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EFFECT OF FUNGAL ANTAGONISTS ON *PHELLINUS NOXIUS* CAUSING BROWN ROOT DISEASE OF *HEVEA*

Brown root disease caused by *Phellinus noxius* (Corner) G. H. Cunn. is considered the only significant root disease of *Hevea* in India. The control of this disease is mainly dependent on chemicals used for drenching the plant base and for painting the affected roots (Rajalakshmy, 1980; Tan, 1990). Cover crops grown in rubber plantations promote antagonistic micro-organisms besides themselves acting as decoy hosts of root disease pathogens of rubber, thus reducing disease incidence (Fox, 1965). The antagonism of *Trichoderma* spp. against *Rigidoporus lignosus* and their use in integration with fungicides for the control of white root disease of rubber have been explored (Jollands, 1983; Hashim, 1990). In the present study, isolation and evaluation of potential antagonists of *P. noxius* were attempted and the effect of their introduction to rhizosphere of rubber nursery seedlings in the pathogen infested soil was observed.

Rhizosphere soils of nursery seedlings were collected from different rubber growing areas and antagonistic fungi isolated by double layer technique. Soil dilution (1:1000) plates were poured with rose bengal agar (RBA) medium. After incubation for five days at 28±2°C, a second layer of pathogen-seeded potato dextrose agar was poured above the first layer and incubated for another five days. The colonies of fungi on the RBA, above which a zone of inhibition was formed or those which overgrew the pathogen were marked, picked up by inverting the plates, purified and given code numbers. The candidate fungi so selected were screened for their antagonism to *P. noxius* by dual culture method (Dennis and Webster, 1971) and the more promising isolates selected. The antagonism of these isolates were compared with other species of *Trichoderma*. The radial growth of the antagonistic fungi and the pathogen was recorded and the percentage inhibition of the pathogen calculated using the formula:

$$\frac{\text{Growth (in control} - \text{dual culture)}}{\text{Growth in control}} \times 100$$

where the control was axenic culture of the pathogen.

The antagonistic fungal isolates were mass-multiplied on sand-sorghum (19:1) medium. A culture of the pathogen, multiplied on the same medium and mixed with the soil (225 g per bag), was used for filling the top 15 cm of the polythene bags (25 x 50 cm). The bags were arranged in nursery rows, watered and the inoculum allowed to stabilize for three days.

Bold rubber seeds were sprouted in sand beds and seeds with uniform sprouts selected. Small planting holes were made on the top soil in the polybags to a depth of 2.5 cm to accommodate the sprouted seeds. Ten grams of the antagonist inocula were introduced into each planting hole over which the sprouted seeds were placed. The soil was then packed around the seeds. The plants were watered regularly. Treatments with only the pathogen inoculum introduced in top soil and also those without inocula served as controls.

The height of the plants and girth at 2.5 cm