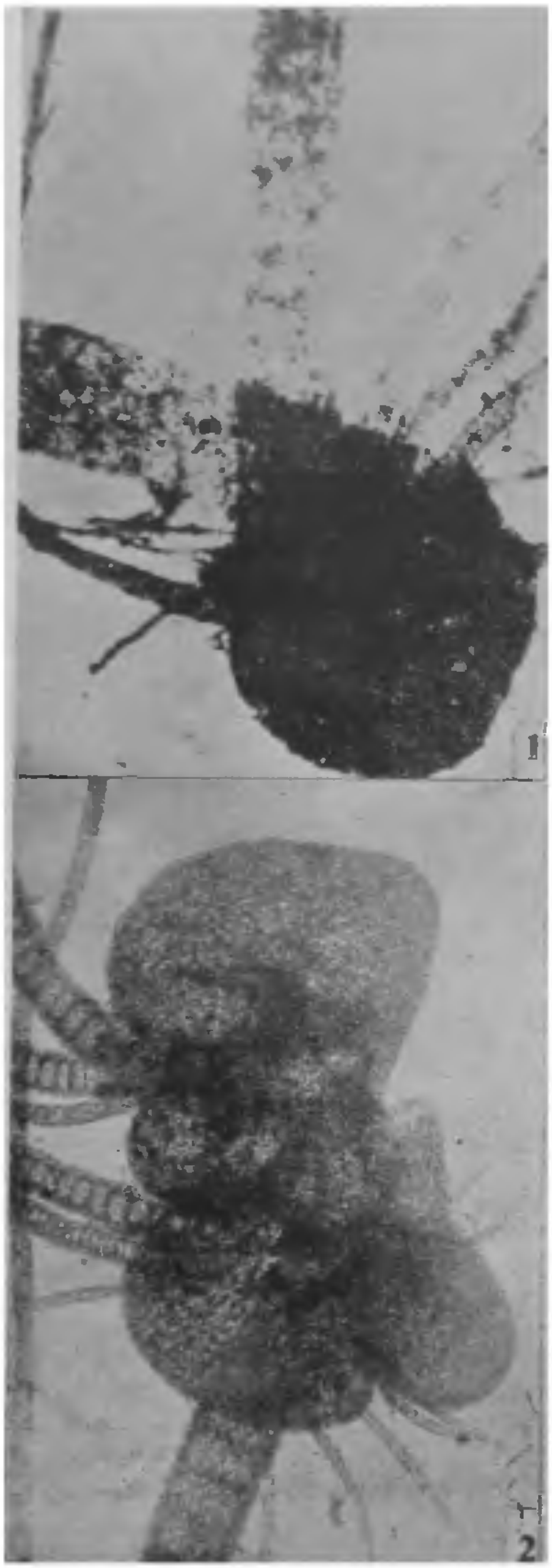
a filament at intervals. Later, they become still larger (600 μ–1,450 μ × 390 μ–930 μ). Such a filament breaks up at the region of vegetative discs and only one of the two fragments bears it. It appears that this vegetative disc stores food material and serves as the anchorage organ for one of the two new filaments. Thus, the discs serve as accessory structures for vegetative propagation, although monospores and microaplanospores are present for asexual reproduction. This feature is more common during the rainy season especially in the month of September. Such a feature is not recorded in any species. The taxonomic status of the present form is yet to be determined.



FIGS. 1–2. *Compsopogon* sp. Stages in the formation of vegetative disc (× 100).

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ANTIFUNGAL ACTIVITY OF GEDUNIN

RENNERFELT[6] suggested that phenolic extractives of heartwood were more toxic in several trees of *Pinus sylvestris*; Zabel[16] indicated a correlation between decay resistance and tannin content among the trees of *Quercus alba*; Rudman and De Costa[10] correlated variations in decay resistance of outer heartwood among trees of *Eucalyptus sieberiana* with variations in the amount of methanol soluble extractives. Recently Rudman[7–9] showed that there is direct correlation between the antifungal nature of the compound and decay resistance in several species of *Eucalyptus microcorys*, *E. triantha*, *Thuja plicata* and in sixty-four wood and bark extractives and related compounds.

In the present work the active principle of decay resistance in some of the commercial timbers, *Xylocarpus* and *Cedrela* against two wood-rot fungi, *Polyporus versicolor* L. ex. Fr. 651 (a white-rot) and *Polyporus palustris* B and C 528 (a brown—rot) is worked out.

Xylocarpus obovatus A. Juss. (Meliaceae), used in this investigation, was obtained from Andaman islands. One kg of the powdered heartwood was extracted with ten litres of petroleum ether (60° to 80°) in a soxhlet for 24 hours. The extsact was concentrated to 100 ml, when a colourless solid was obtained. This substance was purified by column chromatography over silica gel (200 gm) set up with benzene: ethyl acetate (9:1). The earlier fractions of the eluate gave a colourless solid (2·5 gm) which crystallised from ethanol as rhombic crystals with melting point 217–218° C. It was identified as gedunin by direct

comparison with an authentic sample isolated by Akisanya *et al.*[2] and Subrahmanyam *et al.*[14].

