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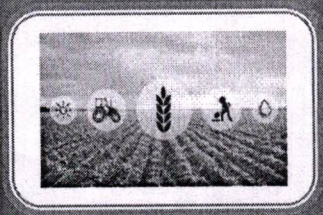

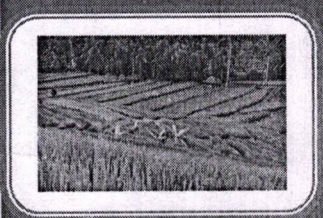

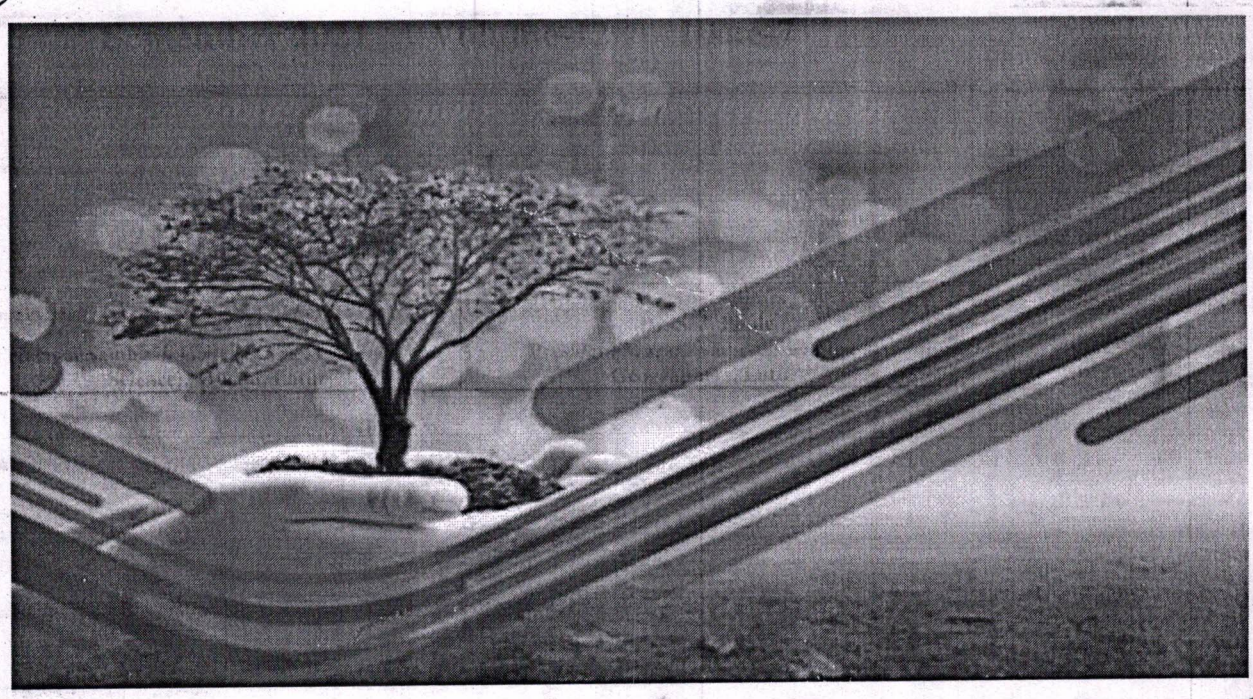

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On

Resource Management and Agricultural Development

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Study the effect of aqueous leaf extract of Adulsa *(Adathoda zeylanica L.)* on growth of *Macrophomina Phaseolina Fungus by using different concentrations*

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Department of Botany, ACS College, Gangakhed Dist., Parbhani (M.S.)

Abstract:

Macrophomina phaseolina (Tassi) Goid is a soil borne fungus causes root rot diseases to Sarpagandha (*Rauwolfia serpentina*). The fungus infects the root and lower stem of over 500 plant species and is widely distributed in the United States (Wyllie, 1988). The efficacy of *Adathoda zeylanica* aqueous leaf extract against growth of *Macrophomina phaseolina* was studied by using aqueous leaf extract of Adulsa at different concentrations i.e., 1.00, 2.00, 3.00, 4.00, 5.00, 6.00, 7.00, 8.00, 9.00 and 10.00 % for their antifungal efficacy.

