Research Article

Prospecting Efficacy of Biopesticides and Chemical Fungicides for Management of Major Diseases of Sesame (*Sesamum indicum* L.)

Neelam Geat, Jeeva Ram Verma, Man Mohan Sundria and Sita Ram Kumhar

Agricultural Research Station, Mandor, Agriculture University, Jodhpur-342304, Rajasthan; E-mail: nilugeat@gmail.com

Abstract

Sesame (*Sesamum indicum* L.) is mainly grown in hot and dry regions. In recent years, regular occurrences of stem & root rot and foliar diseases have been observed in the major growing regions of sesame. Therefore, Field trials were conducted with integrated disease management practices to combat these diseases of sesame during *kharif* seasons of 2016-17 and 2017-18. Treatments comprising of combination of biocontrol agents, FYM, neem cake and fungicide were tested and evaluated for stem & root rot disease severity and crop loss. Of these treatments, seed treatment with *Trichoderma viride* + *Pseudomonas fluorescens* 10 g kg^{-1} + soil application of *P. fluorescens* @ 2.5 kg ha^{-1} + *T. viride* 2.5 kg ha^{-1} enriched in 100 kg of FYM + neem cake @ 250 kg ha^{-1} at sowing, showed substantial decrease in disease severity and increase in grain yield. In case of foliar disease management experiment, seed treatment with *T. viride* @ 10 g kg^{-1} of seed and furrow application of *T. viride* (2.5 kg ha^{-1} enriched in 100 kg of FYM) @ 250 kg ha^{-1} is commonly applied for all the treatments except control and treated check. Among the different fungicides tested against *Alternaria* leaf spot of sesame, the minimum disease intensity was recorded with foliar application of trifloxistrobin 25% + tebuconazole 50% @ 0.5 g per litre of water and against powdery mildew, the minimum PDI was recorded with foliar application of myclobutanil @ 1 g l^{-1}. The result indicated that foliar spray of trifloxistrobin 25% + tebuconazole 50% @ 0.5 g per litre of water reduces PDI of both *Alternaria* leaf spot and powdery mildew diseases and gave maximum seed yield. Based on the findings it is concluded that these disease management approaches are effective and economical for control of stem & root rot and foliar diseases of sesame under hot and dry region of Rajasthan.

Key words: *Alternaria* leaf spot, management, powdery mildew, sesame, stem & root rot

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