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### EFFECT OF SESBANIA MOSAIC VIRUS INFECTION ON THE NITRITE REDUCTASE ACTIVITY IN LEAF TISSUES OF DHAINCHA (*SESBANIA SESBAN* (L.) Merr.)

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DHAINCHA has gained great popularity as a green manure crop for rice, potato, sugarcane and cotton crops. In 1978 a viral disease was observed on it and around Gorakhpur. The virus was identified tentatively as sesbania mosaic virus (SeMV) and its effect on the host metabolism was investigated<sup>1</sup>. The effect of SeMV infection on the nitrite reductase (NiR) activity in leaf tissues of dhaincha is reported in this paper.

NiR, a flavoprotein, is utilised in the biosynthesis of amino acids in plants. It enables the reduction of nitrite ions by using reduced ferredoxin, which is an important direct source of electrons for nitrite reduction in leaves<sup>2</sup>. Virus infection is known to alter the course of nitrogen metabolism of the host<sup>3</sup> but the NiR activity of virus infected plants has not been investigated so far.

Dhaincha [*Sesbania sesban* (L.) Merr. var. picta (Prain)] Cv Shevari was used as the host and SeMV as the pathogen for systemic multiplication. Nine-day old dhaincha seedling plants were arranged in two groups of 120 each. The first group of seedlings was left as healthy control, while the second group was inoculated with SeMV by leaf rubbing method. NiR activity in dhaincha leaves was estimated from fresh samples at 10-day interval<sup>4</sup>. The experiment was performed in triplicate and the average recorded as a function of time (post inoculation).

The data in figure 1 revealed that virus infection caused a proportionate decrease in the NiR activity of test plants. An increase in the enzyme activity was however observed on the 20th day of inoculation in both the healthy and diseased leaves followed by steady decrease.

