

Cellular Fatty Acid Composition and Genotypic Analysis of *Bifidobacterium longum* MK-G7

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It was considered that cellular fatty acid composition of *Bifidobacteria* depended upon the species and was regarded as very useful tools for the identification of *Bifidobacteria*. Cellular fatty acid of *Bifidobacterium longum* MK-G7 was shown to be composed of C_{16:0} FAME, C_{18:1 cis} DMA, C_{18:1 cis} 9 FAME, C_{14:0} FAME, C_{19:0} CYC 9,10 DMA, Feature 7(C_{17:2} FAME), and Feature 10(C_{18:1} C_{11/19/16} FAME). Therefore, cellular fatty acid composition of *Bifidobacterium longum* MK-G7 is quite similar to that of *Bifidobacterium longum*, compared with *Bifidobacterium adolescentis*, *Bifidobacterium breve*, and *Bifidobacterium suis*. Especially *Bifidobacterium longum* contained cis-9,10-methylene octadecanoic acid(19:0 cyclo 9,10) so-called lactobacillic acid. As taxonomic and phylogenetic experimental results based on 16S rDNA sequencing analysis, *Bifidobacterium longum* MK-G7 showed 99.9 % homology similarity and showed the highest relatedness with *Bifidobacterium longum* ATCC 15707 type strain. Purified DNA of *Bifidobacterium longum* MK-G7 was harvested in the level of 1.8-fold purity at A₂₆₀/A₂₈₀ and 30 µg from 3 ml medium. Even though *Bifidobacterium longum* MK-G7 and *Bifidobacterium longum* ATCC 15707 showed 153 bp PCR products, *Bifidobacterium lactis* Y-4 did not make any band at all. It was same situation both in genomic DNA and in cell lysate. Therefore, it was shown that *Bifidobacterium longum* MK-G7 had 16S rRNA gene and should be classified taxonomically as *Bifidobacterium longum*. 8 *Bifidobacteria* strains were used in the test and their band pattern was confirmed by PFGE analysis. *Bifidobacterium infantis* Y-2, *Bifidobacterium longum* Y-3, *Bifidobacterium longum* Y-6, and *Bifidobacterium adolescentis* ATCC 15706 showed similar band patterns. However, *Bifidobacterium longum* MK-G7 and *Bifidobacterium longum* ATCC 15707 showed quite different band patterns. Consequently, it was confirmed that MK-G7 strain was identified as *Bifidobacterium longum* and *Bifidobacterium longum* MK-G7 did not belong to any commercial and type strains of *Bifidobacterium longum*.