

Management of root rot of *Jatropha curcas* in Karnataka

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SUMMARY

Jatropha curcas, an important bio-diesel crop is infected by many diseases. Root rot is becoming severe now-a-days resulting in death of the entire plant. Experiment was conducted to know the effective fungicide for the management of root rot. Drenching with fungicides like carbendazim @ 0.1%, hexaconazole @0.1%, mancozeb @0.2% and carboxin + thiram @ 0.1%, have managed the root rot effectively. In addition, carbendazim @ 0.1% has increased the plant vigour significantly.

Key words :

Jatropha curcas,
Root rot,
Macrophomina phaseolina,
Management

Jatropha curcas L., belonging to the family Euphorbiaceae, is a multipurpose, drought resistant large shrub or small tree. It is a large soft wooded deciduous shrub, hardy, quick growing crop which can be established easily without much care. It grows in a number of climatic zones in tropical and subtropical regions of the world and can be grown in areas of low rain full (600mm per year) and in problematic sites (Punia *et al.*, 2006). It is cultivated mainly for production of seeds for bio-diesel purpose. Forceful cultivation of this crop has resulted in the occurrence of many diseases. Among the diseases, root rot caused by *Macrophomina phaseolina* is becoming severe (Patel *et al.*, 2008). Hence, an attempt was made to evaluate the fungicides against root rot of *jatropha*.

MATERIALS AND METHODS

Pot experiment was conducted in glasshouse of Agriculture College, Dharwad during 2009.

Different treatments were

- Untreated control
- Drenching of soil with hexaconazole (Contaf) @ 0.1%
- Drenching of soil with carbendazim (Bavistin) @ 0.1%
- Drenching of soil with mancozeb (Indofil M 45) @ 0.2%.
- Drenching of soil with carboxin + thiram (Vitavax power) @ 0.1%.

Planting was done on 3rd April 2009. Four replications were maintained for each treatment. Inoculum was added to the soil @ 6% in order to get the sick soil. Pots without fungicides served as untreated control. Observations were recorded for per cent disease incidence and plant growth parameters. Per cent disease incidence (PDI) was calculated by following formula.

$$PDI = \frac{\text{No. of plants infected}}{\text{Total no. of plants}} \times 100$$

Growth parameter like plant height was recorded at 15 DAP (Days after planting), 30 DAP, 45 DAP and 60 DAP.

RESULTS AND DISCUSSION

The results obtained from the present investigation are presented below :

Per cent disease incidence:

All the fungicides have reduced the root rot incidence significantly compared to the untreated control. Disease incidence was maximum in untreated control and disease was absent in all fungicides at 15, 30, 45 and 60 DAP. (Table 1 and Fig. 1).

Plant height:

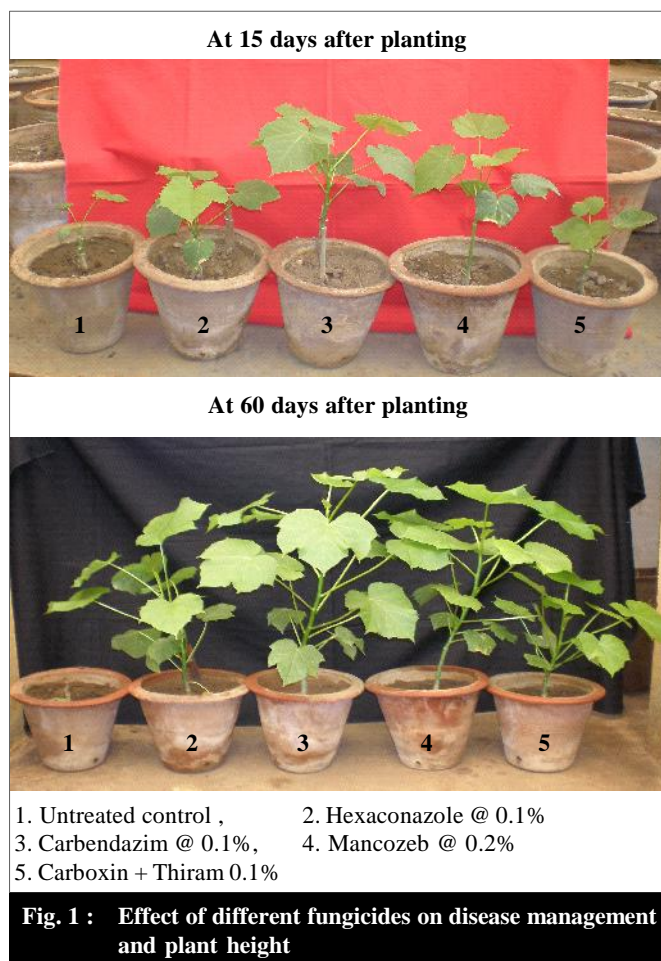
Carbendazim recorded maximum plant height at all intervals and was significantly

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Table 1 : Effects of fungicides on plant height and root rot incidence in *Jatropha curcas*

Tr. No.	Details	Plant height (cm)				Per cent incidence
		15 DAP	30 DAP	45 DAP	60 DAP	
T ₁	Untreated control	7.63	8.75	10.18	10.10	75 (8.59)*
T ₂	0.1% hexaconazole	10.18	12.25	15.95	22.13	0 (1.00)
T ₃	0.1% carbendenzim	16.50	21.43	25.60	34.38	0 (1.00)
T ₄	0.2% mancozeb	10.88	13.55	16.90	21.40	0 (1.00)
T ₅	0.1% carboxin + thiram	09.40	11.05	12.80	20.63	0 (1.00)
	S.E.±	01.64	02.09	02.49	03.76	0.38
	C.D. (P=0.05)	05.05	06.44	07.68	11.59	1.16
	CV (%)	29.98	15.59	20.06	17.31	22.27

DAP – Days after planting

*- Figures in parentheses are $\sqrt{x+1}$ transformed values

superior to all other treatments. Next best treatment was mancozeb which was at par with hexaconazole (Table 1.)

Results indicate that root rot of *Jatropha curcas* can be effectively managed by soil drenching with carbendazim @ 0.1%

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