

论文

酸适应乳酸菌的筛选及其酸适应条件的研究

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摘要:

对24株包括双歧杆菌、植物乳杆菌、乳酸乳球菌和保加利亚乳杆菌在内的4类乳酸菌酸耐受力进行评价, 结果发现除4株保加利亚乳杆菌有较强的酸耐受力外, 其余20株均为酸敏感菌株。将这20株酸敏感菌株酸适应(pH 4.5, 1h)后, 有13株菌的酸耐受力得到提高。其中, 乳酸乳球菌KLDS4.0312酸适应能力最强, 酸适应后其酸耐受力可提高7542倍。确定了乳酸乳球菌KLDS4.0312最佳酸适应条件为pH 4.5, 30min, 且稳定期的菌体酸适应后, 酸耐受力仅能提高27倍, 酸适应能力明显低于对数期菌体。

关键词: 酸适应 乳酸乳球菌 存活率 筛选

Screening of lactic acid bacteria with high-acid adaptive capacity and characterization of their acid-adaptive conditions

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Abstract:

The acid tolerance of 24 lactic acid bacteria including Bifidobacterium, Lactobacillus plantarum, Lactobacillus bulgaricus and Lactococcus lactis were evaluated. Twenty out of 24 lactic acid bacteria were sensitive to acid except 4 L.bulgaricus. When these 20 lactic acid bacteria were exposed to a moderate acid environment for acid adaptation, the acid tolerance of 13 strains could be improved. Among them, L. lactis KLDS4.0312 had the highest acid adaptive capacity and the acid tolerance was increased by 7542 times. The optimal conditions for acid adaptation in KLDS4.0312 were pH 4.5 and 30min. But the acid adaptation of the stationary phase cells of KLDS4.0312 could only be enhanced up to 27-fold compared with the parental strains, and the acid adaptive capacity in KLDS4.0312 stationary phase cells was lower than that in log phase cells.

Keywords:

acid adaptation Lactococcus lactis survival rate screening

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