Higher Taxa of the Phototrophic Bacteria

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For the families, suborders, and the order of the phototrophic bacteria, legitimate names based on the names of type genera are proposed to replace the illegitimate names used to date. The family names are: *Rhodospirillaceae* nom. nov., *Chromatiaceae* Bavendamm 1924, and *Chlorobiaceae* Copeland 1956; suborder names are: *Rhodospirillineae* nom. nov. and *Chlorobiineae* nom. nov.; the order name is *Rhodospirillales* nom. nov.

The familial names *Thiorhodaceae* Molisch 1907 and *Athiorhodaceae* Molisch 1907 are illegitimate according to Rule 3 of the *International Code of Nomenclature of Bacteria* (4). A request to conserve these names (7) was rejected by the Judicial Commission (3). Consequently, to replace *Thiorhodaceae* we have proposed *Chromatiaceae* Bavendamm 1924 as the family name for the phototrophic red sulfur bacteria, a name based on *Chromatium* Perty 1852, the best known and most studied genus within this group (8). *Chromatiaceae* is emended to include the genera *Chromatium*, *Thiosarcina*, *Thiocystis*, *Thiospirillum*, *Thiocapsa*, *Lamprocystis*, *Amoebobacter*, *Thiodictyon*, *Thiopedia*, and *Ectothiorhodospira*.

For the phototrophic nonsulfur bacteria, we herewith propose the familial name *Rhodospirillaceae* to replace the name *Athiorhodaceae* Molisch 1907. This new name is based on *Rhodospirillum* Molisch 1907 as the type genus. The family *Rhodospirillaceae* further includes the genera *Rhodopseudomonas* and *Rhodomicrobium*.

For the family of the phototrophic green sulfur bacteria, the correct name is *Chlorobiaceae* Copeland 1956 (12). This family in-

cludes the genera *Chlorobium*, *Chloropseudomonas*, *Prosthecochloris*, *Pelodictyon*, and *Clathrochloris*.

Whereas the two families of the phototrophic red bacteria share many properties, especially as far as the photosynthetic pigments and the fine structure of the cells are concerned, the *Chlorobiaceae* are distinctly different from them, particularly with respect to the properties mentioned. We therefore think that *Chromatiaceae* and *Rhodospirillaceae* should be grouped together in a suborder, *Rhodospirillineae* subord. nov., and that the *Chlorobiaceae* should be in a separate suborder, *Chlorobiineae* subord. nov. *Rhodospirillineae* will contain the phototrophic bacteria which have bacteriochlorophyll *a* or *b* as the major pigment, and the *Chlorobiineae* will contain those phototrophic bacteria which have bacteriochlorophyll *c* or *d* as the major pigment. These suborders are placed in an order which contains the phototrophic (photosynthetic) bacteria: *Rhodospirillales* ord. nov.

The following illustrates the proposed hierarchy of the higher taxa of the phototrophic bacteria.

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