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论文

一种用于食品中二氧化硫快速测定的样品前处理方法

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摘要:

提出了一种采用半微量蒸馏-半导体制冷技术的食品中二氧化硫快速提取的新方法, 研制出了可在15 min内完成二氧化硫提取的食品检测快速蒸馏提取装置. 采用本装置, 无需冷凝水和含汞吸收剂即可实现对样品中二氧化硫的蒸馏提取. 考察了蒸馏液酸度、 蒸馏液体积、 馏分收集体积和蒸馏提取时间对二氧化硫提取效率的影响. 研究结果表明, 采用该方法在30 min内即可完成对食品中二氧化硫的快速定量测定.

关键词: 二氧化硫; 快速提取; 食品检测

A Novel Method of Fast Sample Preparation for Determination of Sulfur Dioxide in Foodstuffs

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Abstract:

The semimicro fractional distillation and the semiconducting refrigeration techniques were applied to the fast determination of sulfur dioxide in foodstuffs. A novel distilling method which did not require mercuric absorbent and cooling water was proposed. A fast distillation equipment which, can complete the distillation of sulfur dioxide in foodstuffs in 15 min, was developed. The effects of acidity, volume of sample solution, volume of distillate and time of distillation on distillation yield of sulfur dioxide were studied. The calibration curve is linear at the mass SO_2 content of 1.0-100.0 mg/kg sample, the correlation coefficient is over 0.998, the lower limit of detection is 1.0 mg/kg. With the method and the equipment mentioned above, the interference of the sample color and the pollution of the mercuric absorbent can be avoided, and the analysis of each sample can be completed in 30 min including the sample preparation time. More than 20 kinds of practical samples were analyzed. The results are in good agreement with the results obtained by the standard method, and the relative errors of determined values are less than 5% when the sulfur SO_2 concentrations are more than 10 mg/kg.

Keywords: Sulfur dioxide; Fast distillation; Food detection

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