Characterization of a small erythromycin resistance plasmid pLFE1 from the food-isolate Lactobacillus plantarum M345

This paper reports the complete 4031 bp nucleotide sequence of the small erythromycin resistance plasmid pLFE1 isolated from the raw-milk cheese isolate Lactobacillus plantarum M345. Analysis of the sequence revealed the coding regions for the erythromycin resistance determinant Erm(B). A replication initiation protein RepB was identified belonging to the RepB proteins of the pMV158 family of rolling-circle replicating plasmids. The transcriptional repressor protein CopG and a small counter transcribed RNA, two elements typically involved in replication control within this family were also found. A putative replication initiation site including a single-strand origin (sso) -like region succeeded by a characteristic pMV158 family double-strand origin (dso) was located upstream of the replication region. An open reading frame following a typical origin of transfer (oriT) site and coding for a putative truncated mobilization (Mob) protein with a size of 83 aa was detected. The product of the putative mob gene showed large similarity to the N-terminal region of the pMV158 family of Pre/Mob proteins, but was much smaller than other proteins of this family. We therefore suggest that the Mob function in pLFE1 is supplied in trans from another plasmid present in L. plantarum M345. Filter-mating experiments showed that pLFE1 has a broad host-range with transconjugants obtained from Lactobacillus rhamnosus, Lactococcus lactis, Listeria innocua, the opportunistic pathogen Enterococcus faecalis and the pathogen Listeria monocytogenes.

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