·基础与临床研究·

高果糖玉米糖浆对变形链球菌合成细胞外多糖能力的影响

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【摘　要】 目的　应用蒽酮法，分别测定和比较变形链球菌代谢高果糖玉米糖浆（high-fructose corn syrup，HFCS）和蔗糖所合成的细胞外多糖的含量，研究变形链球菌利用高果糖玉米糖浆合成细胞外多糖的能力。**方法**　配制质量浓度为0.25%、0.5%、1%、3%和5%的高果糖玉米糖和蔗糖培养基，将变形链球菌UA159接种其中，37℃微需氧培养24h后，用蒽酮法测定各培养基中所合成的细胞外水溶性和水不溶性多糖的含量。**结果**　除0.25%组和0.5%组中HFCS和蔗糖培养基中所合成的胞外水溶性多糖没有差异（$P > 0.05$）外，其它各组两培养基中所合成的胞外水溶性多糖均有差异，且蔗糖明显高于HFCS（$P < 0.05$）。5组浓度的HFCS组和蔗糖培养基中所合成的胞外水不溶性多糖均存在差异且蔗糖组明显高于HFCS（$P < 0.05$）。**结论**　在本实验设定的糖浓度范围内，变形链球菌利用高果糖玉米糖浆合成细胞外多糖的能力尤其是合成细胞外水不溶性多糖的能力较蔗糖弱。

【关键词】 高果糖玉米糖浆　变形链球菌　胞外多糖　蔗糖

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Effect of high fructose corn syrup on synthesis of extracellular polysaccharides of *streptococcus mutans in vitro*

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【Abstract】 Objective　In this experiment, the levels of exopolysaccharides synthesized by ***Streptococc***us using high-fructose corn syrup (HFCS) and sucrose were analyzed and compared by using the anthrone method. **Methods**　HFCS-containing and sucrose-containing TSB culture medium was divided into five different concentrations, which were 0.25%, 0.5%, 1%, 3% and 5%. *S. mutans*　UA159 was cultured in the culture medium. After 24 hours, each medium containing extracellular water-soluble and water-insoluble polysaccharides was measured by the anthrone method. **Results**　No difference was observed in the extracellular water-soluble polysaccharides between 0.25% and 0.5% group of HFCS-containing and sucrose-containing culture medium ($P>0.05$), while there was significant difference between the other groups, and the level of polysaccharides in the sucrose group was significantly higher than that in the HFCS group ($P<0.05$). **Conclusions**　In the range of sugar concentration in this experiment, the effect of HFCS on synthesis of extracellular polysaccharides of *S. mutans*, especially the extracellular water-insoluble polysaccharides, was weaker than that of sucrose.

【Key words】 High-fructose corn syrup　*Streptococcus mutans*　Extracellular polysaccharide　Sucrose

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