ABSTRACT

The present invention provides a recombinant plasmid pZQ12, a recombinant bacterium for synthesizing odd and even carbon chain monomer copolymerized mcl-PHA and an application thereof, relating to the technical field of genetic engineering. The recombinant plasmid pZQ12 includes: a *cimA* gene inserted into NcoI and BamHI multiple cloning sites of a plasmid pACYCDuet-1; a *leuBCD* gene inserted into BamHI and SacI multiple cloning sites of the plasmid pACYCDuet-1; an *ilvA* gene inserted into SacI and AscI multiple cloning sites of the plasmid pACYCDuet-1; and a *thrA*BC* gene inserted into the AscI multiple cloning site of the plasmid pACYCDuet-1. The recombinant plasmid pZQ12 and a recombinant plasmid pQQ05 are transferred into *Escherichia coli* LZ09 to obtain a recombinant bacterium, and mcl-PHA in which odd and even carbon chain monomers are copolymerized can be synthesized by using inexpensive and widely-sourced glucose as a sole carbon source.

Fig. 1 for publication