

## Two new species of *Mucor* from India — IV.

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With Plate V

During the course of isolations of soil fungi we encountered two new species of *Mucor*, which possess characters not reported in any of the known species.

*Mucor aligarensis* sp. nov. (Fig. 1, Plate VI)

Caespites in SMA et PDA humiles, obscure brunnei; sporangiophora e mycelio intramatrix nata, sympodialiter ramosa, levia, 15–20  $\mu$  crassa, septo subapice ramulorum praedita; sporangia globosa, brunnea, 20.5–120  $\mu$ , plerumque ca. 75  $\mu$  diam.; pariete spinuloso et persistente; columella globosa vel nodosa, 15–52.5  $\mu$ , plerumque 35  $\mu$  diam. sporangiosporae subglobosae vel ovoideae, leves, 7.7–18.7  $\times$  7.7–14.3  $\mu$ , plerumque 11  $\times$  7.7  $\mu$  in SMA, 6.6–15.4  $\times$  5.5–11  $\mu$ , plerumque 8.8  $\times$  7.7  $\mu$  in PDA.; chlamydosporae terminales vel intercalares, singulatim vel concatenatae, ovoideae vel elongatae, 15–30  $\mu$ ; zygosporae ignotae.

Colonies on SMA on PDA very low and dark brown; Sporangiophores arising from the substrate mycelium, branched sympodially, smooth walled, 15–20  $\mu$  in diam., provided with a septum just above the point of branching; sporangia globose, brown, 20.5–120  $\mu$ , mostly 75  $\mu$  in diam., wall spiny and persistent; columella globose to button-shaped, 15–52.5  $\mu$ , mostly 35  $\mu$  in diam.; sporangiospores subglobose to oval, smooth walled, 7.7–18.7  $\times$  7.7–14.3  $\mu$ , mostly 11  $\times$  7.7  $\mu$  on SMA., 6.6–15.4  $\times$  5.5–11  $\mu$ , mostly 8.8  $\times$  7.7  $\mu$  on PDA. Chlamydospores terminal or intercalary single or in chains, oval to elongate, 15–30  $\mu$ . Zygosporae were not observed.

This fungus has been isolated for the first time from the garden soil, pH 7.5, of Aligarh.

Description based on culture MX—18, deposited in BSM culture collection, Botany Department, University of Allahabad, and at NRRL, Peoria, Illinois, U.S.A., under No. A-12626.

This species can be placed in the section *Fragilis* because of the presence of sporangia less than 100  $\mu$  in diameter, with fragile wall and richly branched sporangiophores. In this section it comes close to two species *Mucor ramosissimus* Samutsewitsch and *M. ambiguus* Vuillemin, which also have low (1–3 mm.) colonies. But both the known species have smaller sporangiospores and columellae are also of different size

and shape. The isolate has, therefore, been named a new species, the name has been given after the place of its origin.

