

EVALUATION OF RESISTANCE OF 20 SESAME GERMPLASMS TO DAMPING-OFF CAUSED BY *Fusarium oxysporum* F.SP. *Sesami* IN YAZD REGION AND INVESTIGATION OF PHENYLALANINE AMMONIALYASE (PAL) ACTIVITY IN RESISTANT AND SUSCEPTIBLE GERMPLASMS

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Abstract

Fusarium damping off caused by *Fusarium oxysporum* f.sp. *sesami* is one of the most important diseases of sesame, in all areas of sesame production in the world. In this investigation, resistance of 20 sesame germplasms to *Fusarium* damping off was assayed in greenhouse. Fifteen isolates of the causal agent were isolated from sesame in Yazd region and one isolate with the highest pathogenicity potential selected. Special test showed that the isolate was *Fusarium oxysporum* f.sp. *sesami* (FOS). Twenty sesame germplasms were assayed by disease severity index (0-2) and infection percent index (1-5) for their reaction to FOS. Statistical analysis of data showed that there was a considerable difference at about 1% level among the investigated germplasms from the perspective of resistance to disorder factor. By using the achieved findings determined that local Asfige Bahabad germplasm as resistant germplasm and local Kahnouj germplasm as susceptible germplasm. In the next step of study, PAL activity was assayed in resistant and susceptible germplasms 2, 4, 6, 8, 10 and 12 days after inoculation. PAL enzyme activity in resistant germplasm increased rapidly and reached its acme in the 4th day after inoculation and then decreased, increased to 12th day again. But this amount was lower as 4th day. In susceptible germplasm PAL activity increased slowly. This investigation showed that the increase of PAL activity can have probable role in the induction of resistance.

Keywords: Sesame germplasms, Sesame *Fusarium* damping off, Diseases severity, Infection percent, PAL enzyme, *Fusarium oxysporum* f.sp. *sesami*.

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