

Table 1 Effect of mycorrhizal infection on shoot and root weight and P and Zn content of rice cultivars Jaya and Ratna

Cultivar	Mycorrhizal infection (%)	Shoot dry weight (g)	Root dry weight (%)	P content (%)		Zn content ($\mu\text{g g}^{-1}$)	
				Shoot	Root	Shoot	Root
Jaya (+M)	40	4.4 ^b	3.1 ^b	0.215 ^b	0.156 ^b	91.4 ^b	71.6 ^b
Jaya (-M)	0	2.4 ^a	1.4 ^a	0.132 ^a	0.070 ^a	42.3 ^a	24.5 ^a
Ratna (+M)	49	4.8 ^b	3.2 ^b	0.291 ^c	0.197 ^c	110.3 ^c	80.8 ^c
Ratna (-M)	0	2.6 ^a	1.6 ^a	0.142 ^a	0.082 ^a	45.9 ^a	28.7 ^a

(+M) = Mycorrhizal, (-M) = Non mycorrhizal; Mean values in a vertical column without common letters in their superscripts are significantly different at $P = 0.05$

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TISSUE INVERTASE AS A POSSIBLE INDEX OF SMUT INFECTION IN SUGARCANE

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CHANGES in the activity of invertase in host-pathogen relationships involving biotrophic fungi are well-recognised^{1,2}. In sugarcane infected by the smut pathogen, symptom expression occurs only after an incubation of 40 to 60 days. An early detection of infection by any physiological index would enable early diagnosis of the disease for various purposes. Hence, the changes in invertase activity of sugarcane seedlings in the early stage of smut development were examined.

Healthy and smut-infected single bud cuttings of the susceptible cane Co 1287 were separately

Table 1 Tissue invertase activity of healthy and smut-infected sugarcane seedlings

Tissue	Invertase activity* (μg reducing sugar/hg of dry tissue)	Per cent increase over healthy tissue
Healthy leaf	2893	-
Healthy apical meristem	3735	-
Diseased leaf	4260	47.3
Diseased apical meristem	6292	68.5

*Mean of four replicates.

planted and raised under uniform conditions. Top 3 leaves and apical meristems from 20-day-old seedlings were sampled and invertase activity was determined³.

The results (table 1) show that invertase activity in both the leaf and apical meristems of the diseased seedlings was nearly twice that of the healthy ones. Invertase activity of smutted maize plants increased several fold after 12 days of incubation². Hence, further assessment of invertase activity of smutted sugarcane seedlings over a wide range of incubation periods could indicate the ideal stage for its assessment to serve as an index to establish positive infection by the smut fungus. This would enable diagnosis of the disease at a very early stage to eliminate a large number of susceptible clones in programmes of smut resistance breeding.

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HELICODENDRON AMAZONENSE: AN ADDITION TO THE FUNGI OF INDIA

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DURING the survey of Hyphomycetes colonizing diversified plant litter from some forest areas of Andhra Pradesh, an interesting helicosporeous Hyphomycete was collected on decaying wood and subsequently identified as *Helicodendron amazonense* Matsushima¹ which forms not only a new record for the fungi of India but also a second report of collection after the author's first isolation from Peru. Goos *et al*² gave a monographic treatment of the anamorphic genus, *Helicodendron* in which they mentioned that, of the sixteen described species of this genus, *H. amazonense* and *H. indicum* Varghese and V. G. Rao, belong to the ecological group



Figure 1. *Helicodendron amazonense* showing conidia with conidiophores.

known as aero-aquatic fungi. The present collection does not differ much from the type except for small variation in conidial size. A brief description of the fungi is given below along with a figure showing details of conidia and conidiophore.

The fungus forms effuse greyish white colonies on the substratum, with immersed mycelium. The conidiophores are macronematous, developing as lateral branches from the assimilative hyphae. Conidia are solitary, helicoid, ellipsoidal, hyaline, white in mass; conidial filament 6–10 μ in diameter, tightly coiled 3–5 times clock-wise, septate, constricted at the septa; mature conidia measuring 25–45 μ long and 20–30 μ wide.

Collected on dead and decaying wood, near Rampa water falls, 3 km away from Rampachodavaram (E. G. dist. A. P.) India, N. Krishna Rao, 2 Nov. 1985, Herbarium, OUMH/NKR/327.

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