***Mucor assamensis* sp. nov.** (Figs. 2—9, Plate VI)

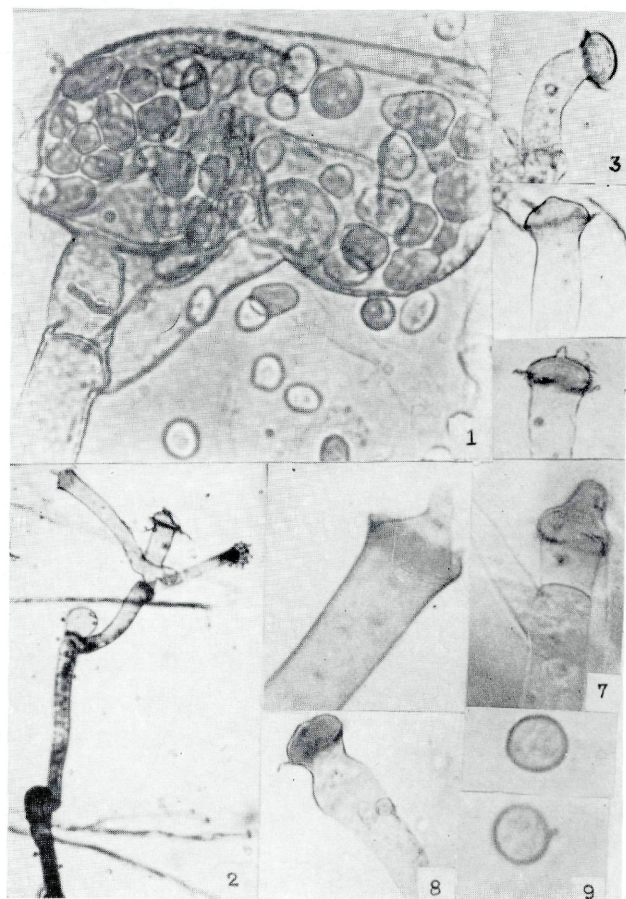
Caespites in SMA, "Oat meal agar" et PDA elata, primum albidae, postea in centro ob sporangia copiosa caeruleo-nigrescentia; sporangio-phora septata, cymose ramulosa, usque ad 20  $\mu$  diam., primum hyalina, postea pallide brunnea, ramulis plerumque curvulis, interdum etiam rectiusculis; sporangia globosa vel piriformia, brunnea, 11—49.5  $\mu$  SMA, 30—70  $\mu$  in "Oat meal agar"; pariete incrustato, diffluente; sporangia nonnulla abortiva, tunc in ramulis lateralibus sessilia; columella nodosa vel conica, brunnea, 2.45—24  $\times$  9.8—34.3  $\mu$ ; sporangiosporae globosae, leves, 3.3—5.5  $\mu$ , plerumque 4.4  $\mu$ ; chlamydosporae in mycelio intramateriali singulatim ortae, 19.6—39.4  $\times$  7.35—17.15  $\mu$ .

Colonies on SMA, oat meal agar and PDA high, nearly touching the lid, at first white, later, the central portion becomes bluish black due to abundance of sporangia. Sporangio-phores septate, cymosely branched, upto 20  $\mu$  in diameter, at first hyaline later light brown, branches of the sporangio-phores mostly curved some times straight; sporangia globose to pyriform, brown in colour, 11—49.5  $\mu$  on SMA, 30—70  $\mu$  on oat meal agar, wall incrustated and diffluent, few sporangia abortive, mostly subsessile on side branches; columellae button-shaped to conical often with protuberances at the tips, brown in colour, 2.45—24  $\times$  9.8—34.3  $\mu$ , often the branches of the sporangio-phores swell just below the columella thus giving them a funnel shaped appearance; sporangio-spores globose, smooth, 3.3—5.5  $\mu$ , mostly 4.4  $\mu$ ; chlamydospores single, intercalary in the substrate mycelium as well as in the sporangio-phores, 19.6—39.4  $\times$  7.35—17.15  $\mu$ .

Type M - 99 deposited in BSM culture collection, Botany Deptt., University of Allahabad, and at Northern Regional Research & Development Division, Peoria, Illinois.

This species has been isolated from the forest soil, of Tezpur, Assam, and is named after the place where it was first collected.

The presence of spherical sporangio-phores in this isolate places it in the section Sphaerosporous of the key to the genus *Mucor* (Hesseltine, 1954). In this section it comes near *Mucor jansseni* Lendner by its high, bluish black colony and by the size of the sporangiospores, but it differs from this species by important characters such as the diffluent nature of the sporangial wall, peculiar small brown button-shaped to conical columella often with protuberances at their tips; small globose to pyriform sporangia, presence of abortive sporangia and some times subsessile sporangia on side branches. Highly branched sporangio-phores have mostly curved branches and a septum is always present just below each branch and often the branches of the sporangio-phores





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### Reference

Hesseltine, C. W. 1954. Unpublished Key, Personal Communication.

### Explanation of Plate V

*Mucor aligarensis* sp. nov. — Fig. 1. Photomicrograph showing dehiscing terminal and lateral sporangia,  $\times 800$ .

*Mucor assamensis* sp. nov. Figs. 2—9. — 2. Photomicrograph showing the branching pattern of a sporangiophore,  $\times 113$ . — 3—7. Photomicrographs showing various type of columellae i. e. button-shaped to conical with a protuberance, 3—5:  $\times 250$ ; 6—7:  $\times 340$ . — 8. Photomicrograph showing a columella with the sporangiophore constricted just below the apex,  $\times 280$ . — 9. Photomicrograph showing sporangiospores,  $\times 200$ .

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