Key words- *Macrophomina phaseolina*, Sarpagandha, *Adathoda zeylanica, aqueous etc.*

Materials and Methods:

Preparation of aqueous plant part extracts:

Healthy fresh leaves of Adulsa plant were collected from local region. These collected leaves, washed thoroughly with fresh water and finally rinsed with sterile distilled water.

Fifty gram leaves of Adulsa plant were cut into small pieces and grinded in a grinder by adding 50 ml sterile distilled water. Extracts thus, obtained were filtered through double layered muslin cloth in 150 ml flasks and plugged. The concentration of aqueous leaf extract was considered as 10 %. The extracts then autoclaved at pressure 15 lbs for 20 minutes. Potato Dextrose Agar (PDA) medium was prepared and sterilized at 15 lbs pressure for 20 minutes. The sterilized extracts were considered as standard plant extracts and used for the testing of antifungal activity.

The different concentrations were prepared i.e. 1.00, 2.00, 3.00, 4.00, 5.00, 6.00, 7.00, 8.00, 9.00 and 10.00 percent. The 10 ml extracts of different concentrations were individually added in 10 ml melted, cooled and sterilized PDA at the time of pouring in the petriplates and incubated at room temperature. After solidification, a 5 mm disc of actively growing 7 days old pure culture of *Macrophomina phaseolina* was incubated aseptically in the centre of plate. Three repetitions were made for each treatment. Medium without phytoextracts served as control. The observations of fungal growth in diameter were observed and recorded and percent growth inhibition was also worked out as per the method.

Experimental results and discussion:

The efficacy of *Adathoda zeylanica* L. against *Macrophomina phaseolina* by aqueous extract was evaluated at different concentrations i.e., 1.00, 2.00, 3.00, 4.00, 5.00, 6.00, 7.00, 8.00, 9.00 and 10.00 % for growth control by using Poisoned Food Technique as shown in table 1.*Adathoda zeylanica* efficacy at 1 % concentration shows 10.84 to 66.22 % in 1 to 7 days of incubation periods, at 2% concentration gives 12.15 to 74.25 %, at 3 % concentration shows 14.84 to 75.22 %, at 4 % concentration gives 16.16 to 76.45 %. at 5 % concentration gives 17.14 to 77.24, at 6% concentration shows 19.17 to 79.25, at 7% concentration gives 20.14 to 79.25, at 8 % concentration gives 22.10 to 84.35, at 9% concentration shows 25.00 to 87.74 and at 10 % concentration gives 35.46 to 92.65 inhibition of the growth of the pathogen with aqueous leaf extract concentration viz. recorded at 1 to 7 days of incubation period. The efficacy of *Adathoda zeylanica*, at 10 % concentration gives maximum inhibition of pathogen growth with increase in incubation period.

