

Effect of inoculum levels of *Macrophomina phaseolina* on groundnut causing dry root rot

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SUMMARY

A pot experiment was conducted to assess the root rot disease using 7 sclerotial levels starting from 125 sclerotia/plant to 8000 sclerotia/plant. The dry root rot disease drastically increased with increase in level of inoculum. 8000 sclerotia/plant produced highest percentage of dry root rot disease (99.14) followed by 4000 sclerotia/plant, where 72.49 per cent dry root rot disease was recorded. 250 and higher level of sclerotia were found significant in inducing dry root rot in groundnut.

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Key words :

Inoculum level,
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Groundnut crop is affected by several soil borne destructive diseases, among them dry root rot caused by *Macrophomina phaseolina* (Tassi.) Goid. has been noticed to cause 33.33 per cent seed rotting and 23.80 per cent post emergence mortality (Gupta and Kolte, 1982). However, there is limited information about actual magnitude of inoculum level occurrence on root rot in groundnut. Hence, the present study was conducted to estimate the root rot disease at various inoculum of sclerotia levels.

MATERIALS AND METHODS

The experiment was conducted by sowing five surface sterilized groundnut seeds (var GG 2) in each of forty sterilized pots filled with sterilized soil. Eight days old culture of *M. phaseolina* was added in distilled water and was then mixed in warring blender to make a homogeneous suspension. The number of sclerotia/ml of suspension was estimated under microscope. Sclerotial suspension of seven different inoculum levels *i.e.* @ 125, 250, 500, 1000, 2000, 4000 and 8000 per 10ml were prepared by serial dilution method. This ten ml suspension of each inoculum level was inoculated separately to root zone of each plant of five pots (five replications). Thus, total of

35 pots of seven inoculum levels were utilized and remaining five pots were inoculated only with distilled water which served as control. Observation on per cent disease incidence was recorded up to two months of inoculation.

RESULTS AND DISCUSSION

It is clear from the results (Table 1) that all the inoculum levels significantly induced

Table 1 : Effect of inoculum (sclerotia) levels of *M. phaseolina* on root rot incidence in groundnut (var GG 2) at 60 days after sowing

| Number of sclerotia /plant | Per cent root rot disease* |
|----------------------------|----------------------------|
| 125 | 9.90 (4.30)** |
| 250 | 18.23 (12.10) |
| 500 | 26.27 (20.00) |
| 1000 | 41.54 (43.97) |
| 2000 | 48.46 (56.03) |
| 4000 | 58.37 (72.49) |
| 8000 | 84.69 (99.14) |
| Control | 5.74 (1.00) |
| S.E. ± | 3.58 |
| C.D. (P=0.05) | 10.36 |
| C V % | 21.80 |

* = Average of five replications

**= Data in parenthesis are retransformed values

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dry root rot disease. The dry root rot drastically increased with increase in level of inoculum. Out of seven inoculum levels of sclerotia tested, 8000 sclerotia/plant produced highest percentage of dry root rot disease (99.14) followed by 4000 sclerotia/plant, where 72.49 per cent dry root rot disease was recorded. Inoculum level of 125 sclerotia/plant was found to be non-significant while 250 and higher levels of sclerotia were found significant in inducing dry root rot in groundnut. Similar finding of increase in inoculum level or quantity of *M. phaseolina* already have been reported to cause higher root rot incidence on various crops by various workers as in case of groundnut (Gupta and Kolte, 1982), in castor (Kanakamahlashmi *et al.*, 1999), in cowpea (Rodrigues *et al.*, 1997) and in groundnut (Umamaheswari *et al.*, 2001).

REFERENCES

- Gupta, S. C. and Kolte, S. J. (1982).** A comparative study of two isolates of *Macrophomina phaseolina* from leaf and root isolates of groundnut. *Indian Phytopathol.*, **35**(2):222-225.
- Kanakamahlashmi, B. R., Ravindra Babu and Raof, M.A. (1999).** Symptomatology and an assured method for evaluation of castor root rot caused by *Macrophomina phaseolina*. *Andhra Agric. J.*, **46**(3/4):191-194.
- Rodrigues, V.J.L.B., Menezes, M., Coelrio, R.S.B. and Miranda, P. (1997).** Comparison of two methods of inoculation of *Macrophomina phaseolina* (Tassi.) Goid on cowpea (*Vigna unguiculata*). *Summa Phytopathologica*, **23**(2):174-176.
- Umamaheswari, C., Ramakrishan, G. and Nalathambi, P. (2001).** Role of inoculum level on diseases incidence of dry root rot caused by *Macrophomina phaseolina* in groundnut. *Madras Agric. J.*, **87**(1/3):71-73.
