BACTERIUM ANITRATUM
TRANSFERRED TO THE GENUS CYTOPHAGA*

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SUMMARY: Bacterium anitratum Schaub and Hauber is transferred to the genus Cytophaga (Myxobacteriales, Schizomycetes) as Cytophaga anitrata (Schaub and Hauber) comb. nov. The transfer is based upon cellular morphology, the characteristic gliding or creeping motility of the single cells and the absence of microcysts. The nearly related Moraxella lwoffii Audureau is likewise transferred to Cytophaga as Cytophaga lwoffii (Audureau) comb. nov. for the same reasons.

In recent years several papers have been published on Bacterium anitratum Schaub and Hauber 1948 and different proposal made for its classification. It has been placed in at least five different bacterial families but none of the taxonomic proposals made so far have been entirely satisfactory. A new proposal is advanced here based on the observation that this microorganism exhibits the special kind of motility found in myxobacteria and described as gliding or creeping.

Gliding motility has been demonstrated in 10 out of 15 strains studied in detail, including an authentic B5W strain from Stuart. The observations were performed on cultures growing on thin agar plates poor in nutrients by aid of a phase-contrast microscope.

The motion is slow, hesitating and intermittent as in other myxobacteria and the phenomenon is an erratic one. As yet it has not been possible to find conditions which will regularly allow of its demonstration. This is inconvenient in diagnostic work but does not alter the significance of the phenomenon in taxonomic considerations.

Higher myxobacteria form resting cells called microcysts

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which are sometimes carried in specialized fruiting bodies. In Bacterium anitratum such structures have not been observed and therefore—according to Stanier's classification of the order Myxobacterales in Bergey's Manual, 7th Ed. — the organism should be assigned to the genus Cytophaga, which accommodates all single celled bacteria which exhibit gliding motility but do not form fruiting bodies or microcysts.

It is consequently proposed that Bacterium anitratum be transferred to the order Myxobacterales, family Cytophagaceae, and placed in the genus Cytophaga and designated as Cytophaga anitrata (Schaub and Hauber) comb. nov.

Besides Bacterium anitratum a few strains of the very similar organism, originally described as Moraxella lwoffii Audureau 1940, have also been examined and found to possess the same ability for gliding motility as Bacterium anitratum. At present it is not clear whether both of these closely related organisms deserve specific rank, but if it is eventually recommended to establish two species, Moraxella lwoffii Audureau would become Cytophaga lwoffii comb. nov.

REFERENCES

- Audureau. 1940. Ann. Inst. Past. 64: 150.
Schaub, I. G. and F. D. Hauber. 1948. A biochemical and serological study of a group of identical unidentifiable Gram-negative bacilli from human sources. Jour. Bact. 56: 379-385.