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In *vitro* Evaluation of Phytoextracts Against *Drechslera hawaiiensis* Bougn

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Nineteen phytoextracts were evaluated *in vitro* by paper disc method against *Drechslera hawaiiensis*. Results on inhibition zone recorded after 24, 48, 72 and 96 hr. of incubation revealed that extracts of garlic, eucalyptus, datura, soapnut and oinion bulb inhibited the growth of the *Drechslera hawaiiensis* as compared to control. However, garlic recorded maximum inhibition zone followed by eucalyptus, datura and soapnut.

In order to exploit the phytoextracts as non-chemical approach for management of *Drechslera hawaiiensis* causing leaf blight of papaya, nineteen various phytoextracts (Table 1) were evaluated *in vitro* by paper disc method (Thornberry, 1950).

Healthy 100 g leaves or rhizomes were washed thoroughly, cut into pieces and homogenised in a blender for 3-5 minutes in the sterile distilled water in 1 : 1 (w/v) ratio. It was filtered through double layered sterilized muslin cloth and stored in retrigerator. The extracts thus prepared were considered 1 : 1 extracts. The conidial suspension of *Drechslera hawaiiensis* having 125-150 conidia per low power microscopic field (100 x) was aseptically added to the autoclaved PDA supplemented with 200 ppm streptocyclin for avoiding becterial contamination. Thus PDA seeded with conidia of *Drechslera* sp. was poured into sterile petriplates and was allowed to solidify. On this medium four sterilized paper discs (5 mm diameter) each were placed aseptically at equidistance after dipping in each phytoextract. Paper discs dipped in sterile distilled water served as control. Eight replications of each treatment were maintained. The plates were incubated at ambient temperature (27 ± 2°C) for the growth and development of the fungus. Diameter of the inhibition zone in each case was periodically recorded and average inhibition zones computed.

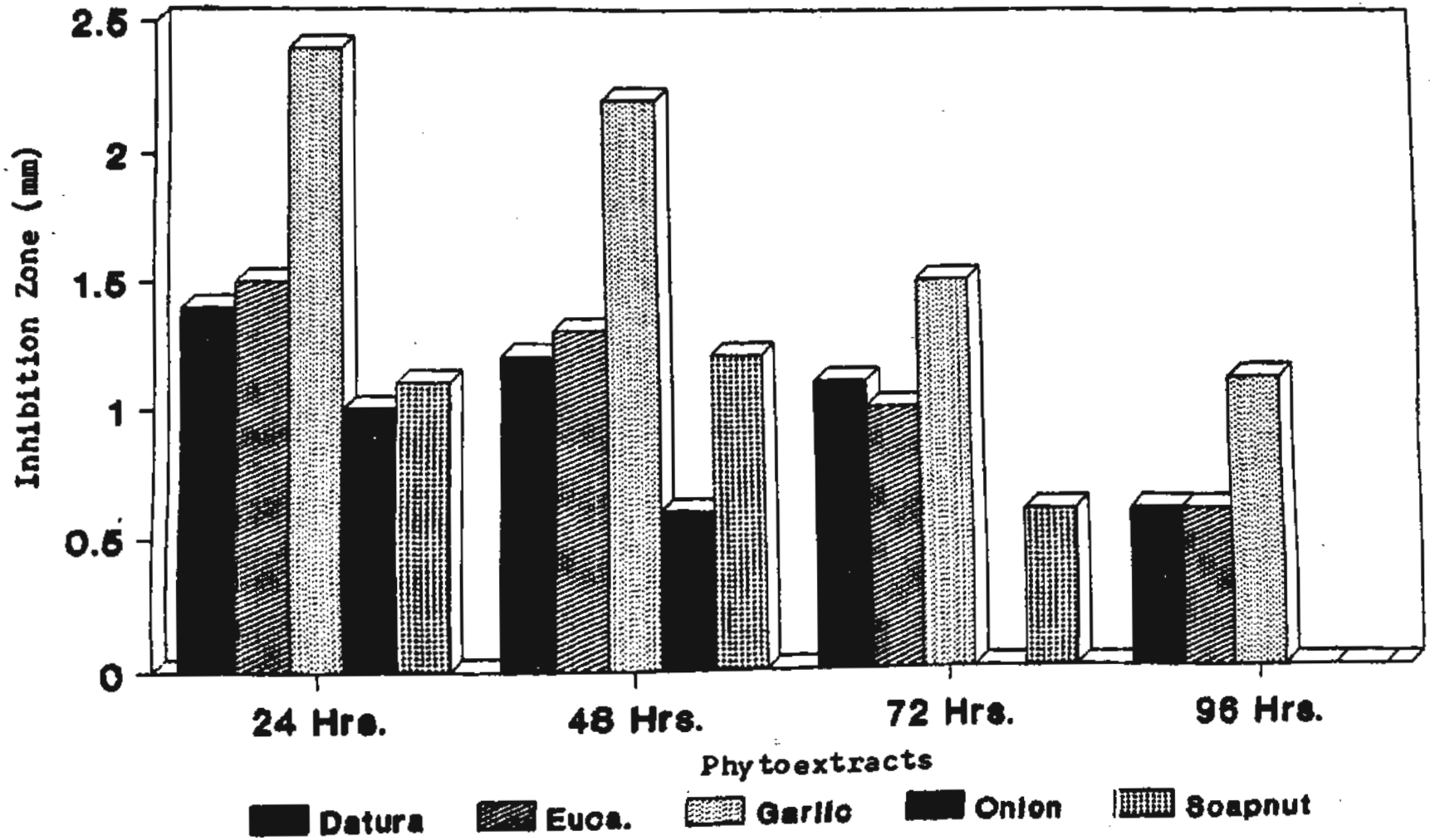
The results (Table-1) indicated that out of 19 phyto-extracts belonging to five families, extracts of five plants namely garlic, eucalyptus, datura, soapunt and onion bulb inhibited the growth of the *Drechslera hawaiiensis* as compared to control.The phytoextract of garlic produced maximum inhibition zone followed by eucalyptus, datura and soapunt while phyto-extract of onion bulb produced least inhibition zone and proved comparatively less inhibitory. No inhibitory

