Accepted Manuscript

Title: Quantification of inorganic anions and organic acids in apple and orange juices using novel covalently-bonded hyperbranched anion exchanger with improved selectivity

Authors: A.S. Uzhel, A.V. Zatirakha, A.D. Smolenkov, O.A. Shpigun

PII: S0021-9673(18)30821-5
DOI: https://doi.org/10.1016/j.chroma.2018.06.065
Reference: CHROMA 359509

To appear in: *Journal of Chromatography A*

Received date: 21-3-2018
Revised date: 18-6-2018
Accepted date: 26-6-2018

Please cite this article as: Uzhel AS, Zatirakha AV, Smolenkov AD, Shpigun OA, Quantification of inorganic anions and organic acids in apple and orange juices using novel covalently-bonded hyperbranched anion exchanger with improved selectivity, *Journal of Chromatography A* (2018), https://doi.org/10.1016/j.chroma.2018.06.065

Quantification of inorganic anions and organic acids in apple and orange juices using novel covalently-bonded hyperbranched anion exchanger with improved selectivity

A.S. Uzhel, A.V. Zatirakha*, A.D. Smolenkov, O.A. Shpigun

Department of Chemistry, Lomonosov Moscow State University, Leninskie Gory, 1/3, GSP-1, Moscow 119991, Russia

**Corresponding author. Tel.: +7(495)939-46-08*

E-mail: zatirakha@analyt.chem.msu.ru

Highlights

- Highly selective covalently-bonded PS-DVB-based anion exchanger for suppressed IC
- Baseline resolution of glycolate, acetate, lactate, and formate with novel anion exchanger
- Simultaneous determination of organic acids and inorganic anions in apple and orange juices
- Possibility of separating 22 anions on 25-cm long column in gradient mode.

Abstract

Chromatographic analysis of orange and apple juices is provided using novel covalently-bonded poly(styrene-divinylbenzene)-based (PS-DVB) hyperbranched anion exchanger for suppressed ion chromatography (IC) with improved selectivity toward inorganic anions and organic acids. The obtained stationary phase provides baseline resolution of weakly retained organic acids such as glycolate, acetate, lactate, and formate, which are not separated to baseline with modern commercially available anion exchangers. The proposed method is validated with respect to linearity, recovery, limits of detection, and intra-day and inter-day precision.

Keywords: