

for different metal ions are given in brackets below: Ca(II) (2000), Mg(II) (1000), Sr(II) (1000), Na(I) (2000), K(I) (1500), Fe(III) (500), Mn(IV) (1000), Ti(IV) (1200), Ga(III) (50), Ni(II) (500), Cu(II) (500), Zn(II) (500), Co(II) (200), B (200) and Cr(III) (150).

The reaction mixture was heated gently on a steam bath. It was observed that rapid heating leads to the formation of a brownish complex or precipitation of the purple-coloured complex. Use of strong concentrated acids may also lead to precipitation of the complex.

To an aliquot of solution B of rock sample, an acidic solution of M-dopa was added and the reaction mixture was heated in the manner described for standard vanadium samples. The results for a few samples analysed by this method were compared with those of Majumdar and Das<sup>2</sup> using *N*-benzoyl-*o*-tolylhydroxylamine, and are summarized in table 1.

It has been reported earlier<sup>7</sup> that vanadium(V) forms a green-coloured complex with absorption maximum at 680 nm with M-dopa. In fact M-dopa and vanadium(V) form a purple-coloured complex with  $\lambda_{\max}$  at 560 nm (figure 1). To examine the earlier reported method, various concentrations of M-dopa and vanadium(V) were mixed in separate tubes and heated for different periods in acidic medium. A green-coloured complex with absorption maximum at 680 nm could never be obtained.

The molar absorptivity and Sandell's<sup>8</sup> sensitivity of the reaction are  $2 \times 10^2 \text{ l mol}^{-1} \text{ cm}^{-1}$  and  $0.035 \mu\text{g/cm}^2$  respectively. The Job's<sup>9</sup> method and mole ratio method suggest that a 1:2 complex is formed between metal and the reagent. The  $\log k$  was found to be 8.86 at  $25 \pm 0.5^\circ\text{C}$ , pH 2.0.

It seems that vanadium(V) in acidic solution forms  $\text{VO}_2^+$  ions which in turn react with  $-\text{NH}_2$  and  $-\text{COOH}$  groups of the phenylalanine moiety of M-dopa to give a distorted octahedral complex.

Table 1 Vanadium analysis data for sedimentary rock samples from Bhima Basin

Sample No.	Present method		<i>N</i> -Benzoyl- <i>o</i> -tolyl-hydroxylamine method <sup>2</sup>	
	OD at 560 nm	Vanadium (ppm)	OD at 510 nm	Vanadium (ppm)
BV-I	0.27	67	0.84	70
BV-7	0.24	60	0.70	58
BV-II	0.30	75	0.90	75
BV-14	0.32	80	0.94	78
BV-25	0.38	95	0.115	96

Cell- 1 cm.

Attempts to dissociate the vanadium-M-dopa complex are in progress and a detailed study to elucidate its structure will be carried out.

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#### A NOTE ON THE RADIOACTIVE INTRAFORMATIONAL CONGLOMERATE IN PAKHAL BEDS NEAR BANGARUCHILKA, KHAMMAM DISTRICT, ANDHRA PRADESH

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BANGARUCHILKA ( $17^\circ 46' 15'' \text{ N}$ ;  $80^\circ 36' 46'' \text{ E}$ ), is a small village located about 5 km north of Mailaram Copper Mines in Khammam district, Andhra Pradesh (T.S. No. 65 C/9). The area exposes schists and gneisses of the Dharwar age and acid intrusives. Acid intrusives include pink granite and associated pegmatites and vein quartz. All these are unconformably overlain by Pakhal/Gondwana sediments. The radioactive intraformational conglomerate occurs within quartzite of Pakhal Supergroup in Turpu Gutta, about half a kilometre due north-east of Bangaruchilka village.

Field data indicate that the radioactive intraformational conglomerate is a polymictic conglomerate, consisting mainly of pebbles of quartz and lesser feldspars, with a length of up to 18 cm and length/breadth ratio of 1.5–2.0. The conglomerate passes into gritty arkose and finally to arkose. It is

exposed intermittently over a total strike length of about 2 km, with width varying from 5 to 40 m. It is a sheared conglomerate, in which pebbles are oriented in NNE-SSW direction without any plunge. Matrix is silicious and sericitic, with pebble to matrix ratio ranging from 2:1 to 1:2.

Under the microscope, the conglomerate shows a lot of sub-rounded quartz with undulatory extinction. Feldspars include predominant microcline and minor plagioclase. The pebbles are fractured. Heavy minerals include zircon, apatite, rutile, goethite, sphene, monazite and thorite. A major portion of the radioactivity is contributed by thorite and monazite. Thorite is euhedral, while monazite is irregularly shaped.

The conglomerate and its variants record radioactivity of the order of 2 to 10× bg. Grab samples from them have analysed %e  $U_3O_8$ , %  $U_3O_8$  and %  $ThO_2$  in the range of 0.023 to 0.069, 0.005 to 0.018, and 0.044 to 0.14 respectively.

