

研究论文

离子色谱法测定海产品中磷酸盐、焦磷酸盐、偏磷酸盐和总磷

钟志雄^{1*}, 李攻科²

1.广东省疾病预防控制中心, 广东 广州 510300; 2.中山大学化学与化学工程学院, 广东 广州 510275

收稿日期 2008-12-8 修回日期 2009-2-9 网络版发布日期 2009-7-28 接受日期 2009-3-9

摘要 建立了离子色谱法测定海产品中磷酸盐、焦磷酸盐、偏磷酸盐和总磷的分析方法。样品经100 mmol/L NaOH溶液浸提, 固相萃取柱去除有机物、阳离子、中和OH⁻后用于海产品中磷酸盐、焦磷酸盐和偏磷酸盐的测定; 样品经干灰化法消化, 固相萃取柱净化后用于总磷测定。考察了提取溶液的pH、有机物和共存离子对测定结果的影响。该方法的线性范围为0.3~60 mg/L, 检出限为2.1~2.3 mg/kg, 相对标准偏差为1.6%~2.6%。海鱼和虾仁样品中目标物的加标回收率为81.8%~100.0%。该方法选择性好, 灵敏度高, 用于实际样品测定结果令人满意。

关键词 [离子色谱法](#) [磷酸盐](#) [焦磷酸盐](#) [偏磷酸盐](#) [总磷](#) [海产品](#)

Determination of phosphate, pyrophosphate, metaphosphate and total phosphorus in seafoods by ion chromatography

ZHONG Zhixiong^{1*}, LI Gongke²

1.Center for Disease Control and Prevention of Guangdong Province, Guangzhou 510300, China;
2.School of Chemistry and Chemical Engineering, Sun Yat-Sen University, Guangzhou 510275, China

Abstract

A method for the determination of phosphate, pyrophosphate, metaphosphate and total phosphorus in seafoods by ion chromatography (IC) was developed. The samples for the determination of phosphate, pyrophosphate, metaphosphate were extracted by 100 mmol/L NaOH solution at room temperature; the samples for the determination of total phosphorus were digested by incineration at high temperature; and then solid phase extraction (SPE) column was used to eliminate the interferences. The separation was carried out on an IonPac AS11-HC analytical column (250 mm×4 mm) and an IonPac AG11-HC guard column (50 mm×4 mm) using 30~80 mmol/L KOH gradient elution at a flow rate of 1.0 mL/min at 35 °C, coupled with a suppressor-type conductivity detector. Under optimum conditions, the measurement could be completed within 20 min. The effects of pH value, organic solvent and coexisted ions were investigated. The linear range was 0.3~60 mg/L, the detection limits were from 2.1 mg/kg to 2.3 mg/kg, and the relative standard deviations were from 1.6% to 2.6%. The method was applied to the determination of anions in fish and shrimps with the recoveries of 81.8%~100.0%. The method offered high selectivity, sensitivity, and gave a satisfactory results for real sample analysis.

Key words [ion chromatography \(IC\)](#) [phosphate](#) [pyrophosphate](#) [metaphosphate](#) [total phosphorus](#) [seafoods](#)

DOI:

通讯作者 钟志雄 z zxiong608@yahoo.com.cn

扩展功能

本文信息

- ▶ [Supporting info](#)
- ▶ [PDF\(445KB\)](#)
- ▶ [\[HTML全文\]\(0KB\)](#)
- ▶ [参考文献](#)

服务与反馈

- ▶ [把本文推荐给朋友](#)
- ▶ [加入我的书架](#)
- ▶ [加入引用管理器](#)
- ▶ [复制索引](#)
- ▶ [Email Alert](#)

相关信息

- ▶ [本刊中 包含“离子色谱法”的 相关文章](#)
- ▶ [本文作者相关文章](#)

- [钟志雄](#)
- [李攻科](#)