

## Effect of Botanical Leaf Extracts on Root Rot of Mungbean (*vigna radiata* (L.) Wilczek)

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### Abstract

The experiment was conducted under pot conditions in the Department of Plant Pathology, Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur. Mungbean seeds were treated with 30 per cent of leaf extract and sown in pre infested soil with *Rhizoctoniasolanigrown* on paddy straw. The mortality was recorded at the intervals of 20, 30 and 40 days after sowing the mungbean seeds. Among all the treatments botanical leaf powder of Neem (*Azadirachataindica*) was found most effective against *Rhizoctoniasolani* followed by botanical Neelgiri leaf extract (*Eucalyptus globulus*).

**Keywords**-Neem leaf extract, *Rhizoctoniasolani* root rot of mungbean, pathogenicity.

### Introduction

The green gram crop is attacked by a number of pathogens causing various diseases. Amongst them seed rot, pre and post emergence mortality, seedling rot and web or leaf blight due to *Rhizoctoniasolani* Kuhn are important. Seed and seedling blight of legumes caused by *Rhizoctoniasolani* has assumed economic importance in many states of India<sup>[1,4]</sup> and infects all the plant parts. The organism *R. solani* is responsible to cause pre and post emergence rot in mungbean resulting in maximum mortality of seedlings. The Disease becomes serious during kharif season under continuous rains. *R.solani* is a soil borne pathogen and attacks on seeds, seedlings and collar region of the young plants at early stages of seedling and causes considerable losses in yield<sup>[5]</sup>. Though, the disease can be managed with soil and seed treatment by recommended fungicides but these are uneconomical due to their high cost. Breeding for developing resistant varieties is a time consuming procedure. Management of disease through botanicals are economically feasible, eco-friendly means of plant disease control

### Materials and Methods

Plant leaves of Neem (*Azadirachata indica*), Karanj (*Pangamiapinnata*), Babul (*Acacia nilotica*), Neelgiri (*Eucalyptus globulus*), Ashok (*Polyanthialongifolia*), Tulsi (*Ocimumsancatum*), Bougainvillea (*Bougainvillea sp.*), Jatropha (*Jatrophacurcas*) and Mehdi (*Lausoniamermeris*) were collected from the trees located in the botanical garden of College of Agriculture, Jabalpur. Fresh plant leaves collected, were thoroughly washed in running tap water so as to remove undesirable contents. Hot water extract was prepared by drying these at 60°C in hot air oven till complete dryness. Leaves were ground with the help of pestle and mortar in to a fine powder. Ten gram powder of each plant leaf was suspended in 100 ml distilled water and heated at 70°C for 30 minutes. The decoction was filtered through cotton wool to obtain clear extract<sup>[3]</sup>. The experiment was conducted to observe the efficacy of plant leaves extract as seed treatment. Seeds of moong were surface sterilized with mercuric chloride (1:1000) and dried in shed. Good and bold and healthy seeds of

mungbean (var. TGM-1) were dipped in 30 per cent leaf extract of each plant for 30 minute and sown in sterile earthen pots containing sterilized soil composite. Each pot received 25 seeds and after germination 15 seedling were maintained. Each treatment was replicated three times and randomized over the glass house bench. The pots were irrigated with sterilized tap water as and when needed. Observations on seed germination, seedling mortality and appearance of symptoms were recorded as they appear on the plants. The glass house temperature

ranged between 18-30°C during the period of experimentation. The data so obtained was subjected to statistical analysis following complete randomized design (CRD).

