




## PERSONAL INFORMATION

**Florina-Dorina Covaciu**

-  Cluj-Napoca (Romania)
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## WORK EXPERIENCE

02/05/2001–Present

**Scientific Researcher grade III**

National Institute for Research and Development of Isotopic and Molecular Technologies, 67-103 Donat Str., 400293 Cluj-Napoca, Romania, [www.itim-cj.ro](http://www.itim-cj.ro)

- Identification of the analytical techniques that can be applied in the quality control of some vegetables and fruits marketed on the Romanian market.
- Development of multi-component analysis methods capable of producing as many pesticides as possible in a single analysis and in the shortest possible time and at the same time providing a lower detection limit, consistent with the concentrations at which these compounds are commonly found in vegetables and fruits.
- Optimization of extraction methods, especially the QuEChERS method for the determination of pesticide residues in complex matrices by gas chromatography and mass spectrometry, and subjecting them to validation procedures in order to study the performance, assess the errors accompanying the determinations and, last but not least, (linearity, sensitivity, selectivity, LOD, quantification limit (LOQ), specificity, repeatability, reproducibility, relative standard deviation (RSD), precision and accuracy).
- Testing of real samples for the determination of pesticide residues in vegetables and fruits by gas chromatography and mass spectrometry (GC-ECD, GC-FID and GC-MS).
- Initiation of the first database containing the isotopic footprint of the Transylvanian forest fruits, presenting the isotopic variations that occur naturally between the forest fruits growing in different areas of Transylvania.
- To highlight the differences between wild and cultured berries by corroborating isotopic, elemental and chemometric measurements.
- Testing commercial samples of forest fruits to authenticate them against geographic origin.

## EDUCATION AND TRAINING

01/10/1995–30/06/2000

**Diploma in Biochemistry Engineer**

Faculty of Chemistry and Chemical Engineering – Department of Biochemistry Engineering, Babes Bolyai University, Cluj-Napoca

Diploma thesis: "The Study of Alcoholic Fermentation"

01/10/2001–30/06/2002

**Master in Applied Electrochemistry**

Faculty of Chemistry and Chemical Engineering – Department of Applied ElectroChemistry, Babes Bolyai University, Cluj-Napoca

Dissertation thesis: "Catalytic hydrogenation of acetonitrile"

01/10/2008–29/09/2017

**Doctor in Chemistry**

Faculty of Chemistry and Chemical Engineering – Department of Organic Chemistry, Babes Bolyai University, Cluj-Napoca

PhD Thesis: "Applications of chromatography and mass spectrometry in quality control of vegetables and fruits commercialised on the Romanian market"

## PERSONAL SKILLS AND COMPETENCES

Mother tongue(s) romanian

Other language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
english	B1	B1	B1	A2	B1

(\*) Common European Framework of Reference for Languages

## Organisation skills and competences

- Organizational skills earned from being involved in the organizing committee of several scientific conferences

Computer skills and competences

- Microsoft Office (Word, Excell, Publisher, Power Point Presentation), Origin, ChemDraw, CorelDraw Graphics

## RESEARCH AREAS

- Authentication and control of food products.
- Development of new methods of extraction and detection using gas chromatography with various specific detectors and mass spectrometry for monitoring of various contaminants from complex matrices (medium and food).
- Development and validation of novel food analysis methods by gas chromatography coupled with mass spectrometry.

## COORDINATED RESEARCH PROJECTS

Project Manager: "Urban Air Quality Monitoring in Cluj County in the Context of Current Climate Conditions (AERURBAN)"

Program: CAPACITIES MODULE II

Project type: Support project to increase the efficiency and impact of RDI activities

