

Effect of environmental gas composition on the intracellular metabolism of *Mannheimia succiniciproducens* MBEL55E

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A new succinic acid producing bacterium named strain *Mannheimia succiniciproducens* MBEL55E was isolated from bovine rumen [1, 3]. When *M. succiniciproducens* was cultured under aerobic condition, lactic acid (9.6 g/L) was produced as a major product and a small amount of acetic acid (3.4 g/L) was also produced. *M. succiniciproducens* could also grow under anaerobic condition. Under CO₂ atmosphere, glucose was completely consumed in 7.5 h and the final culture OD₆₆₀ of 8.6 was obtained. At the end of cultivation, succinic acid was produced as a major product (14 g/L), acetic and formic acids as the second major products, and lactic acid as a minor product. The succinic acid yield was 0.7 g succinic acid/ g glucose, and the productivity was 1.87 g succinic acid/L/h. Other acids and alcohols were not detected during the fermentation on glucose. Changing from CO₂ atmosphere to N₂ atmosphere had significant effect on cell growth and end-products formation. Under N₂ atmosphere, cell growth and glucose consumption were poor, glucose was not completely consumed. Interestingly, lactic acid (9.0 g/L) was a major product with small amounts of acetic, formic and succinic acids (2.2 g/L). These results suggest that the growth of *M. succiniciproducens* and succinic acid production are also significantly affected by the availability of CO₂ [2].

Acknowledgement

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References

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