

论文 衍生化GC法测定生物转化产品L-山梨糖及其中残余D-山梨醇的含量

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摘要:

设计了生物转化产品L-山梨糖及其中残余D-山梨醇的衍生化GC测定方法。以乙酸酐-吡啶(1:1)为衍生化试剂对样品中残余D-山梨醇进行乙酰化GC测定,再以四氢硼钠为还原剂、乙酸酐为乙酰化试剂对样品中L-山梨糖进行还原乙酰化GC测定。结果表明,D-山梨醇及L-山梨糖分别在0.01999~2.999μg及4.00~24.00μg范围内呈线性。本法精密密度及回收率均较好,可用于监测L-山梨糖生物转化终点及其成品中L-山梨糖及残余D-山梨醇的含量。

关键词: L-山梨糖 D-山梨醇 衍生化气相色谱法

DETERMINATION OF L-SORBOSE PREPARED BY BIOCONVERSION AND RESIDUAL D-SORBITOL IN IT BY DERIVATIVE GC METHOD

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Abstract:

A derivative GC method with *n*-tetracosane as the internal standard was developed for the determination of L-sorbose prepared by bioconversion and residual D-sorbitol in it. The method includes two procedures. The first procedure involves acetylation of bioconversion samples with a solution of acetic anhydride: pyridine(1:1) at 90°C for 20 min. The resulting products were assayed by GC to determine residual D-sorbitol. The second procedure involves reduction of the bioconversion samples with NaBH₄ in aqueous solution at 40°C for 1 hour followed by reaction with the mixture of acetic anhydride: pyridine (1:1) at 90°C for 20 min. The resulting products were assayed by GC to determine L-sorbose. Chromatography was performed on a 5% OV-17 stainless steel column(2 m×3 mm ID) with nitrogen as carrier gas. The detector was FID. The standard curves of D-sorbitol and L-sorbose were linear in the ranges of 0.01999~2.999 μg and 4.000~24.000 μg respectively. The method has been applied to assay L-sorbose and residual D-sorbitol in bioconversion products and to monitor bioconversion termination point of L-sorbose.

Keywords: D-Sorbitol Derivative GC method L-Sorbose

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