Reprinted from *Current Science*, February 5, 1988, Vol. 57, No. 3, pp. 153-155

RP 727

VESICULAR-ARBUSCULAR MYCORRHIZAL ASSOCIATION IN BANANA

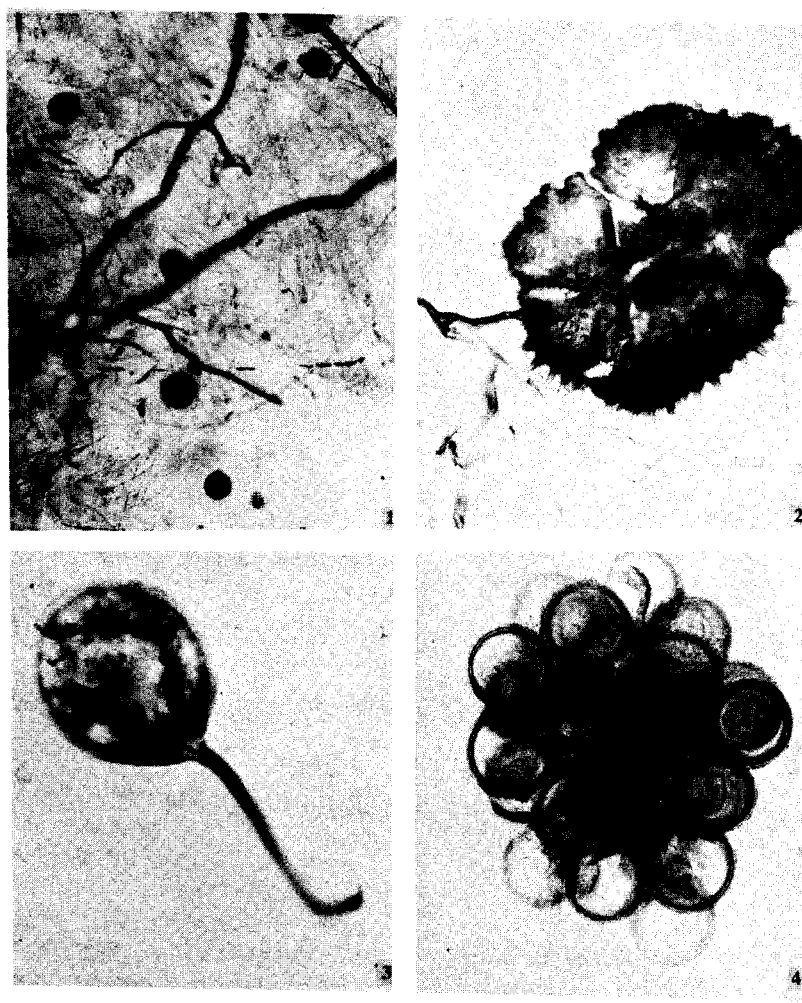
ROHINI IYER, H. MOOSA and
R. KALPANA SASTRY
Central Plantation Crops Research Institute, Kasaragod 670 124, India.

VESICULAR-ARBUSCULAR Mycorrhizas (VAM) have been reported in a wide range of crops. The fact that these endophytes have been attributed with a number of properties to increase crop production is of great significance to perennial cropping systems involving plantation crops. Banana (*Musa sapientum*) is an important crop in Kerala, grown as a pure and as a mixed crop in coconut and arecanut plantations and at this Institute it forms a component of 18 crops in a coconut-based high density multispecies cropping system (HDMSCS)[1]. It has also been grown as a sole crop (control). The occurrence of VAM fungi in banana grown in both the plots is reported in this communication.

Root sample and root-zone soil sample were collected from banana plants in both the plots. Samples were taken 25 cm away from the base of the pseudostem and at a depth of 0–25 cm. One composite sample was obtained by pooling three samples around one plant. Three such plants were thus sampled to get three replications.

Root samples were processed by clearing with 10% KOH solution and staining with trypan blue[2]. The per cent mycorrhizal infection of the roots was determined by root slide technique[3].

The number of mycorrhizal spores in root zone



Figures 1–4. 1. Accessory vesicles of *Gigaspora heterogama*; **2.** A cluster of vesicles of *Gigaspora decipens*; **3.** Vesicle formed by *Glomus macrocarpum*; **4.** A cluster of Chlamydospores of *Glomus fuegianum*.

soil was determined by wet sieving and decantation techniques[4]. Observations of root and root zone samples revealed the presence of two VAM fungi, *Glomus macrocarpum* and *Glomus fuegianum* in the banana crop grown in the control plots and the presence of three VAM fungi, *Gigaspora heterogama*, *Gigaspora decipens* and *Glomus macrocarpum* in the banana grown in HDMSCS. Indentification was done based on synoptic keys to the genera and species of zygomycetous mycorrhizal fungi[5]. Infection by more than one fungus was common. Vesicles and arbuscules characteristic of these fungi were seen in the root samples. Intensity of root colonization ranged from 61 to 68% and the average spore count ranged from 3.3 to 4.3/g.

This appears to be the first report of VAM fungi in banana, grown either as a continuous crop or as a component crop in high density multispecies cropping system.

15 June 1987; Revised 20 August 1987

1. Anonymous, *CPCRI Annual Report for 1983, Published* 1985, p. 45.
2. Philips, J. M. and Hayman, D. S., *Trans. Br. Mycol. Soc.*, 1970, **55**, 158.
3. Giovannetti, M. and Mosse, B., *New Phytol.*, 1980, **84**, 489.
4. Gerdemann, J. W. and Nicolson, T. H., *Trans. Br. Mycol. Soc.*, 1973, **46**, 235.
5. Trappe, J. M., *Phytopathology* 1982, **72**, 1102.