Period: 2007-2009

## PUBLICATIONS

- F.D. Covaciu**, D.A. Magdas, A. Dehelean, I.C. Feher and S. Radu. *Elemental, Isotopic, and Pesticide Analysis of Wild and Cultivated Berries*. Analytical Letters. 50(17): 2699-2710. DOI: 10.1080/00032719.2017.1299161. **2017**.
- F.D. Covaciu**, D.A. Magdas, O. Marincas and Z. Moldovan. *Determination of Pesticides in Carrots by Gas Chromatography and Mass Spectrometry*. Analytical Letters. 50(17): 2665-2676. DOI: 10.1080/00032719.2016.1263313. **2017**.
- F.D. Covaciu**, Z. Moldovan, A. Dehelean, D.A. Magdas, I.C. Feherm R. Puscas si M. Vlassa. *Determination of Pesticides, Elements and Isotopes in Strawberries*. Analytical Letters. 49 (16): 2560-2572. DOI: 10.1080/00032719.2016.1140175. **2016**.
- D.A. Magdas, G. Cristea, R. Puscas, **F. Tusa**. *The use of isotope ratios in commercial fruit juices authentication*. Romanian Journal of physics. 59 (3-4): 355-359. **2014**.
- G. Schmutzer, V. Avram, **F. Covaciu**, I. Feher, A. Magdas, L. David, Z. Moldovan. *Study of Flavour Compounds from Orange Juices by HS-SPME and GC-MS*. American Institute of Physics: Conference Series AIP Conf. Proc. 1565: 79-84. **2013**.
- F. D. Tuşa**, Z. Moldovan, G. Schmutzer, D.A. Magdaş, A. Dehelean and M. Vlassa. *Analysis of Flavor Compounds by GC/MS after Liquid-Liquid Extraction from Fruit Juices*. American Institute of Physics: Conference Series AIP Conf. Proc. 1425: 53-57. **2012**.
- D.A. Magdas, A. Dehelean, R. Puscas, G. Cristea, **F. Tusa**, C. Voica. *The Quality Control Of Fruit Juices By Using The Stable Isotope Ratios And Trace Metal Elements Concentrations*. American Institute of Physics: Conference Series AIP Conf. Proc. 1425: 178-181. **2012**.
- F. Tusa**, Z. Moldovan and M. Vlassa. *Identification and measurement of pesticide contaminants in*

- food products by electron impact GC/MS.* Journal of Physics: Conference Series 182. 012043. **2009.**
9. C Cuna, M Leuca, N Lupsa, V Mirel, V Bocos-Bintintan, S. Cuna, V Cosma and **F. Tusa.** *Ion mobility analyzer–quadrupole mass spectrometer system design.* Journal of Physics: Conference Series 182. 012022. **2009.**
  10. Z. Moldovan, G. Schmutzer, **F. Tusa**, R. Calin and A. C. Alder. *Pharmaceuticals and Personal Care Products in the Somes River Basin, Romania.* Geo-Eco-Marina 14: 49-57. **2008.**
  11. Z. Moldovan, G. Schmutzer, **F. Tusa**, R. Calin, A.C. Alder. *An overview of pharmaceuticals and personal care products contaminations along the river Somes watershed, Romania.* Journal of Environmental Monitoring. 9: 986-993. **2007.**
  12. Z. Moldovan, V. Coman and **F. Tusa.** *Determination of Oxygen containing compounds extracted from wine by Gas Chromatography and Mass Spectrometry.* International symposium ANALYTICAL FORUM 2004. Proceedings p. 171. Warsava. Poland. July 4-8<sup>th</sup> **2004.**
  13. Z. Moldovan, C. Ionescu, **F. Tusa**, N. Palibroda, A. Pamula. *The structural characterisation of Fossil Resins based on Mass Spectra obtained in GC/MS mode on pyrolysed sample.* Studia Universitatis Babes-Bolyai. Physica. Special Issue 2: 404-407. XLVIII. **2003.**
  14. Z. Moldovan, **F. Tusa.** *The separation of polycyclic aromatic hydrocarbons (PAHS) by high resolution gas chromatography.* Studia Universitatis Babes-Bolyai. Physica. Special Issue 2: 557-561. XLVIII. **2003.**

