Opinion

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Rejection of the genus name *Methanothrix* with the species *Methanothrix soehngenii* Huser *et al.* 1983 and transfer of *Methanothrix thermophila* Kamagata *et al.* 1992 to the genus *Methanosaeta* as *Methanosaeta thermophila* comb. nov. Opinion 75

Judicial Commission of the International Committee on Systematics of Prokaryotes

The Judicial Commission of the International Committee on Systematics of Prokaryotes has decided to place the genus *Methanothrix* with the species *Methanothrix soehngenii* Huser *et al.* 1983 on the list of *nomina rejicienda*, based on the fact that it is not represented by an axenic culture and contravenes Rule 31a of the International Code of Nomenclature of Bacteria. The species *Methanothrix thermophila* is transferred to the genus *Methanosaeta* as *Methanosaeta thermophila* (Kamagata *et al.* 1992) Boone and Kamagata 1998 comb. nov.

In publishing this Opinion, the Judicial Commission of the International Committee on Systematics of Prokaryotes has considered the Request for an Opinion by Boone & Kamagata (1998) in order to clarify the nomenclatural confusion associated with the genera *Methanothrix* and *Methanosaeta*.

In 1980, Zehnder *et al.* (1980) characterized an acetate-decarboxylating, non-hydrogen-oxidizing ‘methane bacterium’ with the morphological and metabolic properties of a filament-forming rod, which often occurred in bundles, that had been first recognized by the Dutch microbiologist N. L. Söhnngen in 1910. Since then, organisms with this morphology enriched from sludge digestors have been reported many times in studies on methane formation and referred to as ‘the fat rod’ or ‘*Methanobacterium soehngenii*’. In 1982, Huser *et al.* (1982) published a formal description and named the organism *Methanothrix soehngenii* as the single species of the new genus *Methanothrix*. Strain Opfikon (=DSM 2139) was designated the type strain. However, this organism is not a pure culture and contravenes Rule 31a of the International Code of Nomenclature of Bacteria (the Code) (Lapage *et al.*, 1992). Rule 31a states:

‘The name of a species or subspecies is not validly published if the description is based upon studies of a mixed culture of more than one species or subspecies. This does not apply to descriptions based chiefly on morphology (e.g. *Achromatium oxaliferum* Schewiakoff 1893)’.

On this basis, the name *Methanothrix soehngenii* Huser *et al.* 1983 is not validly published. This presents a problem for

the typification of the genus *Methanothrix*. The Judicial Commission has previously ruled that strain GP6 could not serve as a neotype (Wayne, 1994). In view of the fact that the type strain of the species *Methanothrix soehngenii* is not represented by a pure culture, the Judicial Commission ruled that this name be placed on the list of *nomina rejicienda*.

As a consequence of this ruling, *Methanothrix thermophila* Kamagata *et al.* 1992 is not a member of a genus represented by a type species. The Judicial Commission ruled in favour of transferring this organism to the species *Methanosaeta thermophila* (Kamagata *et al.* 1992) Boone and Kamagata 1998 comb. nov.

Opinion prepared by B. J. Tindall and H. G. Trüper on behalf of the Judicial Commission.

References

- Boone, D. R. & Kamagata, Y. (1998). Rejection of the species *Methanothrix soehngenii*^{VP} and the genus *Methanothrix*^{VP} as *nomina confusa*, and transfer of *Methanothrix thermophila*^{VP} to the genus *Methanosaeta*^{VP} as *Methanosaeta thermophila* comb. nov. Request for an Opinion. *Int J Syst Bacteriol* **48**, 1079–1080.
- Huser, B. A., Wuhrmann, K. & Zehnder, A. J. B. (1982). *Methanothrix soehngenii* gen. nov. sp. nov., a new acetotrophic non-hydrogen-oxidizing methane bacterium. *Arch Microbiol* **132**, 1–9.
- Kamagata, Y., Kawasaki, H., Oyaizu, H., Nakamura, K., Mikami, E., Endo, G., Koga, Y. & Yamasato, K. (1992). Characterization of three thermophilic strains of *Methanothrix* (“*Methanosaeta*”) *thermophila* sp. nov. and rejection of *Methanothrix* (“*Methanosaeta*”) *thermoacetophila*. *Int J Syst Bacteriol* **42**, 463–468.

Lapage, S. P., Sneath, P. H. A., Lessel, E. F., Skerman, V. D. B., Seeliger, H. P. R. & Clark, W. A. (editors) (1992). *International Code of Nomenclature of Bacteria (1990 Revision). Bacteriological Code.* Washington, DC: American Society for Microbiology.

Wayne, L. G. (1994). Actions of the Judicial Commission of the International Committee on Systematic Bacteriology on Requests for

Opinions published between January 1985 and July 1993. *Int J Syst Bacteriol* **44**, 177–178.

Zehnder, A. J. B., Huser, B. A., Brock, T. D. & Wuhrmann, K. (1980). Characterization of an acetate-decarboxylating non-hydrogen-utilizing methane bacterium. *Arch Microbiol* **124**, 1–11.