**Results and discussion**

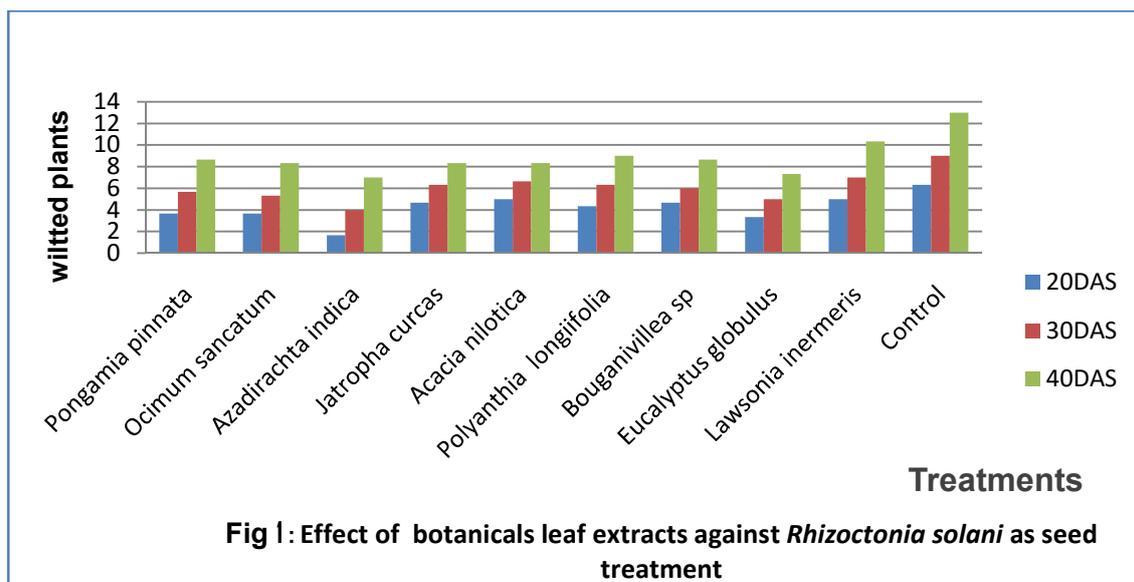
The data present in Table-1 and Fig 1 revealed that after 20 days of plant growth *A. indica* again showed its efficacy where minimum (1.66) mortality was recorded<sup>[2]</sup>. This was followed by *E. globulus* (3.33), *P. pinnata* and *O. sanctum* which were remained at par among themselves. Maximum mortality was (6.33) recorded in control.

**Table 1 Effect of botanicals leaf extracts against *Rhizoctonia solani* as seed Treatment**

S. No.	Plants	Number of wilted plant*		
		Days		
		20	30	40
1	<i>Pongamiapinnata</i>	3.66*	5.66	8.66
2	<i>Ocimumsancatum</i>	3.66	5.33	8.33
3	<i>Azadirachtaindica</i>	1.66	4.00	7.00
4	<i>Jatrophacurcas</i>	4.66	6.33	8.33
5	<i>Acacia nilotica,</i>	5.00	6.66	8.33
6	<i>Polyanthialongiifolia</i>	4.33	6.33	9.00
7	<i>Bouganivilleasp</i>	4.66	6.00	8.66
8	<i>Eucalyptus globulus</i>	3.33	5.00	7.33
9	<i>Lawsoniainermeris</i>	5.00	7.00	10.33
10	Control	6.33	9.00	13
	S.Em±	0.918937	0.760117	1.043498
	P =0.05	1.91	1.58	2.17

Similarly, 30 days after sowing minimum (4.00) plant mortality was recorded in *Azadirachtaindica* amended soil whereas maximum (9.00) was recorded in control. *P. pinnata* and *O. sanctum* recorded 5.66 and 5.33 wilted plants respectively. Rest of the treatments remained at par among themselves in keeping the plants healthy for 30 days. Seven wilted plants were recorded in 30 per cent concentration 40 days after sowing in the

pots were seeds were treated with *A. Indica* extract. This was followed by *E. globulus* (7.33) against maximum (10.33) in untreated control. *P. longifolia* did not show any significant effect in managing the disease and remained at par with control. Rest of the treatments however, statistically inferior in their efficacies but superior over control 40 days after sowing when the observations were recorded.



### References

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