Table 1 *Comparison of the characteristics of the three species of Myrothecium with those of the new isolate*

Characteristics	*M. roridum*	*M. verrucaria*	*M. advena*	New isolate
Hyphae:	Smooth	Rough	Smooth	Smooth
Sporodochia:	Sessile; at first green; later back with white margin; setae absent	Similar to *M. roridum*	Similar to *M. roridum*	Sessile; at first white, later turning greenish black; no white margin; setae absent
Conidia:				
Shape:	Cylindrical; ends rounded	Navicular, limoniform, protuberant & truncate at base	Cylindrical with rounded ends	Ellipsoidal
Colour:	Pale olive green; black in mass	green; black in mass	Hyaline; Olive green to black in mass	Hyaline Deep green in mass
Size: (μm)	$6-8 \times 1.5-2.5$	$6-10 \times 2.4-5$	$5-7 \times 1.5-2$	$10.5-14 \times 3.5-7$
No. of droplets:	Nil	Two	Nil	One

ridia, ellipsoidea, aseptata, guttulis singularibus, $10.5-14 \times 3.5-7\ \mu$m.
Deposited in I.T.C.C. No. 3353.

The fungus was pathogenic to the following varieties of mulberry *viz*, M_5, S_{54} and Goshoerami, a Japanese variety. Pathogenicity to some other members of Moraceae *viz*, *Ficus religiosa* L. and *Artocarpus indicum* Roxb. has been established.

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EFFECT OF ADENINE ON REGENERATION OF *VICIA FABA* IN TISSUE CULTURE

SUBHRA CHAKRABORTY and S. C. ROY
Department of Botany, University of Calcutta, Calcutta 700019, India.

VICIA FABA is a classical material for many fundamental studies both under *in vivo* and *in vitro* conditions. The regeneration of whole plant from the callus culture is a prerequisite for any study under *in vitro*. The successful callus culture of *V. faba* from different types of explants as well as from the protoplasts has already been reported[1-7].

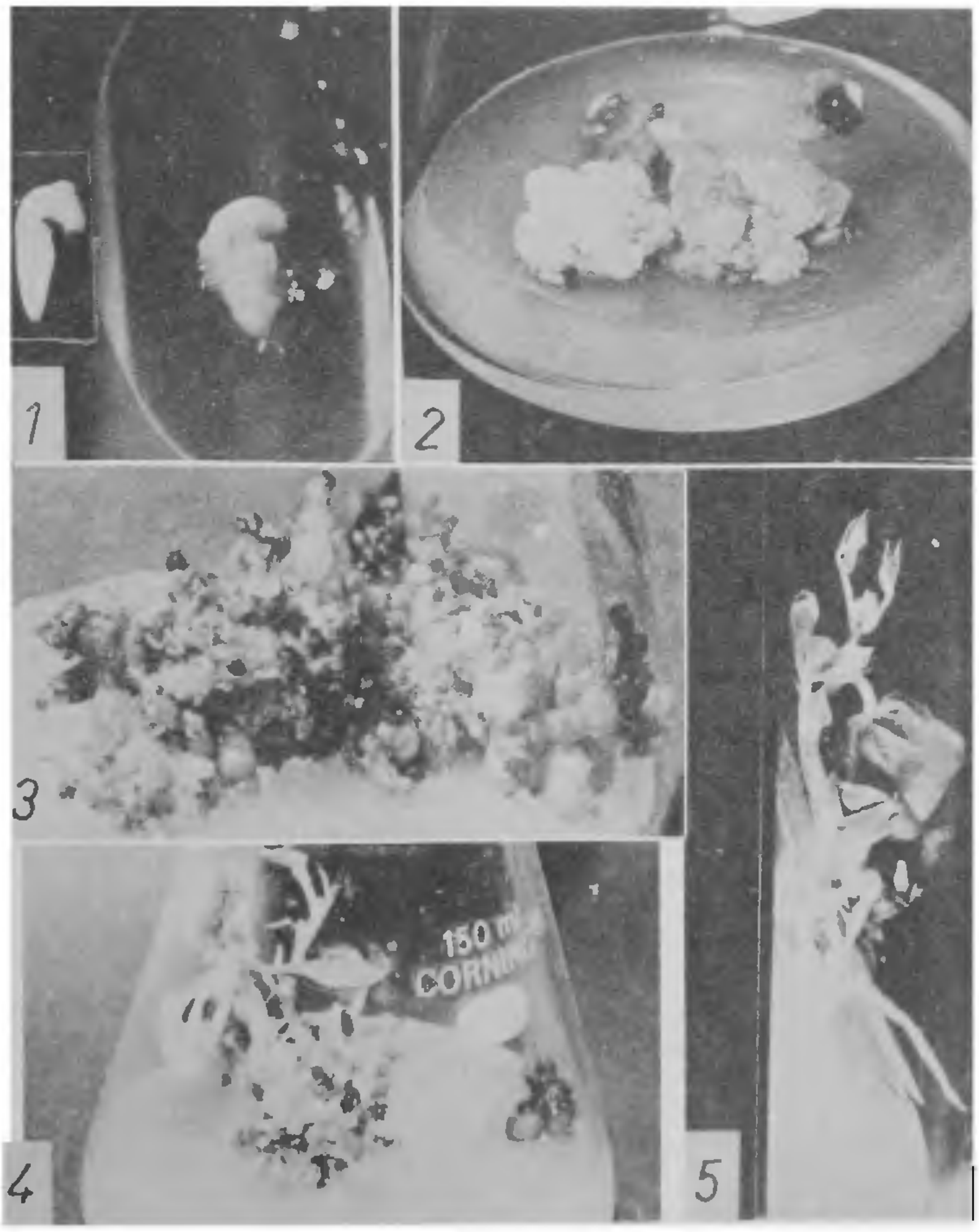
There is, however, no report of reproducible regeneration of whole plant from callus tissues of *V. faba*. The present paper reports the regeneration of plant from the callus culture of *V. faba* using a nucleic acid derivative like adenine.

