

Expression of partial *sol* operon in *Clostridium acetobutylicum* M5 for highly selective butanol production

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Butanol and ethanol have high potential as fuel, but acetone has not. In fermentation of *Clostridium acetobutylicum*, acetone production could make dissipation of carbon source. In order to decrease acetone production, we constructed the predominantly alcohologenic strain from *C. acetobutylicum* M5, which can hardly produce solvents due to the lack of megaplasmid. We constructed plasmid pIMP1E1AB including *aad-ctfAB* operon, and transformed into *C. acetobutylicum* M5. The resulting strain, M5E1AB was observed as predominantly alcohologenic. In batch fermentation studies, co-expression of *aad* and *ctfAB* led to formation of 11.1 g/l butanol and 1.7 g/l ethanol with decreased acetone production (0.6 g/L). These results show that the performance of butanol production of M5E1AB was similar to that of ATCC824, but was not in acetone production.