

loped on WM + kinetin (5 ppm), and the growth of even primary root was impaired to a great extent. Normal germination of the seed was checked on the auxin-containing media. Within a week of implantation on WM + 2, 4-D (5 ppm), the seed showed callusing after much hypertrophy of the radicle and hypocotyl (Fig. 1B). A similar callus from the radicle was also observed on WM + IAA (5 ppm) and NAA (5 ppm). The hypocotyl segments from seedlings grown on WM and planted on WM + 2, 4-D (5 ppm), likewise, exhibited callusing within a week. The callus continued to grow indefinitely on this medium. When the callus grown on WM + 2, 4-D (5 ppm) was transferred on WM, profuse rooting was observed after about 2 weeks from the callus surface (Fig. 1C).

In carrot (*Daucus carota*) also, 2, 4-D induces callusing and it has to be deleted from the medium to bring about profuse embryogenesis³. In the present study though embryogenesis has not been observed, rhizogenesis occurs by a similar deletion of 2, 4-D from the medium. Further work is in progress to induce the differentiation of embryoids and shoot buds in the culture of various plant parts of *C. tinctorius*.

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* This note is humbly dedicated to the memory of the late Professor H. E. Street (died December 4, 1977), one of the pioneers of the plant tissue culture.

ORGANOGENESIS IN TISSUE CULTURES OF A LAC HOST *MOGHANIA MACROPHYLLA*

Moghania macrophylla (Willd.) O. Ktze. is a wild shrub which serves as a host for the lac insect¹. The lac insect thrives on the sap of young twigs of only specific angiosperms. In the present communication we describe the organogenesis in tissue cultures of one such host, namely *Moghania macrophylla*.

Seeds of *M. macrophylla* from the Indian Lac Research Institute, Namkum (Ranchi) were cultured on White's modified medium (WM)² and on WM supplemented with various phytohormones as described by Nag and Pandey³.

The seed (Fig. 1A) shows epigeal germination. On WM it showed normal germination forming a seedling (Fig. 1E) after about 3 weeks. A more or less similar seedling was formed on WM + GA₃ (5 ppm). On WM + 2, 4-D (5 ppm) seedling formation was checked, the cotyledons callused after about 2 weeks (Fig. 1B). The callus was unorganised and grew indefinitely on this medium. On WM + NAA (5 ppm) the plumule developed into a miniature shoot (Fig. 1D) of limited growth; the cotyledons exhibited callusing and numerous (up to 15 per cotyledon) roots differentiated from the callus. On WM + IAA (5 ppm) roots developed either directly from the cotyledons or after callusing. No shoot bud formation was observed on the auxin-containing media. On the other hand, on WM + kinetin (5 ppm) root formation was completely inhibited (Fig. 1C); and 3-6 adventitious shoot buds developed from the juncture of the cotyledons and the epicotyl after about 3 weeks of culture. These buds remained dwarfed on the above medium, but developed into shoots on transfer to WM + IAA (2.5 ppm) + kinetin (5 ppm).

