E2-62 Activity of some aromatic acids against *Rhizoctonia solani*

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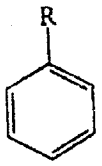
Rhizoctonia solani is a fungus commonly found in soil and is known to infect a variety of crop plants. One of the diseases caused by *Rhizoctonia solani* is the sheath blight of rice. The incidence of sheath blight has increased over the past few years and it now a major disease of rice in the wet zone of Sri Lanka.

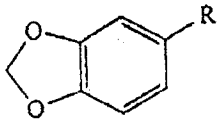
The most simple aromatic acid, benzoic acid was known to man for a long period of time as a food preservative and was proven to have antibacterial and antifungal effects. Cinnamic acid could be considered as a higher analogue of benzoic acid is also known as an antimicrobial compound. Derivatives of cinnamic acid had been subjected to antifungal and antibacterial assays and *trans* ethyl p-methoxy cinnmate inhibit the growth of several fungi at 10-50 µg/l. The next higher analogue piperic acid shows good antibacterial activity according to a previous study done by us. In the present study a series of aromatic acids were synthesized and the activity of these compounds were studied against *Rhizoctonia solani* using the agar plate assay.

The piperidine and pyrrolidine amides of the first three acids were also tested against the same fungi.

Series 1:



Series 2:



Compound	R	Compound	R
1	-COOH	6	-COOH
2	-CH=CH-COOH	7	-H-COOH
3	$-CH_2CH_2COOH$	8	$-CH_2CH_2COOH$
4	-CH=CH-CH=CH-COOH	9	-CH=CH-CH=CH-COOH
5	$-CH_2CH_2CH_2CH_2COOH$	10	$-CH_2CH_2CH_2CH_2COOH$

It is evident that when the hydrocarbon chain length increases the antifungal activity has enhanced in both series 1 and 2. Out of the acids used in the study compounds 4, 9 and 10 seems to have the highest antifungal activity. Piperidine and pyrrolidine amides of the first two acids seems to have little or no effect in improving the antifungal activity. There is a tremendous improvement of the antifungal activity of compound 3 when the piperidine and pyrrolidine amides were made and tested.