TABLE 1

Effect of various phytoextracts on the growth of *D. hawaiiensis*.

Sr. No.	Phytoextracts	Inhibition Zone (mm) 24 hr	48 hr	72 hr	96 her	Av.
1.	Ardusi (*Adathoda vesica* Nees)	0.0	0.0	0.0	0.0	0.0
2.	Barmasi (*Vinca rosea* L.)	0.0	0.0	0.0	0.0	0.0
3.	Bhoyringni (*Solanum xanthocarpum* Schd.)	0.0	0.0	0.0	0.0	0.0
4.	Black-tulsi (*Ocimum sanctum* L.)	0.0.	0.0	0.0	0.0	0.0
5.	Castor (*Ricinus communis* L.)	0.0	0.0	0.0	0.0	0.0
6.	Datura (*Datura stramonium* L.)	1.4	1.2	1.1	0.8	1.07
7.	Eucalyptus (*Eucalyptus citriodora* Hook)	1.5	1.3	1.0	0.8	1.10
8.	Garlic (*Allium sativum* L.)	2.4	2.2	1.5	1.1	1.82
9.	Garmalo (*Cassia fistula* L.)	0.0	0.0	0.0	0.0	0.0
10.	Ginger (*Zingiber officinales* Roscoe)	0.0	0.0	0.0	0.0	0.0
11.	Lantana (*Lantana camera* L.)	0.0	0.0	0.0	0.0	0.0
12.	Cnahendi (*Lawsonia inermis* L. ex. choisy)	0.0	0.0	0.0	0.0	0.0
13.	Nafatia (*Ipomoes fistulosa* Mart ex. choisy)	0.0	0.0	0.0	0.0	0.0

Fig. 1 : Effect of various phytoextracts on the growth of *D. hawaiiensis.*



1.	2.	3.	4.	5.	6.	7.
14.	Neem (*Azadirachta indica* Juss)	0.0	0.0	0.0	0.0	0.0
15.	Onion (bulb) (*Allium cepa* L.)	1.0	0.6	0.0	0.0	0.4
16.	Onion (leaves) (*Allium cepa* L.)	0.0	0.0	0.0	0.0	0.0
17.	Soapnut (*Sapindus trifoliata* L.)	1.1	1.2	0.6	0.0	0.72
18.	Sweet - neem (*Marrraya koenigii* spreng)	0.0	0.0	0.0	0.0	0.0
19.	Turmeric (*Curcuma longa* L.)	0.0	0.0	0.0	0.0	0.0

effect on the growth of *D. hawaiiensis* was produced by the phytoextracts of remaining plants species.

The antifungal properties of garlic, datura and onion bulb on various fungi have been reported by Sheikh and Agnihotri (1972 and 1977) and Misra and Dixit (1976). Our findings for these three phytoextracts are in similar line, whereas the antifungal properties of the extracts of eucalyptus and soapnut against *D. hawaiiensis* reported here is new.

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REFERENCES

Misra, S. B. and Dixit, S. N. (1976). Fungicidal spectrum of the *Allium sativum*, *Indian Phytopath.*, **29** (4) : 448-449.

Sheikh, R. A. and Agnihotri, J. P. (1972). "Antifungal properties of some plant extracts". *Indian J. of Mycol.* and *Pathol.*, **2** (1) : 143-144.

Sheikh, R. A. and Agnihotri, J. P. (1977). Antifungal activity of some plant extracts. *Indian J. of Mycol.*, and *Pl. Pathol.* **7** (2) : 180-181.

Thornberry, H. H. (1950). A paper disc plate method for the quantitative evaluation of fungicides and bactericides, *Phytopathology.* **40** : 419-420.

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