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Rapid Identification of *Leuconostoc* Species in Kimchi by Multiplex PCR Based on *rpoB* Gene Sequence Data

Myungjin Kim* and Jongsik Chun

School of Biological Sciences, Seoul National University

The fact that *Leuconosotoc* spp. are one of the major species in kimchi, a well known traditional Korean food, was proven by bacterial community analysis. In *Leuconostoc*, the 16S rRNA gene is not polymorphic enough to ensure reliable phylogenetic studies. Because the similarity of 16S rRNA sequence between *Leuconostoc* species is high, it cannot be used molecular marker to distinguish them, but that of *rpoB* gene is less similar than that of 16S rRNA sequence, it can be used molecular marker. *rpoB* genes of *Leuconostoc* were sequenced and the results of sequencing could be used to design the species specific primer for multiplex polymerase chain reaction (PCR). A multiplex PCR has been developed for rapid and reliable identification of *Leuconosotc* species, by using fourteen primers targeted to the genes encoding *rpoB* gene, instead of 16S rRNA. The multiplex PCR for detecting *Leuconostoc* can be successfully applied to a mixed food environment, especially kimchi. Monitoring population change of *Leuconostoc* species in kimch during fermentation with our method, the *Leuconostoc* species were detected 36 hours later after fermentation started. Different kimchi samples were analyzed using multiplex PCR and several bands were detected and matched to expected sizes of *Leuconostoc* species.

Keyword:

rpoB gene, Multiplex PCR, lactic acid bacteria, kimchi, microflora