

Effects of pH shock at different glucose concentrations on secondary metabolites production by a pentose phosphate pathway–fortified *S. lividans* TK24

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Effects of an acid pH shock applied at two different residual glucose concentrations were investigated on secondary metabolite production in bioreactor cultures of a *S. lividans* TK24 transformant with *zwf2+* *zwf3* + *opc2* (pentose phosphate pathway (PPP)–fortified strain). In the cultures of the PPP–fortified strain, the spontaneous pH change(decrease in the beginning and then recovery), that is, cell had a similar effect to an artificially pH shock. For the implementation of acidic pH shock, the culture pH was intentionally dropped to 4 when glucose concentration was 1 ~ 2 g/L (Case 1) or when glucose concentration was 5 ~ 5.5 g/L (Case 2). In Case 1, the pH shock promoted glucose consumption and cell growth, while discouraging slightly the production of ACT and RED. No significant change in the concentration of sedoheptulose–7–phosphate, the major compound of the pentose phosphate pathway. In Case 2, the production of ACT and RED was enhance by the pH shock on the contrary to Case 1, implying that a certain level of carbon source was essential for the pH shock to be effective in promoting secondary metabolites production.