

阴离子交换色谱-脉冲安培法检测味精中的硫化物

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Determination of sulfide in gourmet powder by anion exchange chromatography with pulsed amperometric detection

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摘要 建立了阴离子交换色谱柱分离、脉冲安培检测器测定味精中微量硫化物的方法。味精样品经2 g/L氢氧化钠溶液直接溶解并过滤后直接进样, 硫离子与高浓度谷氨酸等阴离子在IonPac AS7阴离子色谱柱(250 mm×4 mm)上可实现较好的分离。以100 mmol/L氢氧化钠-500 mmol/L醋酸钠-0.5%乙二胺为淋洗液等度淋洗,6 min内可完成一次样品测定。脉冲安培检测器检测硫离子的检出限(25 μL进样,信噪比为3)为0.3 μg/L,并具有较宽的线性范围(0.001~1 mg/L),样品加标回收率为94.2%~99.0%。应用该方法检测99%味精、增鲜味精和加盐味精样品中的硫化物,结果表明该方法具有简便快捷、高选择性、高灵敏度等优点。

关键词: 离子色谱法 阴离子交换 脉冲安培检测 硫化物 味精

Abstract: A chromatographic method was developed for the determination of sulfide in gourmet powder. The samples were dissolved in 2 g/L sodium hydroxide solution directly, and filtrated with a 0.22 μm nylon membrane. The sulfide and other anions such as high concentration of glutamate were separated well in 6 min by an IonPac AS7 Anion Exchange column (250 mm×4 mm). A mixed solution of 100 mmol/L sodium hydroxide, 500 mmol/L sodium acetate and 0.5% ethylenediamine was used isocratically as the mobile phase. The detection limit of the sulfide was 0.3 μg/L at 25 μL injection (S/N=3). Moreover, the method had a wide linear range (0.001~1 mg/L) and satisfactory recovery (94.2%~99.0%). The method was applied in the determinations of the sulfide in 99% monosodium glutamate, special delicious monosodium glutamate and salted monosodium glutamate samples. The method is simple, fast and good in separation performance, and has high selectivity and sensitivity.

Keywords: ion chromatography (IC) anion exchange pulsed amperometric detection sulfide gourmet powder

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