at five different concentrations viz., 10, 20, 30, 40 and 50 µg a.i./ml indicated that all the test fungitoxicants significantly inhibited mycelial growth and sclerotial germination of *Thanatephorus cucumeris* at all concentrations. Carbendazim, hexaconazole and iprobenphos resulted in complete (100%) inhibition of mycelial growth at all the test concentrations while ediphenphos, difenoconazole and diniconazole resulted in 98.58, 92.25 and 91.25 mean inhibition mycelial growth, respectively. Myclobutanil resulted in 86.67 per cent mean inhibition of mycelial growth while lowest mean inhibition of mycelial growth (55.80%) was caused by tricyclazole. Carbendazim caused complete (100%) inhibition of sclerotial germination at all the test concentrations, while hexaconazole and iprobenphos reached such a level of inhibition only at 30, 40 and 50 µg a.i./ml concentrations. Hexaconazole, iprobenphos, diniconazole, ediphenphos and difenoconazole resulted in mean inhibition of sclerotial germination of 94.66, 92.66, 60.26, 59.33 and 49.06 per cent, respectively. Myclobutanil provided 36.80 per cent inhibition of sclerotial germination while tricyclazole caused least inhibition of only 19.73 per cent. In field evaluation, three foliar sprays of each fungitoxicant at their recommended concentrations, separately applied at tillering, booting and post flowering stages of rice cultivar K-448 (Jhelum) revealed that carbendazim 50 WP was most efficacious and reduced the mean disease incidence and disease intensity from 40.00 and 19.15 per cent in unsprayed check to 4.50 and 2.71 per cent, respectively, and increased mean grain yield from 5.0 to 6.5 t/ha. Carbendazim 50 WP was followed by hexaconazole 5 EC, iprobenphos 48EC, diniconazole 25 WP, ediphenphos 50 EC, difenoconazole 25 EC and myclobutanil 10 WP with mean disease incidence of 6.50, 9.50, 12.25, 14.02, 24.25 and 27.5 per cent and mean disease intensity of 4.04, 5.15, 5.20, 6.82, 8.18, 9.06%, respectively. Tricyclazole was least efficacious and resulted in mean disease incidence of 31.00 per cent and mean disease intensity of 9.66. per cent, respectively. Carbendazim 50 WP resulted in highest increase in grain yield (30.00 %), followed by hexaconazole 5 EC (27.00 %), iprobenphos 48 EC (25.00 %), diniconazole 25 WP (23.00 %), ediphenphos 50 EC (19.00 %), difenoconazole 25 EC (15.00 %) and myclobutanil 10 WP (11.00 %). Tricyclazole 75 WP was least efficacious among tested fungitoxicants. However, it was superior over unsprayed check and resulted in mean grain yield of 5.95 t/ha, providing an increase in mean grain yield of 8.00 per cent.

Key Words: Evaluation, rice sheath blight, systemic fungitoxicants, *Thanatephorus cucumeris*.