Bacteroides capillus Kornman and Holt and *Bacteroides pentosaceus* Shah and Collins, Later Synonyms of *Bacteroides buccae* Holdeman et al.

J. L. JOHNSON AND LILLIAN V. HOLDEMAN*

Department of Anaerobic Microbiology, Virginia Polytechnic Institute and State University, Blacksburg, Virginia 24061

The type strain of *Bacteroides pentosaceus* Shah and Collins and the type strain of *Bacteroides buccae* Holdeman et al. have more than 80% deoxyribonucleic acid homology with the type strain of *Bacteroides capillus* Kornman and Holt, and therefore the three names are subjective synonyms. Since *B. buccae* Holdeman et al. was the first validly published name applied to this taxon, *B. capillus* and *B. pentosaceus* are later synonyms of *B. buccae*.

Bacteroides capillus Kornman and Holt 1982, 266 (3, 5), *Bacteroides pentosaceus* Shah and Collins 1982, 266 (3, 7), and *Bacteroides buccae* Holdeman et al. 1982, 128 (2) are extremely similar phenotypically. The major published difference among these species is liquefaction of gelatin by the type strain and 14 of 18 strains of *B. buccae* and no liquefaction of gelatin by the type strain and two other strains of *B. capillus* (5) and the type strain and two other strains of *B. pentosaceus* (7). However, we found that the type strains of *B. capillus* and *B. pentosaceus* liquefied prereduced peptone-yeast extract-12% gelatin (1).

The S1 nuclease method (4) was used to determine the levels of deoxyribonucleic acid homology among the type strains of the species. *B. buccae* strain VPI D3A-6^T (parent strain of strain ATCC 33374^T) (T = type strain) was from our culture collection. *B. capillus* ATCC 33690^T was from the American Type Culture Collection, Rockville, Md., and *B. pentosaceus* NCDO 2353^T was from the National Collection of Dairy Organisms, Reading, England.

Our results (Table 1) indicate that the type strains have more than 80% deoxyribonucleic acid homology and are the same species. *B. buccae* is the first validly published name,

by page priority (6), since the names *B. capillus* and *B. pentosaceus* both were validated in list no. 8 on page 266 of the International Journal of Systematic Bacteriology volume 32 and *B. buccae* was described on page 128 of the same issue. Therefore, *B. capillus* Kornman and Holt and *B. pentosaceus* Shah and Collins are later synonyms of *B. buccae* Holdeman et al.

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LITERATURE CITED

1. Holdeman, L. V., E. P. Cato, and W. E. C. Moore (ed.). 1977. Anaerobe laboratory manual. Department of Anaerobic Microbiology, Virginia Polytechnic Institute and State University, Blacksburg.
2. Holdeman, L. V., W. E. C. Moore, P. J. Churn, and J. L. Johnson. 1982. *Bacteroides oris* and *Bacteroides buccae*, new species from human periodontitis and other human infections. Int. J. Syst. Bacteriol. 32:125-131.
3. International Journal of Systematic Bacteriology. 1982. Validation of the publication of new names and new combinations previously effectively published outside the IJSB. List no. 8. Int. J. Syst. Bacteriol. 32:266-268.
4. Johnson, J. L. 1981. Genetic characterization, p. 450-472. In P. Gerhardt (ed.), Manual of methods for general microbiology. American Society for Microbiology, Washington, D.C.
5. Kornman, K. S., and S. C. Holt. 1981. Physiological and ultrastructural characterization of a new *Bacteroides* species (*Bacteroides capillus*) isolated from severe localized periodontitis. J. Periodontal Res. 16:543-555.
6. Lapage, S. P., P. H. A. Sneath, E. F. Lessel, V. B. D. Skerman, H. P. R. Seeliger, and W. A. Clark (ed.). 1975. International code of nomenclature of bacteria. 1975 Revision. American Society for Microbiology, Washington, D.C.
7. Shah, H. N., and M. D. Collins. 1981. *Bacteroides buccalis*, sp. nov., *Bacteroides denticola*, sp. nov., and *Bacteroides pentosaceus*, sp. nov., new species of the genus *Bacteroides* from the oral cavity. Zentralbl. Bakteriol. Parasitenkd. Infektionskr. Hyg. Abt. 1 Orig. Reihe C 2:235-241.

TABLE 1. Levels of DNA homology among *B. buccae*, *B. capillus*, and *B. pentosaceus*

Strain	% Homology with reference DNA from:	
	<i>B. buccae</i> VPI D3A-6 ^T	<i>B. capillus</i> ATCC 33690 ^T
<i>B. buccae</i> VPI D3A-6 ^T	(100) ^a	82
<i>B. capillus</i> ATCC 33690 ^T	87	(100) ^a
<i>B. pentosaceus</i> NCDO 2353 ^T	NT ^b	87

^a Value normalized to 100%.

^b NT, Not tested.

* Corresponding author.