#### INTERNATIONAL CONFERENCES

1. Cristea G., Voica C., Dehelean A., Magdas D. A., Feher I., Puscas R., **Covaciu F.** *Application of Isotopic and Elemental Profiling in Food Products and Beverages.* Fifth Edition of International Conference on Analytical and Nanoanalytical Methods for Biomedical and Environmental Sciences - IC-ANMBES 2018. 23 – 25 May, Brasov, Romania, Transilvania University Press. ISSN 2360-3461. Book of abstracts pg. 164. **2018.**
2. **F. D. Covaciu**, D. A. Magdas, Z. Moldovan. *Analytical procedures for the determination of some functionalized materials performances used for retention of organic pollutants from waste water treatment plants.* 11<sup>th</sup> International Conference on Processes in Isotopes and Molecules. Romania. Cluj-Napoca. 27-29 September 2017.
3. **F.D. Covaciu**, D.A. Magdas, A. Dehelean, I.C. Feher and R. Puscas. *Multi-elemental, isotopic and trace pesticides analysis of wild and cultivated berries species.* International Conference on Analytical Methods from Biomedical and Environmental Sciences IC-ANMBES 2016. Brasov. Romania. June 29<sup>th</sup> - July 1<sup>th</sup>. **2016.**
4. **F.D. Covaciu**, D.A. Magdas, O. Marincas and Z. Moldovan. *Determination of trace pesticides in carrot samples having different origin by chromatography and mass-spectrometry methods.* International Conference on Analytical Methods from Biomedical and Environmental Sciences IC-ANMBES 2016. Brasov. Romania. June 29<sup>th</sup> - July 1<sup>th</sup>. **2016.**
5. **F.D. Covaciu**, Z. Moldovan, A.A. Dehelean, D.A. Magdas, I.C. Feher, R. Puscas, and M. Vlassa. *Comparison among strawberries grown in different countries from: pesticides, heavy metals and stable isotope content point of view.* Processes in Isotopes and Molecules. Cluj-Napoca. Romania. September 23-25<sup>th</sup>. **2015.**
6. G. Schmutzer, I. Feher, O. Marincas, V. Avram, M.H. Kovacs, A. Magdas, **F. Covaciu**, L. David, Z. Moldovan. *Study of flavour compounds from orange juices by HS-SPME and GC-MS.* Processes in Isotopes and Molecules. Cluj-Napoca. Romania. September 23-25<sup>th</sup>. **2013.**
7. C. Voica, **F. Tusa**, M. Kovacs, A. Iordache. *Multivariate characterization of Romanian wines according to their metallic and organic content.* EuroFoodChem XVII. Istanbul. Turcia. May 7-10<sup>th</sup>. **2013.**
8. Z. Moldovan, O. Marincas, V. Avram, **F. Tusa**, G. Schmutzer. *Specific organic pollutants detected in Prut River Basin.* International Conference ELSEMIDA. Cluj-Napoca. Romania. October. **2012.**
9. Z. Moldovan, O. Marincas, V. Avram, **F. Tusa.** *Characterization of organic pollutants in River Water by GC/MS ion profiles.* 19<sup>th</sup> International Mass Spectrometry Conference IMSC2012. Japan. September 15-22<sup>th</sup>. **2012.**