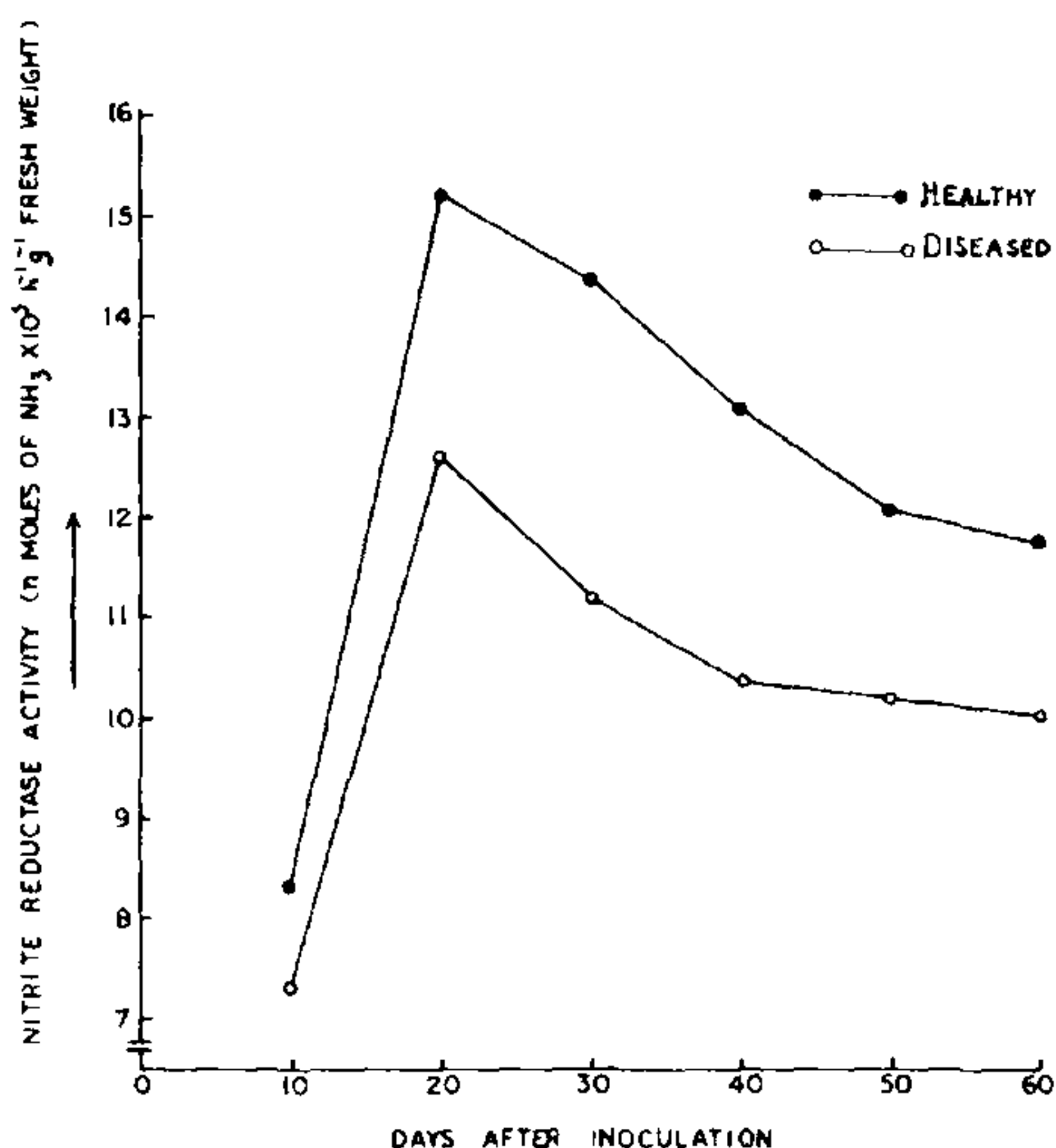


Figure 1. NiR activity of test plants.

The enzyme (NiR) has been reported to occur in chloroplasts<sup>5-7</sup>. Any damage to this pigment can be taken as reflection of the activity of the enzyme. The virus infection caused symptoms of mosaic, chlorosis and also reduction in leaf size<sup>1</sup>. The intracellular manifestation is either the loss of chlorophyll or the breakdown of the chloroplast or both<sup>8</sup>. Thus, the lowered NiR activity in the present case is associated with loss of chloroplast/chlorophyll in virus-infected leaves. Loss of chloroplast pigments due to virus infection has been reported in virus infected host leaves by earlier workers<sup>8-11</sup>.

The author is grateful to Dr R. Singh for guidance.

15 April 1985; Revised 8 October 1985

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### *HETEROPATELLA INDICA* MUTHUMARY SP. NOV. FROM INDIA

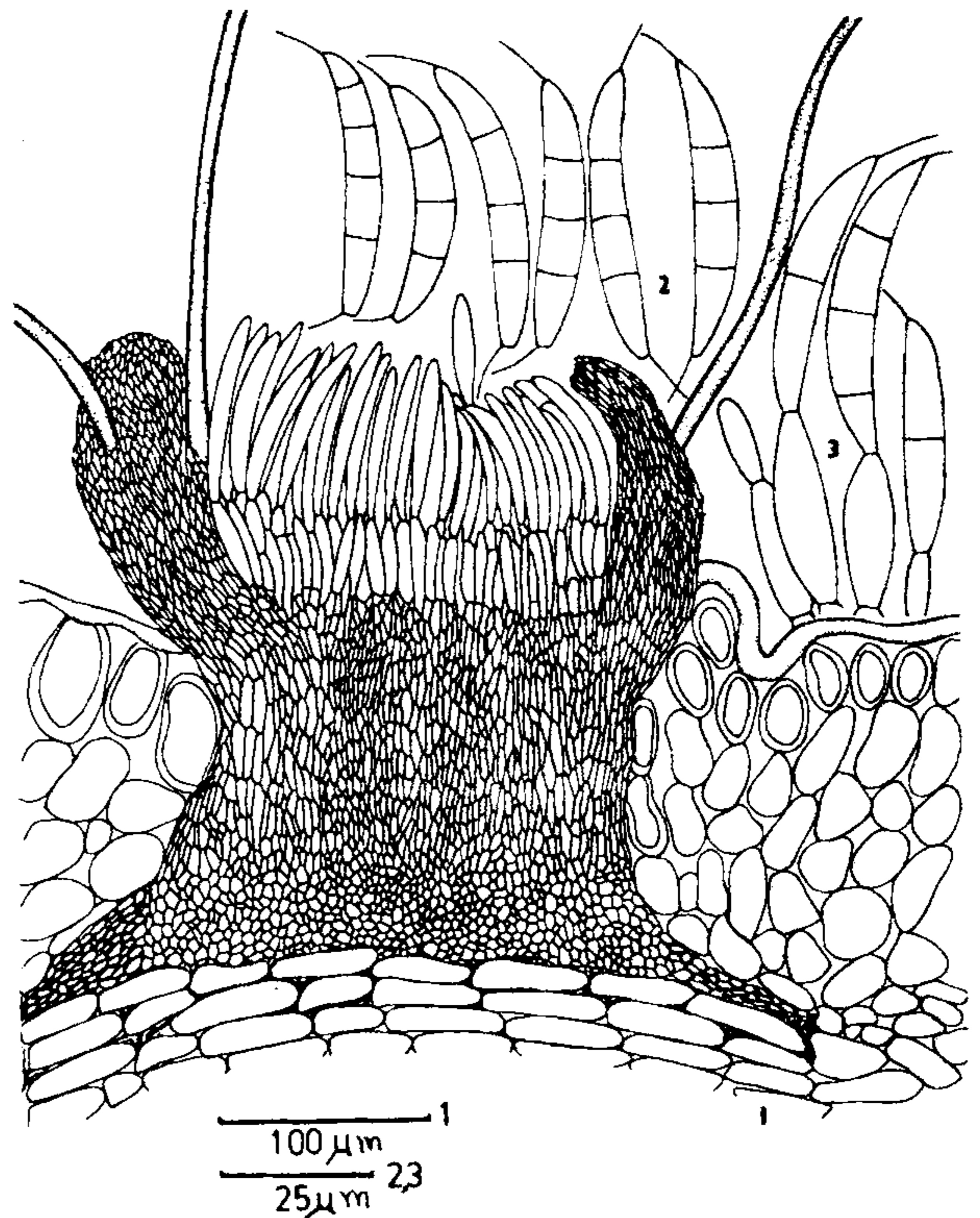
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DURING a study of Coelomycetes from South India, an undescribed species of *Heteropatella* was collected on fallen twigs of *Eugenia jambolana* inside the Madras Christian College campus, Tambaram, Madras. A description of the fungus is given below.

