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Research Article

Utilization of Chemical Fungicides in Managing the Wilt Disease of Pea Caused by *Fusarium oxysporum* f. sp. *pisi*

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Abstract

Fusarium wilt of pea, caused by *Fusarium oxysporum* f. sp. *pisi*, is one of the most serious fungal diseases that can cause severe yield loss in pea. As a result, the present investigation was carried out to evaluate the performance of certain potential single and combination fungicides for the successful management of pea wilt. Seven single fungicides, Tebuconazole (1 g l^{-1}), Chlorothalonil (2.5 g l^{-1}), Propiconazole (1 ml l^{-1}), Azoxystrobin (1 ml l^{-1}), Difenoconazole (1 ml l^{-1}), Propineb (1 ml l^{-1}), and Thiophanate methyl (1 g l^{-1}), and seven combination fungicides, Metalaxyl 8% + Mancozeb 64% (2.5 g l^{-1}), Hexaconazole 4% + Carbendazim 16% SC (1 g l^{-1}), Carboxin 37.5% + Thiram 37.5% (2.5 g l^{-1}), Tebuconazole 50% + Trifloxystrobin 25% (1 ml l^{-1}), Azoxystrobin 11% +Tebuconazole 18.3% SC (1 ml l^{-1}), Azoxystrobin 18.2% + Difenoconazole 11.4% SC (1 ml l^{-1}), and Fluopyram 17.7% + Tebuconazole 17.7% SC (1 ml l^{-1}) were tested *in vitro* and in the field during the years 2020-21 and 2021-22, respectively.Under *in vitro*, Tebuconazole and Thiophanate methyl were the most effective fungicides, with no radial growth and 100 per cent test pathogen growth inhibition. Azoxystrobin + Difenoconazole, Hexaconazole + Carbendazim, and Carboxin + Thiram were the most efficient combination fungicide, with no radial growth and 100 per cent pathogen growth suppression. Later, all fourteen selected fungicides were assessed as seed treatments against *Fusarium oxysporum* f.sp. *pisi* for their efficacy in reducing wilt incidence and enhancing yield under field conditions during rabi 2020-21 and 2021-22. Tebuconazole (T6) at 0.1 per cent reduced disease incidence (9.91%) and increased yield (14.67 q ha^{-1}) with the highest C:B ratio of 1:1.88. Seed treatment with a combination fungicide of Azoxystrobin + Difenoconazole (T5) at 0.1 per cent demonstrated the lowest disease incidence (7.80%), highest mean yield (14.88 q ha^{-1}), and highest C:B ratio (1:1.95). Combiformulations fungicides showed additive effect of the protectant and systemic fungicides over solo fungicide application. Coformulations are more effective than individual fungicides at controlling pea wilt in areas where it is common

Key words: *Fusrium oxysporum* f.sp. *pisi*, fungicides, pea, wilt

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