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Efficacy of *Polyalthia longifolia* leaf extract against on *Rhizoctonia solani.*

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ABSTRACT

Asparagus officinalis L. (Shetwar) is one of the important medicinal plant of which shoots are used as vegetable. This plant to some extents affected by fungi causing diseases and yield losses. Among these fungi, Rhizoctonia solani causes seedling blight. The various plant extracts such as *Allium cepa, Cimum sanctum, Azadirachta indica, Punica grantum* and *Polyathia longifolia* were tested against of *Rhizoctonia solani* causing seedling blight of Shetwar. Among these plant extract *Polyalthia longifolia* was found most effective to control the growth of *Rhizoctonia solani.*

Keywords: Seedling blight, Shetawar, *Rhizoctonia solani* , *Polyalthia longifolia*, leaf extract.

INTRODUCTION

Asparagus is a large genus with 300 species. Out of these species, *A. officinalis* L. is one the important species in India (Naik, 1998). The shoots are mainly used as vegetable and medicinal purpose. The delicate shoots are eaten fresh as well as cooked with 12 hours (Pande and Upadhyay, 1999). The plant infected by fungi causing disease like seedling blight. The plant extracts have antifungal activities due to presence of alkaloids, tannins, essential oils, quinines, acetylinic compounds, aldehydes. Ketones, phenolic compounds and Phytoalexins were used (Fewcett and Spencer, 1969, Misra *et al.*,1992). By considering this facts and investigation has been under taken to the strudy of the efficacy of Polyalthia longifolia plant leaves extract against *Rhizoctonia solani* causing seedling blight.

MATERIALS AND METHODS

In order to seedling blight, the healthy leaves of *Polyalthia longifolia* were collected and washed with distilled water for three times. These leaves were then crushed by using 10% alcohol with the help of mortle and pestle. The extracts were filtered by using muslin cloth. The plant extract was added 100 ml of 10% alcohol. The required concentration of plant extracts was obtained by adding 0.25, 0.50, 0.75, to 2.0 % of extract in 100ml of stalk solution. Later on, 10 ml (Zapek –dox- agar) media and respective concentrations of leaf extract was mixed in a beaker and pured in different

sterilized petriplates. The same plates were inoculated by 4 mm disc of *Rhizoctonia solani* in the centre of media aseptically as per the food poisoning technique. The linear growth was measured in mm for 9 days (Gahil and Vala, 1996). The results were expressed in the form of percentage control efficacy (PCE).

RESULT AND DISCUSSION

The observations were recorded in table no.1 and figure no.1 the efficacy of leaf extracts of *Polyalthia longifolia* on linear growth of *Rhizoctonia solani* was observed and noted. The different concentrations of plant leaves extract used were from 0.25 to 2.0%. The inhibitory effect of these concentrations was varying as shown table no.1. The observation shows that the PCE value increases with increase in concentration of plant extract, but if decreased with the increasing incubation period. The 0.25%, 0.50% and 0.75% concentration shows minimum inhibition of the linear growth of the mycelium, while 2.0% has maximum inhibition. The other remaining concentration value had intermediate inhibition of linear growth of mycelium.

Table 1: Efficacy of Polyalthia longifolia leaf extract on Rhizoctonia solani

Concentration (%)	Percentage Control Efficacy (PCE)								
	Incubation period (days)								
	1	2	3	4	5	6	7	8	9
0.25	100	90.00	78.00	63.00	47.00	39.00	28.00	15.00	04.00
0.50	100	91.00	79.00	66.00	50.00	42.00	34.00	18.00	07.00
0.75	100	91.00	80.00	68.00	52.00	47.00	36.00	20.00	11.00
1.00	100	92.00	82.00	71.00	58.00	52.00	39.00	28.00	18.00
1.25	100	92.00	83.00	74.00	60.00	55.00	42.00	34.00	20.00
1.50	100	94.00	84.00	76.00	66.00	60.00	47.00	39.00	26.00
1.75	100	100.00	86.00	78.00	72.00	63.00	52.00	47.00	42.00
2.00	100	100.00	88.00	82.00	74.00	68.00	67.00	60.00	52.00
S.E. +	--	0.14	0.13	0.18	0.22	0.22	0.25	0.28	0.29
C.D.P. = 0.01	--	0.47	0.43	0.60	0.73	0.73	0.84	0.94	0.97
C.D.P. = 0.05	--	0.32	0.30	0.41	0.50	0.50	0.57	0.64	0.66

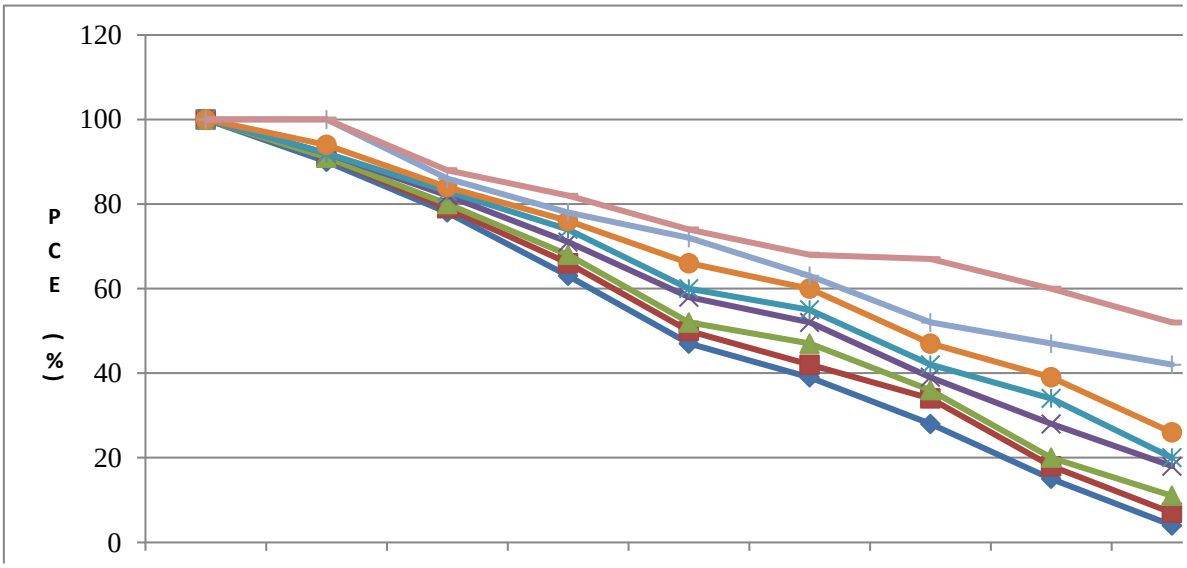

Figure 1: Efficacy of *Polyalthia longifolia* leaf extract against on *Rhizoctonia solani*

The observation clearly indicates that *Polyalthia longifolia* is effective for the control of *Rhizoctonia solani* causing seedling blight. The similar observation also found by Patni *et al*., (2005). They screened antifungal activity of plant extract against fungi. Lakshmanan et.al. used different plant extracts in the antifungal properties of some fungi. Gupta (2005) used different plant leaves extract in the management of various medicinal and vegetable plant diseases. He used in all 11 plant leaves extract against fungi causing Shetawar diseases. The different concentrations of *Polyalthia longifolia* show significant control of seedling blight of *A. officinalis* L.

Conflict of Interest

The author declares that there is no conflict of interest.

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