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THE NEOTYPE OF LEUCOTHRIX MUCOR OERSTED 1844
(EMEND. MUT. CHAR. HAROLD AND STANIER 1955)

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ABSTRACT. The strain No. 1 (ATCC 25107) is designated as the neotype strain of Leucothrix mucor Oersted 1844, 44.

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The early history of Leucothrix mucor has been well covered by Harold and Stanier (1955). These authors also report methods of isolation, details of the life cycle, and physiological characteristics. Later authors (Pringsheim 1957; Brock 1964, 1966, 1967; Brock and Mandel 1966) have provided further details of morphology, isolation and life cycle. Up to now a type culture for the genus and species has not been designated, and it is the purpose of this note to rectify this omission.

I designate as the neotype Leucothrix mucor strain No. 1 (ATCC 25107), isolated by me in 1963 from a sea weed collected in the vicinity of Friday Harbor, Washington. A number of other strains have been isolated by myself, Harold and Stanier, R. Lewin and M. Kelly and some of these strains have been compared with the neotype by Kelly (1969) and resemble the neotype in essentially all respects.

The characteristics of the neotype follow:

Morphology: Filaments of variable lengths, often much greater than 100 μ m, diameter 2-3 μ m. Sulfur granules are not formed. True knots are usually formed by pure cultures when growing in organically rich media. Filaments are colorless, unbranched, nonmotile (although occasionally showing waving back and forth), lacking a sheath although cells in regions of a filament may become emptied of their contents giving the appearance of a sheath. Filaments often grow intertwined or in dense tangles. Swollen cells often formed at random along filaments. Larger structures (bulbs) usually formed in knotty cultures, probably as a result of fusion of cells in the region of the knots. Filaments attached to solid substrates by means of an inconspicuous holdfast

which can be visualized by staining with primuline and viewing with blue light in a fluorescent microscope, the holdfast fluorescing red. Individual cells of filaments round up and form ovoid to spherical gonidia which when released acquire a jerky gliding motility. Gonidia frequently aggregate in cultures, probably chemotactically, to form rosettes.

Nutrition: Most strains do not require growth factors. Grows on glutamate as sole source of carbon, nitrogen and energy. Also uses sugars, organic acids, and other amino acids as carbon and energy sources, and NH_4^+ as nitrogen source. Requires Na^+ for growth (optimal 1.5% NaCl , minimal 0.3%, maximal 7%).

Relation to temperature: Optimum, 25-28°C, maximum 32-35°C, grows at 0°C to form visible colonies within 1-2 weeks.

Relation to O_2 : Obligately aerobic.

DNA base composition: 49 mole % guanine + cytosine (range for 30 strains, 46-51 mole % guanine + cytosine).

Habitat: Isolated as an epiphyte from Monostroma, Friday Harbor, Washington.

Other strains deposited with the American Type Culture Collection are: strain 2 (isolated by R. Lewin), ATCC 25108; strain 5 (isolated by Harold and Stanier), ATCC 25109; strain 14 (isolated by T.D. Brock), ATCC 25110; strain 19, ATCC 25111; strain K1 (isolated by M. Kelly), ATCC 25112.

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