

Bioconversion of Linoleic Acid to Conjugated Linoleic Acid by *Bifidobacterium breve*

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Bioconversion of linoleic acid (LA) to conjugated linoleic acid (CLA) by *Bifidobacterium breve* KCTC 3461 was investigated for the effect of LA-adaptation, addition of 1 to 5 mg/ml LA, and addition time of LA into the culture medium. For the LA-adaptation, *B. breve* KCTC 3461 was treated with LA according to three schemes. In all LA-adapted *B. breve*, the maximum concentration of CLA was obtained with range of 300-350 $\mu\text{g/ml}$ in the cys-MRS medium containing 1 mg/ml LA. The CLA production was highly increased as the concentration of LA was increased from 1 to 4 mg/ml. However, the conversion of LA to CLA was gradually decreased. The CLA production capability of *B. breve* and tolerance of *B. breve* were improved significantly by LA-adaptation. The addition of LA (1 mg/ml) into the culture broth at 24 h of cultivation was most effective in promoting CLA production. In a 2.5-L stirred-tank bioreactor, the conversion of 56.6% and productivity of 35.4 $\mu\text{g/ml} \cdot \text{h}$ by LA-adapted *B. breve* were approximately 6.6 and 9.8 times higher than those of LA-unadapted *B. breve*.

References

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