

# IN VITRO EFFECT OF FUNGICIDES ON LEAF BLIGHT OF GROUNDNUT

ANJALI B. SHINDE

Head, Department of Botany, Sharda College Parbhani – 43140

## ABSTRACT :

Groundnut (*Arachis hypogea* L) is a high value oilseed crop throughout Maharashtra. It plays important role in agriculture industry and export trade. Among the different diseases on groundnut the *Alternaria* leaf spot caused by *Alternaria alternate* (Fr) keissler suffer from most significant damage with disease in Maharashtra. Therefore, in the present study in vitro effect of fungicides (three systematic and two non systematic and one combi fungicides) were tested against *Alternaria alternate*. It is observed that, among the systematic fungicides carbendazim was found to be effective followed by propiconazole. Among non systematic fungicides mancozeb was most effective fungicides followed by carbendazim+mancozeb combi was found to be most effective to control the growth of *Alternaria*.

**KEYWORDS:** Fungicides, *Alternaria alternate*, Groundnut

## INTRODUCTION :

Groundnut (*Arachis hypogea* L.) is mainly grown as an oilseed crop. It contains 25%-26% oil. It is nutritionally very important due to presence of oleic and linoleic acid and also contain equal proportion of fatty acid. Besides it is rich source of calcium, magnesium, iron vitamin like B<sub>1</sub>, B<sub>2</sub>, B<sub>6</sub> niacin and tocopherol (Ravindra Ital 1988) *Alternaria alternate* (Fr). Keissler one of the most destructive disease causing pathogen. Qualitative and quantitative losses of major groundnut growing areas in Maharashtra. *Alternaria alternate* causes severe damage to agriculture crop. (Hadizadesh et al 2009). The disease appears as small oval discoloured lesions scattered irregularly on the leaves these spots become irregular in shape with increase in size and appear brown to grey in colour with yellow zone surrounding the spots. This disease has been observed in the range of 0-67% and reduced pod and fodder yield (Kumar et al 2012). Therefore, the experiment was conducted to find out the most effective chemical for the management of the leaf blight disease of groundnut.

## RESEARCH METHODOLOGY :

The evaluation of fungicides against mycelial growth of *Alternaria alternate* was tested by poisoned food technique (Nene and Thaplial 1993). The six fungicides were evaluated by this technique the non systematic fungicides viz-captan, mancozeb and carbendazim+ Mancozeb and systemic fungicides viz propiconazole and difencanazole were selected with three concentrations viz 0.05, 0.10 and 0.15. these concentrations each fungicides were incorporated in 50 ml media PDA and plain PDA medium without fungicides served as untreated control. Fungicides amended medium were aseptically in Petriplate (90mm diameter) and allowed to solidify at room temperature and inoculated aseptically with 5mm culture disc obtained from a week old actively growing pure culture. Petriplates incubated at 27±2°C for 7 days. The three replicates of each fungicidal treatment were maintained. Per cent mycelial growth inhibition of the test pathogen with the test fungicides over untreated control was calculated by applying following formula (Vincent 1927).

$$\text{Percent inhibition} = \frac{C - T}{C} \times 100$$

Where, C = growth of the test fungus in untreated plate

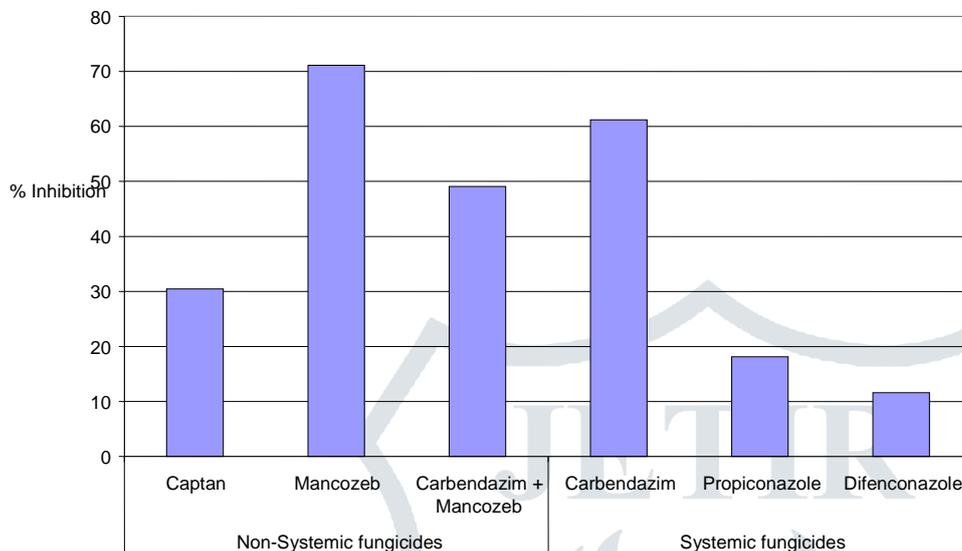
T = growth of the test fungus in treated plates.

## OBSERVATIONS :

**Table 1. Evaluation of fungicides against mycelial growth and per cent inhibition of *Alternaria alternate* of Groundnut**

Sr. No.	Treatment	Per cent inhibition at different concentration			
		0.05%	0.10%	0.15%	Ave. Inhibition (%)
	Non-Systemic fungicides				
1	Captan	20.25	32.80	38.25	30.43
2	Mancozeb	62.37	65.20	85.72	71.10
3	Carbendazim + Mancozeb	42.80	47.50	56.91	49.07
	Systemic fungicides				

1	Carbendazim	50.80	60.80	72.04	61.21
2	Propiconazole	17.00	15.25	22.15	18.13
3	Difenconazole	13.50	11.25	10.02	11.59
	Control	90.00	90.00	90.00	
	SE±	2.61	2.91	2.81	
	CD=0.05%	7.93	8.84	8.54	



**Figure 1- In vitro effect of different fungicides of mycelial growth and per cent inhibition of *Alternaria alternata* of groundnut.**

## RESULTS AND DISCUSSION :

Result revealed that (Table 1) the non- systemic fungicide Mancozeb at 0.15% concentration recorded significantly highest percent inhibition (71.10%) followed by carbendazim + Mancozeb combi fungicide (49.07%).

Among the systemic fungicide Carbendazim (61.21%) was significantly superior per cent inhibition. These results are in accordance with those obtained by According to Kapadiya (2017) mancozeb was most significantly reduced *Alternaria* leaf blight disease followed by difenacanzole and propicanazole. According kantwa (2014) Mancozeb proved to be most effective fungicides in inhibiting the mycelia growth of *Alternaria alternata* followed by copper-oxychoride and carbendazim. similar result was reported by Ghosh (2002). According to Vasudha Kadam (2018) Among systemic fungicides average 1% inhibition of mycelia growth was with Propicanazole followed by Hexaconazole. Among non-systemic and combi fungicides highest average mycelia growth inhibition was with Carbendazim + Mancozeb. These results are in conformity with the earlier findings of those workers who reported non systemic fungicides viz Mancozeb, Copper hydroxides, and combi fungicides were reported by Nikam (2014). Kursheed (2016) reported that Carbendazim + Mancozeb had completely the maximum inhibitory effect on sporulation and colony growth *Alternaria mali* infecting apple.

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