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IN VITRO EFFECT OF ANTIBIOTICS ON THE GROWTH OF *RHIZOCTONIA SOLANI* * KUHN

Sheath blight disease of rice caused by *Rhizoctonia solani* Kuhn, is a serious disease in many rice growting areas of India. Its occurrence has intensified with the introduction of susceptible high yielding varieties of rice. The occurrence and severity of sheath blight disease of rice in Tamil Nadu was reported by Venkata Rao and Kannaiyan (1973) and Kannaiyan and Prasad (1978). The reduction in grain yield due to severity of this disease has been estimated to vary from 5.2 to 50 per cent (Kannaiyan and Prasad, 1978). In order to assess the efficacy of certain antibiotics against *R, solani* an *in vitro* investigation was taken up.

To 100 ml of the sterilized Cazapek' a broth contained in 250ml Erlenmeyer flasks, the antibiotics Kasumin, Agrimycin–500 Oxytetracycline, Streptocycline, Tetracycline, Polyoxin, Aureofungin and Blasticidin were introduced at 50, 100, 200, 250 and 500 ppm levels. The flasks were inoculated with 8 mm discs of the pathogen and incubated under room temprature (28±2°C) for 15 days. The dry weight and sclerotial production of the fungus were recorded,

The results are presented in Table—1. All the antibiotics tried have inhibited the growth of *R. solani*. Aureofungin has caused 100 per cent inhibition of the growth and sclerotial production of the pathogen at 500 ppm. Kasumin Agrimycin–500, Polyoxin and Blasticidin have afso inhibited the growth to a considerable extent. These antibiotics also completely arrested the sclerotial production at 500 ppm level. Oxytetracycline, Tetracycline and Streptocyciine were not so effective in arresting the growih of the pathogen, It is of interest to point out here that certain antibacterial antibiotics were also effective in controlling fungal diseases of plants (Gupta *et al*. 1973), The control of rice diseases with antibotics were studied by Padmanabhan *et al*. (1961). In the present study an, antibacterial antibiotic Aureofungin was significantly effective in inhibiting the growth and sclerotial production of *R. solani* at 500 ppm in liquid culture. Kannaiyan and Prasad (1979) have reported the effective control of sheath blight disease of rice under field conditions with Aureofungin at 1000 ppm level.

സംഗ്രഹം

നെല്ലിനു പോളരോഗം വരുത്തുന്ന റൈസ്കോറാണിയാ സൊളാനി എന്ന കുമിളു കാരണത്തിനെതിരെ ആൻറിബയോട്ടിക്ക് ഔഷധങ്ങളുടെ ശക്തിയെ സംബന്ധിച്ച് നടത്തിയ പരീക്ഷണങ്ങളിൽ ആറിയോഫംഗിൻ 500 ppm (ഒരു ഗ്രാം മരുന്നു രണ്ടു ലിറർ വെള്ളത്തിൽ) കുമിളുകളുടെ വളർച്ച പരിപൂർണ്ണമായി നിയന്ത്രിക്കുന്നതിനു ഏറ്റവും ഫലപ്രദമാണെന്നു കണ്ടു.

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Table 1

Effect of certain antibiotics on the growth and scleretial production of *Rhizoctonia solani*

	Cencentration (ppm)											
	50		100		150		200		250		500	
	Inhibition (%)	Sclerotial Production	Inhibition (X)	Sclerotial Production	Inhibition (%)	Sclerotial Production	Inhibition (%)	Sclerotial Production	Inhibition (%)	Sclerotial Production	Inhibition (%)	Sclerotial Production
Kasumin	84.60	+	87.91	+	89.00	+	90.30	+	92.00	—	94.90	—
Agrimycin-500	61.36	+	67.52	+	78.40	+	84.40	+	87.10	—	91.80	—
Oxytetracycline	57.13	+++	60.95	+++	63,60	+++	68.60	+++	75.40	+++	78.90	+++
Streptocycline	43.39	++++	48.62	++++	55.40	++++	62.40	++++	70.70	++++	76.50	++++
Tetracycline	49.61	++++	53.66	++++	57.60	++++	62.30	++++	71.10	++++	76.10	++++
Polyoxin	85.20	++++	87.31	+++	88.70	+++	89.60	+++	90.80	+++	93.80	—
Aureofungin	85.55	++	89.72	+	91.20		93.10	—	95.50	—	100.00	—
Blasticidin	59.12	+++	66.77	+++	76.00	+++	83,90	+++	86.70	+	92.70	—

Antibiotics–SE=2.1633; CD=6.07
Concentrations–SE=1.8728; CD=5.25
Significant at 1% level
+ to ++++ = Intensity of Sclerotial production
– =No sclerotial productions.

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