Streptococcus dysgalactiae (Diernhofer) nom. rev.

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Streptococcus dysgalactiae did not appear on the Approved Lists of Bacterial Names in 1980. This species is frequently isolated from milk and is well known as a cause of bovine mastitis. Deoxyribonucleic acid-deoxyribonucleic acid hybridization has shown that it is a species which is distinct from other species found in the same habitat. We propose that *Streptococcus dysgalactiae* be revived and recognized as a species, with NCDO 2023 as the type strain.

Streptococcus dysgalactiae (Diernhofer) lost standing in nomenclature when it was omitted from the Approved Lists of Bacterial Names (13). The reason for this omission is not known, but it may have happened because no type strain was designated before 1980; alternatively, the omission may simply have been an oversight. *S. dysgalactiae* is well known to veterinarians as a frequent cause of bovine mastitis (10). However, detailed studies of the properties of this organism are not available, and little work has been done since the early descriptions of Diernhofer (2), Edwards (3), and Plastring and Hartsell (11). Recent work (5-7), including deoxyribonucleic acid (DNA)-DNA hybridization and a study of the lactate dehydrogenase, has shown that *S. dysgalactiae* is a distinct species. Therefore, we propose that the name of this species be revived in accordance with Rule 28A (9) as *Streptococcus dysgalactiae* nom. rev.

In *Bergey's Manual of Determinative Bacteriology*, 8th ed., Deibel and Seeley (1) indicate that streptococci from bovine mastitis and streptococci from polyarthritis in lambs have been called *S. dysgalactiae*; however, there are properties that distinguish strains from these two sources. The following description is based on strains from bovine mastitis.

Streptococcus dysgalactiae (dys.ga.lac'ti.æ. Gr. pref. dys ill, hard; Gr. n. galactia pertaining to milk; N. L. n. *dysgalactia* loss or impairment of milk secretion, dysgalactia; N. L. gen. n. *dysgalactiae* of dysgalactia). Gram-positive cocci or oval cells in short- to medium-length chains. The cell wall peptidoglycan contains L-Lys-L-Ala linkage (12). Growth in glucose nutrient broth is poor and has a final pH of 4.7 to 4.9. On blood agar plates colonies are surrounded by a wide zone of alpha hemolysis (greening).

The optimum temperature for growth is 37°C. Growth does not occur at 10 or 45°C, in 6.5% NaCl, in 10% bile, or at pH 9.6. Cells do not survive at 60°C for 30 min. Growth occurs only on complex media, but vitamin and amino acid

requirements are unknown. Litmus milk is usually reduced, acidified, and clotted. Acid is formed from glucose, lactose, maltose, sucrose, and trehalose. No acid is formed from raffinose, inulin, glycerol, or mannitol. The reaction in sorbitol is variable. Esculin is not hydrolyzed, but some strains hydrolyze salicin. Hippurate is not attacked. Ammonia is formed from arginine. Hyaluronidase is usually produced.

Serological group C. A fibrinolysin for bovine fibrin but not for human fibrin may be produced. Low pathogenicity for mice.

The lactate dehydrogenase is activated by fructose 1,6-diphosphate, but inhibition by phosphate is slight, particularly at pH 5.5.

The guanine-plus-cytosine content of the DNA is 39 to 40 mol% (thermal denaturation method) (7).

DNA-DNA hybridization shows that *S. dysgalactiae* is a distinct cluster with a low relationship to *Streptococcus agalactiae*, *Streptococcus acidominimus*, *Streptococcus uberis* or *Streptococcus bovis* (5, 6). These species all belong to a single cluster, as determined by DNA-ribonucleic acid hybridization (7).

S. dysgalactiae is commonly found in mastitic bovine udders (10), produces mastitis experimentally (8), and may also be isolated from teat skin lesions and bovine vaginas (4).

NCDO 2023 is the type strain. The guanine-plus-cytosine content of this strain was estimated to be 39.8 mol%. Other characteristics agree with the description given above.

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