

# Book of Abstracts

## 16<sup>th</sup> Asian Conference on Analytical Sciences ASIANALYSIS XVI 2023

9-12 October 2023 | Kuala Lumpur Convention Centre, Malaysia

"Advancing Analytical Sciences for  
Sustainable Development"

*incorporating*

**19<sup>th</sup> Asia-Pacific International  
Symposium on  
Microscale Separations and  
Analysis 2023 (APCE 2023)**

*held in conjunction with*

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## Test Systems for The Determination of Food Contaminants in Baby Nutrition

Mariia Kochetkova<sup>a,\*</sup>, Irina Timofeeva<sup>a</sup>, Andrey Bulatov<sup>a</sup>

<sup>a</sup>*Saint Petersburg State University.*

\*Corresponding author: [maria.kochetkova7@yandex.by](mailto:maria.kochetkova7@yandex.by)

### Abstract

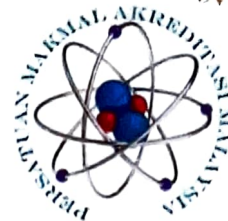
Currently, much attention is paid to the quality of food products, especially when it concerns baby nutrition. Preservatives, dyes, antioxidants and other food additives in high concentrations can have a negative impact on human health. For example, such preservative as formaldehyde is a carcinogen, ascorbic acid that is used as antioxidant can cause allergic reactions and gastric irritations<sup>1,2</sup>. Therefore, test systems that allow to quickly and cost-effectively determine chemical pollutants in food products are of interests. For express on-site control of formaldehyde in milk, a visual colorimetric technique with the possibility of fluorometric determination will be discussed in the report. The technique is based on air-assisted dispersive liquid-liquid microextraction of formaldehyde derivative into molten thymol, followed by transfer of the extract to the template. The appearance of a bright yellow color of the extract on template indicates that the formaldehyde presents in sample in a concentration higher than maximum residue limit. For monitoring concentration of ascorbic acid in food a simple and portable digital image-based test system with test stripes have been developed. To perform the analysis test strip with "yellow" form of heteropoly acid is immersed in a sample. Then the heteropoly acid reduces with formation of a "blue" form. The image of the test strip after the analysis is recorded using the smartphone camera and processed by special application. The techniques proposed allow to evaluate rapidly the concentration of contaminants both instrumentally and visually using a color scale. The test systems were applied for the determination of formaldehyde and ascorbic acid in real food samples. This project was financially supported by the Russian Science Foundation (project № 21-13-00020, <https://rscf.ru/project/21-13-00020/>).

**Keywords:** Food contaminants, test system, baby nutrition.

### References

1. Padayatty, S.J.; Levine, M.; *Oral Dis.* 2016, 22, 463–493.
2. Singh, P.; Gandhi, N.; *Food Rev. Int.* 2015, 31, 236–261.

<b>PROGRAMME - HALL 6B</b>	
<b>16<sup>th</sup> ASIAN CONFERENCE ON ANALYTICAL SCIENCES (ASIANALYSIS) XVI 2023</b>	
<b>Day 4:</b>	<b>Thursday, 12 October 2023</b>
<b>0800-0830</b>	<b>Registration</b>
	Chairperson: ChM Chang Hon Fong Venue: HALL 6B
<b>0830-0900</b>	<b>Keynote Lecture 3: Optical Circular Dichroism Generated from Achiral Molecules and Magnetic Nanoparticles</b> <ul style="list-style-type: none"> <li>• <i>Hitoshi Watarai</i> <i>Osaka University, Japan</i></li> </ul>
<b>0900-0930</b>	<b>Keynote Lecture 4: Invisible Invaders: Unmasking the Threat of Emerging Contaminants and Microplastics in the Ecosystem</b> <ul style="list-style-type: none"> <li>• <i>Ahmad Zaharin Aris</i> <i>Universiti Putra Malaysia, Malaysia</i></li> </ul>
<b>0945 –1030</b>	<b>Plenary Lecture 5: Assisting Electrophoresis and Exploring Photophoresis</b> <ul style="list-style-type: none"> <li>• <i>Doo Soo Chung</i> <i>Seoul National University, Korea</i></li> </ul> <b>Chairperson: Prof ChM Dr Juan Joon Ching</b> Venue: HALL 6B
<b>1030-1050</b>	<b>Refreshment &amp; Poster Session</b> Venue: HALL 6C
<b>ASIANALYSIS XVI 2023 PARALLEL SESSIONS</b>	
	Venue: HALL 6B
<b>Session VIII</b>	<b>Theme: Food Safety and Authenticity &amp; Spectroscopy and Applications</b> <b>Chairperson: ChM Dr Low May Lee</b>
<b>1050-1110</b>	<b>Oral 38 PFAS Analysis in the Food Chain</b> <ul style="list-style-type: none"> <li>• <i>Huey-Bing Chong</i> <i>Agilent Technologies</i></li> </ul>
<b>1110-1130</b>	<b>Oral 39 Simultaneous Determination of Five Mycotoxins in Cocoa Beans and Its Products Using the Quechers Method and Ultra Performance Liquid Chromatography Quadrupole Time-Of-Flight Mass Spectrometry</b> <ul style="list-style-type: none"> <li>• <i>Badrul Hisyam Zainudin</i> <i>Malaysian Cocoa Board, Malaysia</i></li> </ul>
<b>1130-1150</b>	<b>Oral 40 Test Systems for the Determination of Food Contaminants in Baby Nutrition</b> <ul style="list-style-type: none"> <li>• <i>Mariia Kochetkova</i> <i>Saint Petersburg State University, Russia</i></li> </ul>
<b>1150-1210</b>	<b>Oral 41 Operando Positron Annihilation Lifetime Spectroscopy for Hydrogen-Related Defects in Pure Iron</b> <ul style="list-style-type: none"> <li>• <i>Masanori Fujinami</i> <i>Chiba University, Japan</i></li> </ul>
<b>1210-1230</b>	<b>Oral 42 Versatile Ag-nanospheres for Organic Compounds Detection via Surface-enhanced Raman Spectroscopy</b> <ul style="list-style-type: none"> <li>• <i>Jinhyuk Park</i> <i>The University of Suwon, South Korea</i></li> </ul>
<b>1230-1250</b>	<b>Oral 43 Sequential Injection Determination of Selenium Based on Its Complex Formation with 2,3-Diaminonaphthalene, and Separation of the Complex and Unreacted Reagent by Solid-Phase Extraction</b> <ul style="list-style-type: none"> <li>• <i>Norio Teshima</i> <i>Aichi Institute of Technology, Japan</i></li> </ul>



# *Certificate of Participation*

This is to certify that

**MARIIA KOCHETKOVA**

had given an Oral Presentation with the title  
Test Systems for the Determination of Food Contaminants in  
Baby Nutrition

at the

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held from **9 - 12 OCTOBER 2023**

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