This compound was tested for its antifungal activity by impregnating it into blocks of the susceptible wood, *Bombax ceiba*, (2·5 cm × 2·5 cm × 0·9 cm). These blocks which were depleted of extractives, if any, were oven-dried for a period of 48 hours at 105° C. Some of them were used as reference blocks while others were impregnated, according to the method suggested by Puri[5], with solutions of 0·5, 1·0, 1·5 and 2·0% gedunin using benzene as solvent. These were used as experimental test blocks and adjustment blocks.

Culture experiments determining decay resistance were conducted by soil block method (ASTM Designation—2017)[1] with modifications suggested by Bakshi *et al.*[3]. The percentage loss of weight of the test blocks and reference blocks is presented in Fig. 1. Since loss of weight in the adjustment blocks was less than 5%, it was not considered for adjustment as suggested by Bakshi *et al.*[3].

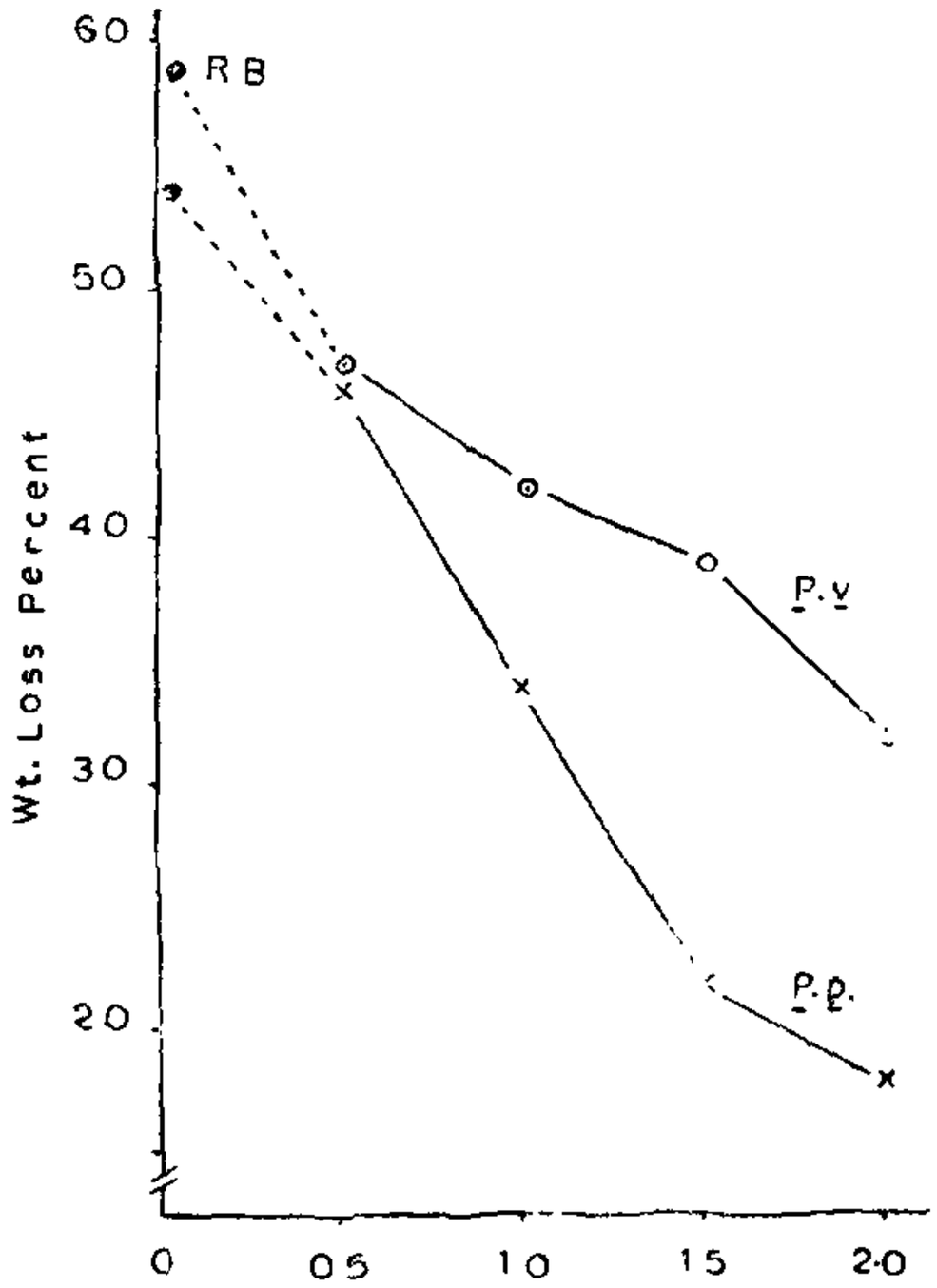

FIG. 1. Fungitoxic effect of gedunin. (P.v., *Polyporus versicolor*; P.p., *Polyporus palustris*; RB, Reference block.)

