Construction of long-chain alkane degrading bacteria and its application in bioremediation of crude oil pollution

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Construction of long-chain alkane degrading bacteria and its application in bioremediation of crude oil pollution

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Abstract: In this study, a cloned *almA* gene was inserted into two plasmids PUC57 and pet-28a (+), and then transformed into *Escherichia coli* competent strains. The presence of *almA* was confirmed by PCR combined with restriction enzyme digestion. The results indicated two strains of PUC57/almA-*E.coli* and pet-28a (+)/almA-*E.coli* were all functioned on biodegradation long-chain alkanes, however, pet-28a (+)/almA-*E.coli* strain performed better and the speed of biodegradation was enhanced to about 12 mg L^{-1} h^{-1} when compared with PUC57/almA-*E.coli* strain. Furthermore, degradation degree of *n*-C32 was much higher than another long-chain alkanes for two engineered *E. coli* strains. Our results further suggested that exoenzyme was only detected in pet-28a (+)/almA-*E.coli* and followed a decreasing

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