10. Z. Moldovan, O. Marincas, V. Avram, **F. Tusa**, I. Feher. *Comparison of pollutant analysis data obtained by GC/MS system after POCIS and grab sampling mode*. XXII Congress of Society of Chemists and Technologists of Macedonia. Ohrid, Macedonia. September 5-9<sup>th</sup>. **2012**.
11. Z. Moldovan, O. Marincas, V. Avram, G. Schmutzer, M. Kovacs, C. Voica, **F. Tusa**, I. Feher. *Non-target pollutants detected in Prut river aqueous phase using GC/MS system*. 36<sup>th</sup> International Symposium on Capillary Chromatography (ISCC) and 9<sup>th</sup> GCxGC Symposium. Riva Guardia. Italy. May 27<sup>th</sup> - 1<sup>st</sup> June. **2012**.
12. **F.D. Tusa**, Z. Moldovan, V. Mirel and M. Vlassa. *Analysis of pesticides by GC/MS after liquid-liquid extraction in commercial fruit juices from Romania*. International Conference on Analytical Methods from Biomedical and Environmental Sciences IC-ANMBES 2012. Brasov. Romania. May 24-27<sup>th</sup>. **2012**.
13. Z. Moldovan, V. Avram, O. Marincas, C. Voica, **F. Tusa**, I. Feher, G. Schmutzer, M. Kovacs, A.C. Alder. *Some families of pollutants detected in Prut River by GC/MS after SPE extraction*. 6<sup>th</sup> World Congress of Society of Environmental Toxicology and Chemistry. Berlin. Germany. May 20-24<sup>th</sup>. **2012**.
14. **F. D. Tuşa**, Z. Moldovan, G. Schmutzer, D.A. Magdaş, A. Dehelean and M. Vlassa. *Analysis of Flavor Compounds by GC/MS after Liquid-Liquid Extraction from Fruit Juices*. Processes in Isotopes and Molecules. Cluj-Napoca. Romania September 29<sup>th</sup> - October 01<sup>th</sup>. **2011**.
15. A. Dehelean, A. Magdas, **F. Tusa** and G. Schmutzer. *Multielement and stable isotope determinations in some Transylvanian fruit juices*. Processes in Isotopes and Molecules. Cluj-Napoca. Romania September 29<sup>th</sup> - October 01<sup>th</sup>. **2011**.
16. D. A. Magdas, A. Dehelean, R. Puscas, G. Cristea, **F. Tusa**, C. Voica. *The Quality Control Of Fruit Juices By Using The Stable Isotope Ratios And Trace Metal Elements Concentrations*. Processes in Isotopes and Molecules. Cluj-Napoca. Romania. September 29<sup>th</sup> - October 01<sup>th</sup>. **2011**.
17. **F. D. Tuşa**, Z. Moldovan, D.A. Magdaş, A. Dehelean and M. Vlassa. *The characterization of some commercial Romania fruit juices using mass spectrometry methods (IRMS, GC/MS and ICP-MS)*. 16<sup>th</sup> European Conference on Analytical Chemistry–EUROanalysis16. "Challenges in Modern Analytical Chemistry". Belgrade. Serbia. September 11-15<sup>th</sup>. **2011**.
18. A. Dehelean, D.A. Magdas, **F.D. Tusa**. *The investigation of trace metals content and stable isotopes composition on the soil-leave fruit chain from some Transylvanian areas*. 16<sup>th</sup> European Conference on Analytical Chemistry–EUROanalysis16. "Challenges in Modern Analytical Chemistry". Belgrade. Serbia. September 11-15<sup>th</sup>. **2011**.
19. **F. Tusa**, Zaharie Moldovan and Mircea Vlassa. *Analytical method for identification and measurement of pesticide traces in food products by GC/MS system*. International Conference on Analytical Methods from Biomedical and Environmental Sciences IC-ANMBES. Brasov. Romania. June 18-20<sup>th</sup>. **2010**.
20. **F. Tusa**, Zaharie Moldovan and Mircea Vlassa. *Identification and measurement of pesticide contaminants in food products by electron impact GC/MS*. Conference Processes in Isotopes and Molecules. Cluj-Napoca. Romania. September 24-26<sup>th</sup>. **2009**.
21. C. Cuna, M. Leuca, N. Lupsa, V. Mirel, V. Bocos-Bintintan, S. Cuna, V. Cosma and **F. Tusa**. *Ion mobility analyzer – quadrupole mass spectrometer system design*. Conference Processes in Isotopes and Molecules. Cluj-Napoca. Romania. September 24-26<sup>th</sup>. **2009**.
22. C. Cuna, S. Cuna, D. Ursu, M. Leuca and **F. Tusa**. *Volatile organic compounds analysis by ion mobility spectrometry*. 26<sup>th</sup> IMMS 2008, Fiera di Primiero. Italy. May 4-8<sup>th</sup>. **2008**.
23. M. Kaucsar, C. Cuna, V. Bunea, S. Olteanu, D. Zotoiu, **F. Tusa**. *Electrolytic conductivity detector in pollutants monitoring system*. Conference Processes in Isotopes and Molecules. Cluj-Napoca. Romania. September 20-22<sup>th</sup>. **2007**.
24. **Florina Tusa**, Zaharia Moldovan, Cezara Voica. *Micro-pollutants determination in aqueous medium, using liquid-liquid extraction and GC/MS analysis*. Conference Processes in Isotopes and Molecules. Cluj-Napoca. Romania. September 20-22<sup>th</sup>. **2007**.