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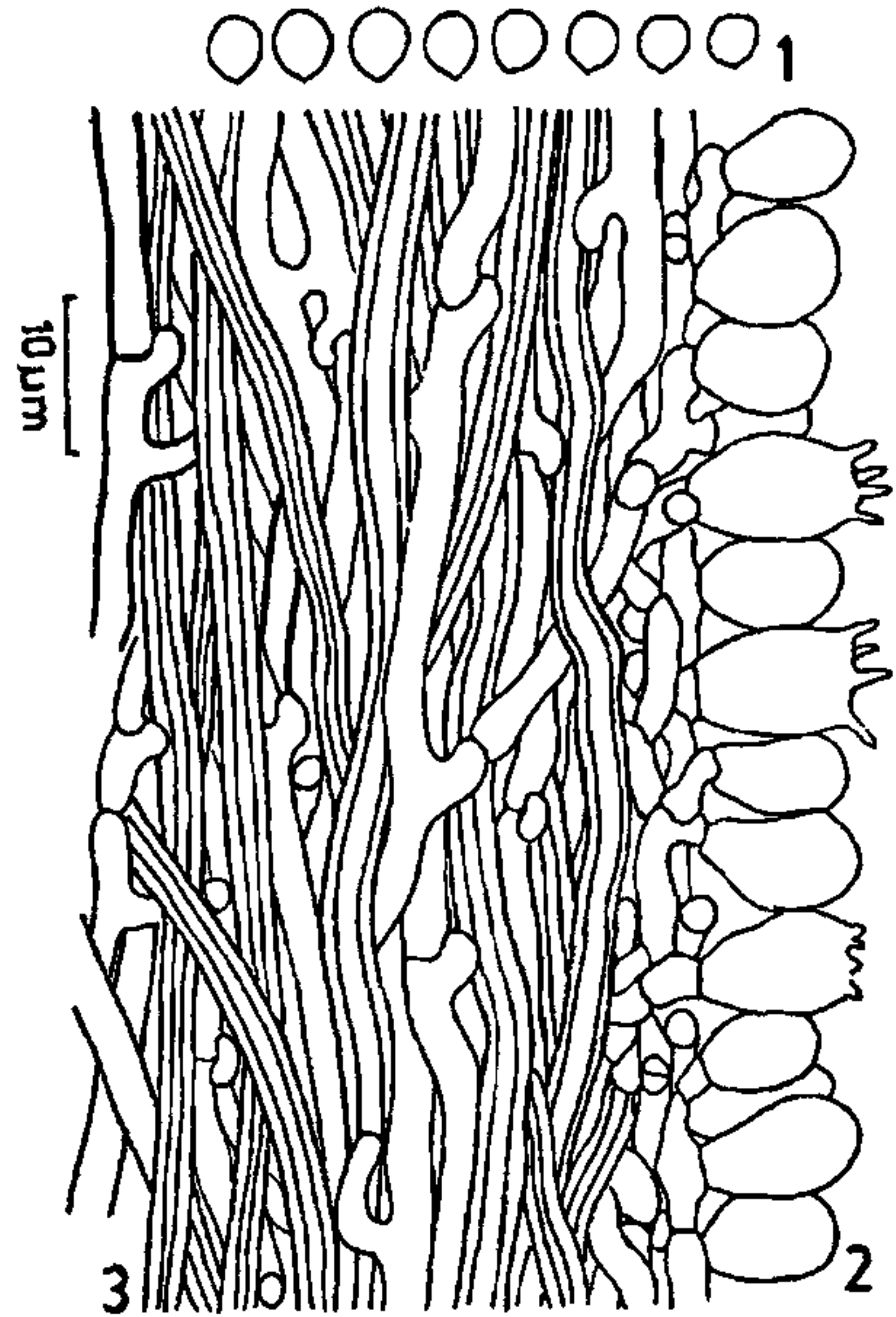


Figure 1. *Microporellus obovatus* (1) Basidiospores; (2) hymenium with clavate basidia; (3) part of trama showing dimitic hyphal system.

### MICROPORELLUS MURR. (POLYPORACEAE): A NEW GENERIC RECORD FROM INDIA

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AN interesting polypore, *Microporellus obovatus* (Jungh.) Ryv., was collected from Cherrapunji on one of several trips in the Khasi, Jaintia and Garo hills (Meghalaya). *Microporellus* is morphologically similar to the widely distributed genus *Microporus* but the latter differs anatomically in having a trimitic hyphal system, the presence of typical coralloid elements in hymenium, and in having allantoid to cylindric-ellipsoid basidiospores. The collections have been deposited in the Herbarium, Department of Botany, Panjab University, Chandigarh (PAN).

*Microporellus obovatus* (Jungh.) Ryv., *Norw. J. Bot.*, 19(3-4): 232, 1972. Figures 1-3.

Fructification annual, laterally stipitate, solitary or in small groups of two to four with fused pilei and

free stipes, soft and coriaceous when fresh, hard and brittle on drying. Pileus flabelliform to spatulate, up to 5 cm long, 3 cm wide and 2 mm thick; upper surface light brown to yellowish brown to greyish brown, darkening on drying, finely tomentose when young, glabrous due to agglutination of hyphae with age, radially striate on drying; margin papery, thin, sterile below, brown, incurved on drying. Stipe up to 2.5 cm long and 1-2 mm thick, yellowish brown, finely velvety to glabrous, concolorous with pileus, smooth when fresh, radially wrinkled on drying, expanded gradually into a mycelial disc at the base, solid. Pore surface cream to light brown when fresh, entire; pores small, round to rarely angular, thin-walled, 6-7 per mm, 60-96  $\mu$ m in diameter; dissepiment entire, 24-78  $\mu$ m thick; tubes in one layer, brown, 1.4 mm deep in section. Context thin, brown, homogeneous, non-xanthochroic, up to 0.6 mm thick.

Hyphal system dimitic; generative hyphae hyaline to subhyaline, thin- to thick-walled, branched, septate, clamped, 1.5-4.5  $\mu$ m in diameter; skeletal hyphae hyaline to subhyaline, thick-walled, aseptate, unbranched, 2.8-4  $\mu$ m in diameter. Cystidia absent.