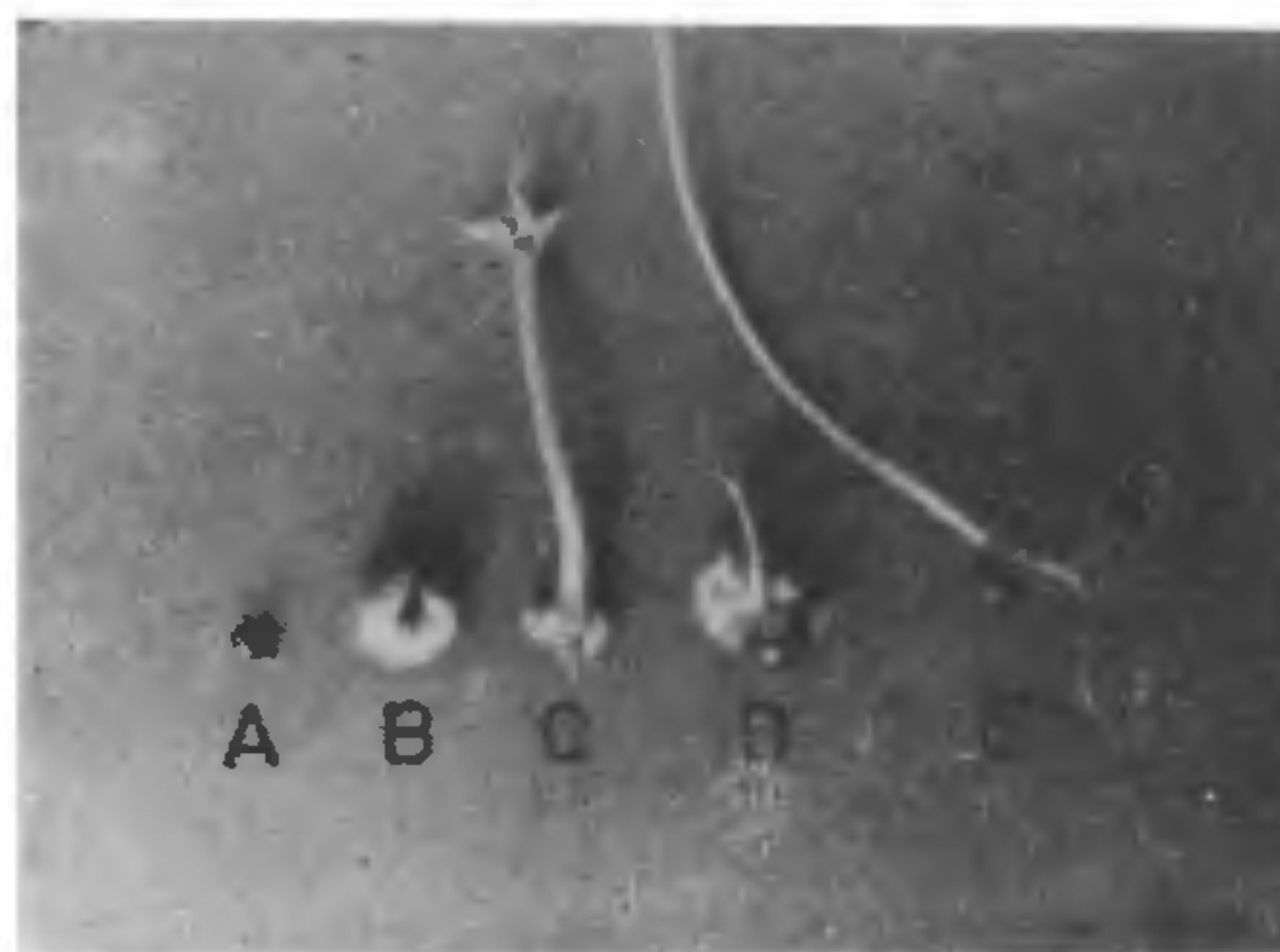


FIG. 1A-E. *Moghania macrophylla*. A. Mature seed; B. 2-week-old culture on WM + 2, 4-D (5 ppm) showing callusing of cotyledons; C. 3-week-old culture on WM + kinetin (5 ppm), note the inhibition of root formation; D. 3-week-old culture on WM + NAA (5 ppm) showing callused cotyledons and a miniature shoot; E. 5-week-old culture on WM, apical portion of the seedling not seen, note the well-developed root. X 0.5.

The stem segments from seedlings grown on WM and planted on WM + IAA (5 ppm) showed profuse rooting from all over the surface of the explant. It is interesting to note that roots differentiated even from the internode region of the stem without callusing. The present findings thus show that in *M. macro-*

phylla the formation of roots and shoot buds can be chemically controlled.

We are grateful to Professor J. P. Sinha, Head of the Department of Botany for facilities. One of us (J. A.) is thankful to the authorities of Ram Lakhan Singh Yadav College, Ranchi for granting study leave.

