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Education

B.Sc. in Chemistry (2005-2009), University of Athens, Grade: 7.64/10

M.Sc. in Chemical Analysis & Quality Control (2012-2014), University of Athens, Grade 9.64/10

Research Topic:

Master thesis: Development and validation of a HILIC UV method for the simultaneous determination of nucleotides in infant formulas.

A method for the simultaneous determination of 5'-monophosphate nucleotides, adenosine 5'-monophosphate (AMP), uridine 5'-monophosphate (UMP), inosine 5'-monophosphate (IMP), cytidine 5'-monophosphate (CMP), guanosine 5'-monophosphate (GMP) in infant formulas by hydrophilic interaction liquid chromatography equipped with UV detector at 254 nm was developed. The complete chromatographic separation of five nucleotides was achieved isocratically through a polymeric zwitterionic column, ZIC-pHILIC with mobile phase consisted of acetonitrile and ammonium bicarbonate 100 mM (pH 8.8). The preparation of the samples was conducted with centrifugal ultrafiltration tubes with molecular weight cut-off membrane. This preparation gave better results compared with two other procedures developed and based on the deproteinization of the sample using reagents of precipitation and specifically perchloric acid and trichloroacetic acid, respectively. This method was validated and satisfactory values of precision and trueness were obtained. The instrumental limits of detection and quantification of the standard solutions ranged from 0.092-0.15 mg/L and 0.28-0.45 mg/L, respectively. The limits of detection and quantification of the method were 3.1-7.3 mg/kg and 9.4-22 mg/kg, respectively. Recoveries ranged from 95.8 to 103.1. Thus, this method can be used for the determination of nucleotides in infant formulas.

Research Interests

2009-2010:

- Comparative study of two different speciation methods for the determination of hexavalent chromium in water samples using electrothermal atomic absorption spectrometry.

2013-2014:

- Development of a HILIC-UV method for the determination of nucleotides in infant formulas. (Milk products and baby food, JOTIS Co).
- Study of HILIC mechanisms.

2014-2015:

- Development of methods for the determination of nucleotides in food matrices. (Milk

products and baby food, JOTIS Co).

Publications in journals

1. M. G. Kostakis, I. N. Pasiias, V. L. Borova, A. K. Panara, N. S. Thomaidis, Comparative study of two different speciation methods for the determination of hexavalent chromium in water samples using electrothermal atomic absorption spectrometry, *Current Analytical Chemistry*, **2013**, 9, 288-295, doi: 10.2174/1573411011309020013).

Conferences Presentations

1. M.G Kostakis, V.L Borova, A.K Panara, I.N Pasiias, N.S Thomaidis, Comparison of Two Different Speciation Methods for the Determination of Hexavalent Chromium in Water Samples by ETAAS, 7th Aegean Analytical Chemistry Days (AACD2010), 01-10-2012, Lesvos, Greece.
2. A.K Panara, I.N Pasiias, N.S Thomaidis, Development and Validation of a HILIC-UV Method for the Simultaneous Determination of Nucleotides in Infant Formulas, 9th Aegean Analytical Chemistry Days (AACD2014), 01-10-2014, Chios, Greece.

Professional Affiliations

Association of Greek Chemists, 2010-Present.

Hellenic Mass Spectrometry Society, 2012-Present.

Trace Analysis and Mass Spectrometry Group (TrAMS group), 2012-Present.

Contact information

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