

Inoculation of *Macrophomina phaseolina* at three stages in sunflower plant and its effect on yield components of different sunflower varieties

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Abstract

Yield loss studies were conducted by growing the seeds of five sunflower hybrid/varieties, i.e. SC-83, SC-92, SF-187, SF-177 and HO-1. Plants inoculated with dry culture of *Macrophomina phaseolina* at sowing, flowering (60 days after emergence) and ripening time (75 days after emergence). The plant height and 1000-grain weight were significantly reduced in HO-1 variety for plants inoculated at late flowering stage to early ripening than the sowing in plots. The plants of all varieties inoculated at flowering stage also matured earlier than the uninoculated plants. The percent oil and protein content also decreased in inoculated plants of HO-1 followed by SC-92 and SC-83 as compared to SF-187 and SF-177 sunflower varieties/hybrid. The sclerotia of the fungus multiplied very rapidly when plants inoculated at flowering stage as compared to other two stages. The maximum yield (kg) per hectare was recorded in SF-177 (2130.00 and 2120.00) followed by SF-187 (2067.00 and 2049.00) sunflower plants inoculated at sowing time and ripening stage than the flowering stage. The yield losses were significantly increased in HO-1, SC-92 and SC-83 sunflower varieties. The overall yield loss in all varieties inoculated at flowering stage was (7.58-45.0%) at ripening (6.59-41.85%) and at sowing (5.54-37.97%) respectively.

Key word: Plant stage, Sunflower, Yield components, *Macrophomina phaseolina*.