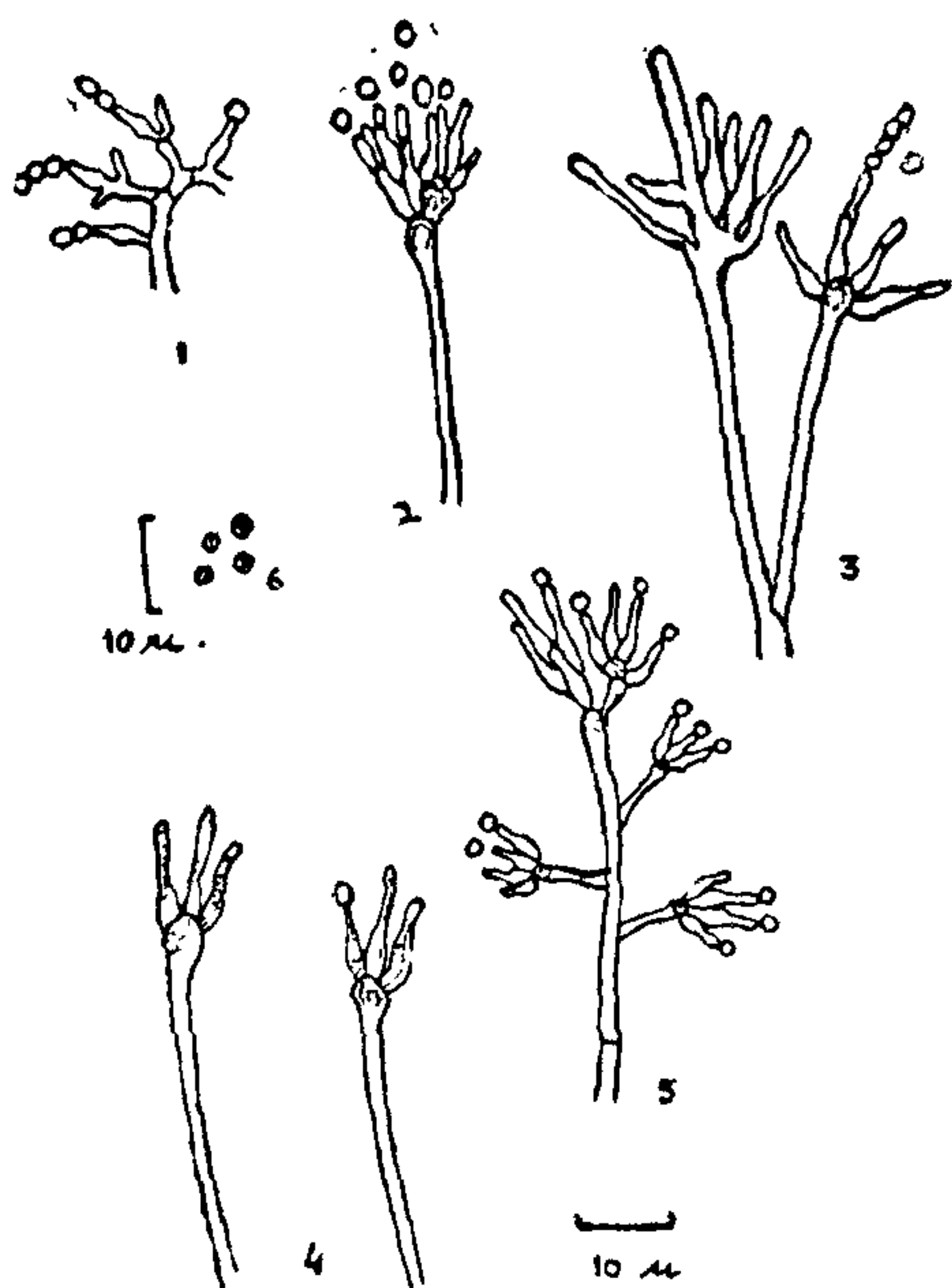
Department of Botany,
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A NEW VARIETY OF *ASPERGILLUS SYDOWII*

A NEW variety of *Aspergillus sydowii* (Bain and Sart). Thom. & Church¹ has been described here as *A. sydowii* var. *agraii* Sharma et Sharma var. nov., isolated from leather material. Its characters were studied on Czapeks dox agar, P.D.A. and Nutrient agar media at 28° ± 1° C.



FIGS. 1-6. *A. sydowii* var. *agraaii* Sharma et Sharma var. nov.

Aspergillus sydowii var. *agraaii* Sharma et Sharma var. nov.: (Plate A)

Coloniae levis, fusce caeruleum cum albus margo, caesius ad fusce ganus, medius canus cum fuscus ruber sudare, diffusilis lucidus fulvus pigmentum, in opposito fulvus, vetus coloniae maius oliva brunneae ad hebes ruber; hyphis sterilibus, septasis, hyalinis, fertilibus, erectis. Capitalis fragmentus similis *Penicillium* cum fulgere metulae. Conidiophoros longis × 2.0-2.5 μm, hyalinis, levis, vesicula redegere globosis ad sub globosis usque 6.0-14.5 × 8.7 μm; sterigmatibus primariis 2.8-3.5 × 2.9 μm, secundaria 3.8-11.4 × 3.0 μm, conidiis globosis, levis, hyalinis 3.0-5.8 μm diam.

In deteriorem Indus aluta litamus cotium in loco Agra, U.P., India, die September 1976 a. K. D. Sharma et O. P. Sharma, typus positus in C.M.I., Kew, England, IMI 209134.

This new variety is morphologically distinct from typical species of *A. sydowii* in having very blue appearance and various shade of blue and greyness, diffusible bright yellow pigment in medium, presence of deep red exudate, heads are fragmentary and like *Penicillium*, metulae directly borne on mycelium. There is marked reduction of vesicle to the extent that it has completely disappeared in large number of heads. Sterigmata directly borne on the round tip of conidiophores. It also differs in measurements.

We thank Dr. Onions, CMI, Kew, England for identification of culture and valuable suggestions, Dr. K. G. Mukerjee, Reader in Botany, Delhi University for encouragement and Principal Agra College, Agra for facilities. Thanks are gratefully acknowledged to the C.S.I.R., New Delhi for financial assistance to the project undertaken.

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UTILIZATION OF NITROGENOUS COMPOUNDS BY *POLYPORUS HIRSUTUS*

FUNGI possess a varied type of nutrition, unlike the autotrophs. Among them the behaviour of wood-rot fungi, which are capable of breaking down carbohydrates and lignin, is singularly different from that of the other fungi. Since there appears to be no information regarding the nutritional requirements of wood-