

Research Paper :

In vitro management of *Macrophomina phaseolina* by chemicals

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SUMMARY

Chemical control is one of the measures to manage the disease and avoid the losses. The evaluation study was therefore conducted *in vitro*. Seven fungicides were tested against the pathogen *i.e. Macrophomina phaseolina in vitro*. The highest inhibition (100%) of *M. phaseolina* was observed due to carbendazim (500 ppm), chlorothalonil (500 ppm), hexaconazol (500 ppm) and captan (2500 ppm) followed by mancozeb (2500 ppm) (94.39 %) and benomyl (1000 ppm) 93.4 % and rest of the treatments significantly inhibited colony growth over control. The significantly highest inhibition (100%) of sclerotial production was recorded due to carbendazim (500 ppm), chlorothalonil (800 ppm), hexaconazol (500 ppm) and captan (2500 ppm) followed by mancozeb (2500 ppm) 96.59 % and benomyl (1000) 96.59%.

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Key words :

Macrophomina phaseolina,
Poisoned food
technique,
Inhibition zone

Oilseed crops have been the backbone of Agricultural economy of India from time immemorial. Safflower (*Carthamus tinctorius* L.) is one of the important oilseed crops of the world valued for its highly nutritious edible oil. Safflower plant is much branched herbaceous annual plant. The safflower crop is grown in India in *Rabi* or winter season *i.e.* from October / November to March/April on all types of soil including sandy soil but crop is best suited to deep, well drained fertile soil with high water holding capacity and neutral pH.

It is primarily grown as mixed or sole crop under rainfed conditions but in some area it is grown under irrigation. The important safflower growing countries are: India, Mexico, USA, Argentina, Canada, China, Spain, Italy, Turkey, Iraq, Iran, Egypt, Ethiopia and Sudan. In India, it is mainly grown in Maharashtra, Karnataka, and part of Andhra Pradesh, Madhya Pradesh, Orissa and Bihar. In Maharashtra, it is mainly grown in Solapur, Pune, Ahmednagar, Latur, Osmanabad, Parbhani, Hingoli and Jalna districts.

Economically India occupies first position in hectarage followed by USA.

Maharashtra ranks first in area and production accounting as 67% and 63%, respectively, in India (Anonymous, 2006). In India diseases play an important role in safflower cultivation and responsible to cause 25-60 % yield losses every year.

Some of the important diseases of safflower occurring in India are root rot [*Macrophomina Pheseolina* Tassi. (Goid.)], leaf spot/blight (*Alternaria carthami*), wilt (*Fusarium oxysporum* f. sp. *carthami*), powdery mildew (*Erysiphe cichoracearum* DC), anthracnose (*Colletotrichum capsici*), leaf blight/spot (*Pseudomonas syringae* Van Hall), mosaic (Cucumber mosaic virus) and necrosis (Tobacco streak virus)

Amongst these diseases the root rot caused by *Macrophomina phaseolina* Tassi (Goid) is a serious and commonly occurring as soil born disease. The fungus produces stem splitting symptoms on plant.

MATERIALS AND METHODS

The disease samples were collected from All India Coordinated Research Project on Safflower, Marathwada Agricultural

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