25. V. Coman, Z. Moldovan, **F. Tusa**. *Characterization of some wine types from Romania based on relative quantity of compounds detected by GC/MS methods*. 1<sup>st</sup> European Chemistry Congress. Budapest. Hungary. August 27-31<sup>th</sup>. **2006**.
26. Z. Moldova, G. Schmutzer, **F. Tusa**, N. Palibroda, A. Alder, L. Mic, R. Chira. *Characterization of Pharmaceutical and Personal Care Products as Micropollutants in Wastewater Treatment Plant*. 1<sup>st</sup> European Chemistry Congress. Budapest. Hungary. August 27-31<sup>th</sup>. **2006**.
27. V. Avram, V. Coman, Z. Moldovan, **F. Tusa**. *The Chromatographic fingerprint of some Romanian white wines*. 1<sup>st</sup> European Chemistry Congress. Budapest. Hungary. August 27-31<sup>th</sup>. **2006**.
28. I. Broș, M.L. Soran, **F. Tusa**, E. Surducan, V. Surducan. *Composition analysis of inland sunflower and corn oils by gas-chromatography*. XXI International Symposium on Physico-Chemical Methods of Separation. Torun. Polonia. July 2-5<sup>th</sup>. **2006**.
29. Zaharie Moldovan, Virginia Coman, **Florina Tusa**. *Determination of oxygen containing compounds extracted from wine by Gas Chromatography and Mass Spectrometry*. International Symposium Analytical Forum 2004. Warsaw. Poland. July 4-8<sup>th</sup>. **2004**.
30. V. Coman, V. Avram, Z. Moldovan, H. Balazs, A.I. Popa and **F. Tusa**. *Chromatographic Separation of some polar compounds from different white wines*. 10<sup>th</sup> International Symposium on Separation Science. New Achievement in Chromatography. Optija. Croatia. October 12-15<sup>th</sup>. **2004**.

#### NATIONAL CONFERENCES

1. **F. Tusa**, Zaharie Moldovan and Mircea Vlassa. *Determination of pesticide traces in food products using GC/MS system after solid-liquid extraction*. a XVI-a conferinta nationala cu participare internationala "Progrese in criogenie si separarea izotopilor". Calimanesti-Caciulata. Rm-Valcea. Romania. October 13-15<sup>th</sup>. **2010**.
2. V. Almasan, P. Marginean, M. Lazar, **F. Tusa**. *Catalytic dehydration of ethanol for poly <sup>13</sup>C compounds synthesis*. The 9<sup>th</sup> Conference on Progress in Cryogenics and Isotopes Separation. Calimanesti-Caciulata. Ramnicu-Valcea. Romania. October 17-18<sup>th</sup>. **2003**.
3. M. Streza, I. Broș, M.L. Soran, **F. Tusa**. *Determination of oil adulteration by gas chromatography and photopyroelectric method*. XXIX-a Conferinta Nationala de Chimie. Calimanesti-Caciulata. Romania. October 4-6<sup>th</sup>. **2006**.
4. V. Almasan, P. Marginean, M. Lazar, **F. Tusa**. *Catalytic preparation of chlorethanol*. The 11<sup>th</sup> Physical Chemistry Conference. Timisoara. Romania. September 2-5<sup>th</sup>. **2003**.
5. Z. Moldovan, C. Ionescu, **F. Tusa**, N. Palibroda, A. Pamula. *The structural characterisation of Fossi Resins based on Mass Spectra obtained in GC/MS mode on pyrolysed sample*. The 3<sup>th</sup> Conference on Isotopic and Molecular Processes. Cluj-Napoca. Romania. September 25-27<sup>th</sup>. **2003**.
6. Z. Moldovan, **F. Tusa**. *The separation of polycyclic aromatic hydrocarbons (PAHS) by high resolution gas chromatography*. The 3<sup>th</sup> Conference on Isotopic and Molecular Processes. Cluj-Napoca. Romania. September 25-27<sup>th</sup>. **2003**.

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