The fungus forms black, cupulate conidiomata on dead twigs. The conidiomata are solitary, at first closed, later opening to become cupulate, 250–400  $\mu\text{m}$  in diam. In vertical section, the conidioma is peridermal; the basal part is immersed in the peridermal tissue and the cupulate part is erumpent. The wall of the conidioma is multilayered, consisting of thin-walled, hyaline to pale brown, textura angularis at the base, at the sides of similar darker tissue which develops into textura porrecta at the periphery (figure 1). Setae are present on the outer wall of the conidioma. They are brown, rigid, septate, smooth, tapering, paler towards the subacute apex, 150–200  $\times$  3.75–4.0  $\mu\text{m}$ , confined to the sides of the conidioma.

The conidiogenous cells line the cavity of the conidioma; arranged in a palisade, blastic, hyaline, smooth, cylindrical, 25–30  $\times$  3.5–4.0  $\mu\text{m}$  (figure 3). The conidia are fusiform, 3-septate, very rarely 4-septate, hyaline but pale brown in mass, thin-walled, smooth, straight to slightly curved, often guttulate, apex obtuse, base truncate, 45–50 ( $\bar{X}$  = 46.0)  $\times$  5.0–5.5 ( $\bar{X}$



Figures 1–3. 1. Vertical section of conidioma. 2. Mature conidia. 3. Conidiogenous cells with young conidia.

= 4.5)  $\mu\text{m}$  apical appendage terminal, unbranched, 11.5–14.0  $\mu\text{m}$  long, basal appendage excentric, filiform, unbranched, shorter than the apical appendage, 7–8  $\mu\text{m}$  (figure 2).

About 17 species have been described in *Heteropatella*. No species was described on *Eugenia jambolana*. The present fungus has been assigned to the genus *Heteropatella* because of the presence of the cupulate conidioma, the simple blastic conidiogenous cells and the appendaged, hyaline phragmospore. However, the present fungus is distinct from known species of *Heteropatella* in that conidiomata are peculiarly cupulate in which the basal portion is immersed in the host tissue and the cup-like upper portion is erumpent and provided with setae; the conidia are also different from those of *Heteropatella* species so far known. Hence the fungus is described as a new species.

*Heteropatella indica* sp. nov. Muthumary

Conidiomata nigra, solitaria, primo clausa, postea aperientia, inde cupulata, 250–400  $\mu\text{m}$  diametro. In