

Acetogenium kivui gen. nov., sp. nov., a Thermophilic Acetogenic Bacterium

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We propose that *Acetogenium* be placed in the family *Propionibacteriaceae* and provide a formal description of the genus.

The isolation and characterization of *Acetogenium kivui* have been described, and a discussion of the distinguishing characteristics of this organism have been presented (1). A phylogenetic comparison of *A. kivui* and other anaerobic bacteria capable of synthesizing acetate from CO₂ has been carried out by using the 16S ribosomal ribonucleic acid oligonucleotide cataloging method (2). This study confirmed that *A. kivui* belongs to a new genus, which is distinct from all previously established genera of spore-forming and nonspore-forming acetogens. Members of the genus *Acetogenium* do not form heat-resistant spores and therefore differ from *Clostridium thermoaceticum*, *Clostridium thermosaccharolyticum*, and *Clostridium thermoautotrophicum* (2, 3), all of which are thermophilic and can be grouped in a phylogenetic dendrogram with *A. kivui*. Members of this genus differ from other described acetogenic bacteria by their thermophilic nature and lack of motility. Like some species of the genus *Eubacterium*, *A. kivui* is not phylogenetically related to all species of *Propionibacterium* (2). However, for the purpose of classification, we suggest that *Acetogenium* be placed in the family *Propionibacteriaceae*.

A formal generic description is given below.
Acetogenium (a.ce.to.gen'i.um. L.n. *acetum*

vinegar; Gr.v. suff. *genium* producing; M.L. neut. n. *acetogenium* vinegar producing). Obligately anaerobic, thermophilic, nonspore-forming, nonmotile, straight rods which produce principally acetic acid from a variety of substrates, including sugars. Ultrastructure studies show a gram-positive cell wall structure, although *A. kivui* has a negative Gram reaction. Other substrates for growth and acetic acid production may include H₂ and CO₂, formate, carbon monoxide, and pyruvate. Reducing agents (e.g., cysteine-sulfide) are required. Catalase negative.

The type species is *A. kivui*. A formal specific description of *A. kivui* has been presented previously (1). The type strain of *A. kivui* is strain ATCC 33488 (= DSM 2030).

LITERATURE CITED

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