

论文

压电石英传感器同时测定水溶液中维生素B₁及维生素C

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摘要:

导出并经实验验证了压电传感器对维生素B₁及维生素C的频移线性校正模型,并用其实现了上述两种维生素制剂的同时测定。考虑到该药物体系可能存在一定程度的复共线关系,采用偏最小二乘线性校正技术处理实验数据。两种维生素浓度估计平均相对标准偏差分别为1.97%和2.47%,表明方法可行。

关键词: 压电石英晶体传感器 维生素B₁ 维生素C

SIMULTANEOUS DETERMINATION OF VITAMIN B₁ AND VITAMIN C IN AQUEOUS SOLUTION WITH PIEZOELECTRIC CRYSTAL QUARTZ SENSORS

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Abstract:

According to the response properties of piezoelectric crystal quartz sensors to the solution conductivity the frequency shift response was derived to show a linear dependence on the concentrations of vitamin B₁ (VB₁) and vitamin C (VC). This was experimentally verified and a calibration model for simultaneous determinations of the two vitamins was established. The usefulness of the technique was evaluated by quantitation of mixtures of unknown composition using common multiple linear regression (MLR) and partial least squares (PLS). The average relative standard deviations for six samples were 4.46% for VB₁ and 6.63% for VC with MLR; and 1.97% for VB₁ and 2.74% for VC with PLS, respectively.

Keywords: Vitamin B₁ Vitamin C Piezoelectric crystal quartz sensor

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