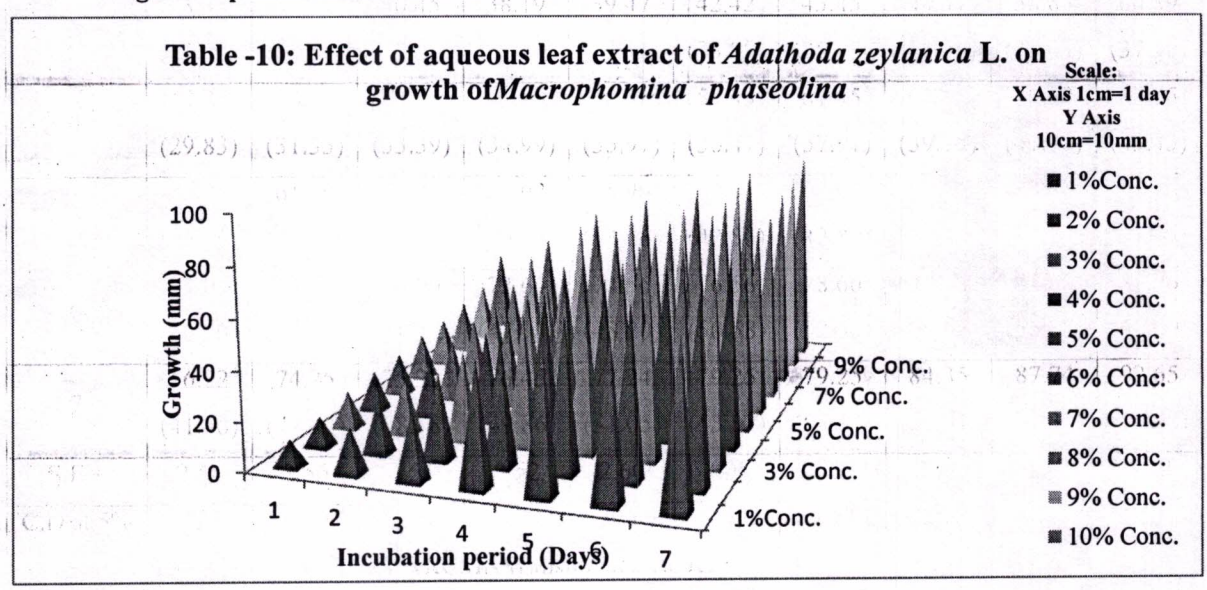
Table-1: Effect of aqueous leaf extract of *Adathoda zeylanica* L. (Adulsa) on growth of *Macrophomina phaseolina.*

Incubation Period (Days)	Percent inhibition (%)									
	Concentration (%)									
	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00
1	10.84 (6.22)	12.15 (6.97)	14.84 (8.53)	16.16 (9.29)	17.14 (9.86)	19.17 (11.01)	20.14 (11.61)	22.10 (12.76)	25.00 (14.47)	35.46 (20.76)
2	18. 94	21.35	22.94	23.37	25.35	28.35	30.38	33.45	42.05	45.44

	(10.91)	(12.32)	(13.26)	(13.51)	(14.68)	(16.46)	(17.68)	(19.54)	(24.84)	(27.02)
3	28.45 (16.52)	35.17 (20.59)	36.45 (21.37)	38.19 (22.45)	39.47 (23.24)	42.42 (25.09)	43.45 (25.75)	44.47 (26.40)	58.85 (36.04)	60.89 (37.50)
4	49.75 (29.83)	52.00 (31.33)	54.75 (33.39)	57.10 (34.99)	58.40 (35.97)	59.45 (36.47)	61.45 (37.91)	63.56 (39.79)	66.89 (41.98)	68.75 (43.43)
5	58.25 (35.79)	61.90 (38.45)	62.25 (38.49)	64.92 (40.47)	65.96 (14.26)	67.95 (42.80)	67.95 (42.80)	69.92 (44.36)	70.00 (44.72)	75.18 (49.35)
6	64.00 (40.10)	69.54 (44.45)	70.00 (44.77)	72.64 (47.13)	74.56 (48.20)	76.56 (50.58)	78.60 (52.54)	79.98 (53.93)	82.60 (56.88)	85.76 (60.60)
7	66.22 (41.46)	74.25 (47.94)	75.22 (48.78)	76.45 (49.86)	77.24 (51.05)	79.25 (53.03)	79.25 (53.03)	84.35 (57.51)	87.74 (61.33)	92.65 (67.92)
S.E ±	2.35	2.56	2.51	2.52	2.60	3.08	3.16	2.61	3.13	3.42
C.D at 5%	7.24	7.89	7.74	7.76	8.00	9.50	9.73	8.05	9.65	10.53

Figures in parenthesis are ARCSIN transformed value.

Table -10: Effect of aqueous leaf extract of *Adathoda zeylanica* L. on growth of *Macrophomina phaseolina*



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