The seeds of *V. faba* cv 1502, obtained from the Sutton Co., Calcutta, were soaked in tap water overnight, rinsed in 70% ethanol for 20 min and thoroughly washed 4 times in autoclaved distilled water. The embryos were removed aseptically, inoculated in liquid MS media[5] supplemented with NAA (2 mg/l) and BAP (1 mg/l) and placed on a vertical shaker. After 3 days the intact embryos as well as the longitudinally dissected halves from the liquid media were placed on the same agar medium. Cultures were inoculated under continuous dark and 16/8 hr light/dark condition at 22°C. After the second subcul-

ture, the callus tissue derived from the radicle part of the embryo was again subcultured in MS medium containing IAA and BAP in different combinations (table 1).

The callus tissue grown in different combination of IAA and BAP was transferred to basal MS medium containing adenine (0.1–5 mg/l).

In the liquid medium containing NAA and BAP, the embryo showed no significant changes and was kept in view to allow better absorption of nutrient medium at the initial stage. After 3 days, when the embryo was transferred to agar medium, it started swelling within 7–8 days (figure 1) under both light and dark conditions. The calli appeared to originate principally from the radicle part of the embryo (figure 2). The calli (both light and dark) showed green nodular structures (figure 3) in MS medium supplemented with IAA (0.2 mg/l) and BAP (5 mg/l). These nodular structures



Figures 1–5. 1. Intact embryo (inset) showing the swelling of radicle part within 7–8 days of inoculation. **2.** Two-month old callus tissue derived from radicle part. **3.** Nodulated compact callus tissue in IAA (0.2 mg/l) and BAP (5 mg/l). **4.** Regeneration of shoots from nodulated callus using adenine (1 mg/l). **5.** Complete plant growing in 1/2 MS media.

Table 1 *Different combinations of hormone used for regeneration experiment*

Set	Hormone combination (mg l)	
	IAA	BAP
1	0.2	1
2	0 2	2
3	0.2	4
4	0.2	5
5	0.5	1
6	0.5	2
7	0 5	4
8	0.5	5

grew vigorously in the same medium after subsequent subcultures without any organogenesis, but adenine, at the concentration of 1 mg/l, stimulated the formation of shoot from these nodular structures (figure 4). From such shoots roots developed and the rooted plant was later maintained for further growth in half saturation of MS medium (figure 5).

Organogenesis from callus culture is an interaction of several exogenous and endogenous factors of the tissue. Since the critical assay of endogenous factors is difficult to demonstrate the indirect manipulation of several endogenous factors is much more important. Previous work[2] on tissue culture of root cells of *V. faba* showed the formation of callus tissue using 2,4-D and yeast extract and no organogenesis occurred. In the present experiment the callus tissues were formed from the radicle of the embryo using NAA/BAP combination. There is no earlier report of regeneration of plantlets in this plant. However, in the present experiment, the use of NAA/BAP instead of 2,4-D has some beneficial effect in the later developmental stages with the production of green nodular structures in the callus tissue. These nodules developed into shoot buds and ultimately plantlets when adenine was added in the media. Since adenine is the basic structure of cytokinin, it can be said that the incorporation of adenine in the cells of nodular structure may cause biochemical changes to bring about a morphogenetic response in the callus tissue. The observation also explains that the presence of auxin like NAA and IAA is essential for the pre-developmental stage of organogenesis but is not required in the final step leading to organogenesis.

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A NEW DISEASE ON BANANA MAIN STALK

M. NARAYANAPPA and M. M. MUSTAFFA
Central Horticultural Experiment Station, Chethalli 571 248, India.

DURING January 1983, a severe disease incidence was observed on the main stalk of the banana bunch at the Central Horticultural Experiment Station, Chethalli (Kodagu). The infection was noticed on the proximal end of the main stalk as minute greenish-brown streaks which later spread to the fruit and backwards towards the curved portion of the main stalk. The affected tissues shrivelled, dried and shreaded leading to dry-rot. The infected fingers showed yellowish streaks and they became soft without rotting. The incidence was observed particularly in the variety 'Hill banana' (locally Marabale) (figures 1–3). The infected bunches weighed 2.5 kg in contrast to the healthy bunches which weighed 10.2 kg.

Figure 1. Infected bunch with main stalk showing the symptoms.