Results presented in Fig. 1 establish for the first time the identity of gedunin as one of the important extractives from the heartwood of *Xylocarpus*, demonstrating measurable antifungal activity. It is evident that gedunin is toxic to the two wood-rot fungi employed in the work, *Polyporus palustris* being more sensitive than *P. versicolor*. Gedunin showed a marked and progressive antifungal activity. The decay is 50 to 60% in the reference blocks, while it was very little in the experimental test blocks impregnated with different concentrations of gedunin.

Unextracted wood of *Xylocarpus*, which contains only 0·25% of gedunin, showed about 10 to 14% of decay (Sundarasivarao and Nazma[15], Unpublished). On the other hand the decay in experimental test blocks varied from 18 to 34% when 2% solution of gedunin was impregnated in them. It implies that, although gedunin by itself is antifungal, the greater decay resistance exhibited by the unextracted normal wood with very low gedunin content may be due to (1) the combined effect of other extractives present in the wood besides gedunin or (2) the presence of other and more stable types of toxic extractives which protect the wood from decay or (3) the probable degradation of toxicity of gedunin during the process of hot soxhlet extraction and (4) inadequate impregnation of gedunin which might have been deposited in the cell lumens and intercellular spaces in contrast to its presence in the cell walls in normal wood. Among these four alternatives the first one appears to be more convincing. This finds support from King *et al.*[4] in *Xanthoxylum flavum*; Rudman and Da Costa[11] in *Techona grandis*; Rudman[7] in *Thuja plicata*; Scheffer and Cowling[13] in *Libocedrus decurrens*; Sundarasivarao and Nazma[15] in *Cedrela toona*; all these authors have attributed the exceptional resistance to decay exhibited by these woods to the cumulative effect of all the extractives present in them.

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ABNORMAL ISOLATES OF SEED-BORNE *COLLETOTRICHUM TRUNCATUM* (SCHW.) ANDRUS AND MOORE FROM INDIA

DURING a study of seed-borne infections of *Phaseolus aureus* Roxb. (Mung bean) and *P. mungo* L. (Urid bean) from the seed samples of Haryana and Uttar Pradesh a few abnormal isolates of *C. truncatum* were isolated.

About 400 seeds of each sample were incubated on blotters and 2% P.D.A. at 20° C (± 1°) under 12 hours alternating cycles of NUV light and darkness as recommended by International Rules of Seed Testing[1]. After seven days of incubation the acervuli of the fungus were visible on the seeds as blackish irregular areas with 6–10 dark brown filliform setae. Minute, dull white, to almost white, conidial masses appeared intermingled be tween the acervuli. The conidia of the fungi were hyaline, falcate to lanceolate in shape. The mycelium was well developed forming sclerotial aggregates abundantly. The acervuli showed a tendency to coalesce sometimes covering the entire surface of the seeds.

On P.D.A. the colonies were dark brown to black in colour with septate branched mycelium. The individual acervuli were hemispherical to truncate conical, measuring 150 $\mu \times 250\ \mu$. The setae were long, 1–3 septate dark brown to almost black about 60–300 μ long and 3·5 to 8 μ wide. Immature acervuli were greyish white to dull orange in colour while matured acervuli were dark brown to black. The conidia were hyaline, falcate to lanceolate measuring 16–20 μ in length and 3·0–3·5 μ in width.

The gross morphology of the isolates was close to that of *Colletotrichum truncatum* (Schw.)[2]. However, in comparison to that species, the isolates were slow to sporulate, their conidia were at the lower end of the size range (16–20 μ in length × 3·0–3·5 μ in width; normal range 17–32 μ in length × 3·5–4·0 μ in width and the mycelium showed a greater tendency towards the formation of sclerotial aggregates. The cultures are deposited at Commonwealth Mycological Institute, Kew, England.

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OCCURRENCE OF THREE NEW ROT DISEASES OF STORED GARLIC (*ALLIUM SATIVUM* L.)

A FEW rotten bulbs were observed in garlic from the market. The diseased garlic bulbs were yellowish-brown in colour, and light in weight as compared to the healthy bulbs. For isolation of causal organisms, the small bits of surface sterilized diseased bulbs were plated on Czapek's Dox agar media and incubated at 28° C (± 2° C) for one week. The fungi were purified following Ricker and Ricker[3] and the pathogenicity was tested by the knife injury method of Tandon and Mishra[4]. Superficial cuts were made with sterilized scalpel on surface sterilized healthy bulbs and then sprayed with spore suspension of the respective fungi. Uninjured healthy bulbs were also dipped in spore suspension for a few minutes and then incubated at 28° C (± 2° C). The pathogens were reisolated from these diseased tissues of inoculated bulbs and compared with the test organism. Corresponding controls were also maintained.

Three fungal species, *viz.*, *Cephalosporium curtipes* Saccardo, *Fusarium camptoceras* Wollen Weber and Reinking and *Penicillium paxilli* Bainier produced rots on healthy garlic bulbs through injury. It appears that these fungi are 'wound' pathogens.

All the three fungi produced dry rots which were preceded by maceration of affected tissue, shrinkage