Research Article

Chemical Management of Blight (*Alternaria burnsii*) Disease in Cumin Under Field Conditions

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Abstract

Diseases that result in yield losses on both a quantitative and qualitative level pose a constant threat to the sustainability of cumin production. The most severe disease in the main cumin-growing regions of Gujarat, Rajasthan, and parts of Madhya Pradesh is Alternaria blight, which is caused by *Alternaria burnsii* Uppal, Patel, and Kamat. It is highly prevalent and devastating, affecting all plant parts above the ground, including the seed, and directly reducing crop production. The primary goal of the study was to evaluate the effectiveness of systemic, multisite contact and broad-spectrum fungicides like fluxapyroxad (pyrazole-4-carboxamides), pyraclostrobin, azoxystrobin (strobilurin), tebuconazole (triazole) and metiram (dithiocarbamate) when applied as a ready-mix fungicide (pyrazole-4-carboxamides + strobilurin, strobilurin + triazole and dithiocarbamate + strobilurin) as foliar sprays at three different concentrations to manage cumin blight in the field conditions during *Rabi* 2019-20 and 2020-21. Duncan's Multiple Range Test was used to identify significant differences (p=0.05) between the treatments. Seed treatment with thiram 75 WS @ 3 g kg^{-1} seeds followed by foliar spraying of ready-mix fungicides either metiram 55%+pyraclostrobin 5% WG @ 0.180% (30 g 10 $litre^{-1}$ of water) or fluxapyroxad 25%+pyraclostrobin 25% SC @ 0.031% (6 ml 10 $litre^{-1}$ of water) along with a sticker 0.1% (10 ml 10 $litre^{-1}$ of water) first at the initiation of the disease and subsequent two sprays at 15 days interval showed the lowest Alternaria blight (7.00, 7.84%) intensity as compared to untreated control (77.50%) and exhibited highest seed yield (570, 556 kg ha^{-1}) and 1000-seed weight (5.29, 5.18 g) over untreated control (109 kg ha^{-1} and 2.34 g). These treatments also registered the highest 1:4.43 and 1:3.65 ICBR. The use of a combination of fungicides, each with its own mode of action, broadens the disease spectrum, improves activity and protects against resistance development. This fungicide could be employed as a component of a programme to manage diseases and lower disease risk.

Key words: *Alternaria burnsii*, chemical control, cumin blight, ready-mix fungicides

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