

Mattia Rossi, PhD

Professional Experience

01-11/2020 – 31-10/2023

PhD in Stable Isotopes Geochemistry (SSD GEO/08)

Unipr, Parma (Italy)

- Interactions between soil, atmosphere, hydrosphere and vineyard. Geochemical-Isotope investigation.
- Laboratory teaching assistant.
- During May and June 2023, I spent a research period at IAEA (International Atomic Energy Agency, Wien), in order to understand how the standardization of new reference material is done, especially for reference materials with exchangeable hydrogens.

▪ **Supervisor:** Prof.ssa Paola Iacumin **Co-supervisor:** Prof. Giampiero Venturelli

Instrumentation: *TC/EA-IRMS (Temperature Conversion/Elemental Analyzer-Isotope Ratio Mass Spectrometry), HDO-IRMS (Hydrogen Deuterium Oxygen- Isotope Ratio Mass Spectrometry), CHN-IRMS (Carbon Hydrogen Nitrogen- Isotope Ratio Mass Spectrometry)*

Date of Graduation: 04-03-2024

Final Grade: Excellent

For references write to: Prof. Paola Iacumin (contact: paola.iacumin@unipr.it) and Prof. Giampiero Venturelli (giampiero.venturelli@gmail.com)

08/2020-10/2020

Research grant in isotope analysis on ancient mammal bones from Georgia

Ca' Foscari and Unipr, Parma (Italy)

- Collagen extraction from ancient bones and subsequent determination of $^{13}\delta$ and $^{15}\delta$.

Instrumentation: *TC/EA-IRMS (Temperature Conversion/Elemental Analyzer-Isotope Ratio Mass Spectrometry)*

For references write to: Prof. Paola Iacumin (contact: paola.iacumin@unipr.it)

11/2019-07/2020

Laboratory Supervisor and Quality Manager

LABGO S.r.l. (Spin-off at Unipr), Parma (Italy)

- IRMS analysis: determination of $^{13}\delta$, $^{18}\delta$, $^{2}\delta$ in different compounds (e.g. water, groundwater, precipitation, wine, oil, vinegar)
- Management of documentation according to ISO 17025:2018
- Laboratory ISO 17025:2018 accreditation.

Instrumentation: *TC/EA-IRMS (Temperature Conversion/Elemental Analyzer-Isotope Ratio Mass Spectrometry), HDO-IRMS (Hydrogen Deuterium Oxygen- Isotope Ratio Mass Spectrometry), CHN-IRMS (Carbon Hydrogen Nitrogen- Isotope Ratio Mass Spectrometry)*

For references write to: Prof. Paola Iacumin (contact: paola.iacumin@unipr.it)

06/2019

Winner of a PhD scholarship

University of Warwick, Coventry (United Kingdom)

- Winner of a PhD scholarship at University of Warwick, department of Life Sciences.

06/2017-07/2019

Research Analyst

Flamma S.p.a., Chignolo d'Isola, (Italy)

- Development of analytical methods for HPLC-UV/Vis, GC-HD, GC-MS, K.F. according to US Pharmacopoeia for application in API manufacturing processes

Instrumentation: *GC-MS, GC-HD, HPLC UV-Vis, K.F. TITRATOR, POTENTIOMETRIC TITRATOR.*

For references write to: Dr. Bisaccia Roberto, Team Leader (contact: r.bisaccia@flammagroup.com)

- 01/2017-06/2017 **QC Technician**
Olon, Segrate, Milan (Italy)
 ▪ In-process control (IPC) testing of drug manufacturing facility.
Instrumentation: GC-HD, HPLC UV-Vis, I.C., K.F. TITRATOR, POTENTIOMETRIC TITRATOR, TLC.
- 08/2015-07/2016 **QC Technician**
Linphalab (Agro-Food laboratory), Verona (Italy)
 ▪ Determination of residual pesticides and heavy metal in vegetable substances, food, drinking water and waste water
 ▪ Analytical method development for HPLC-MS/MS e GC-MS/MS
Instrumentation: ICP-MS, UPLC-MS/MS, GC-MS/MS, HPLC-MS/MS
- 05/2015-07/2015 **Laboratory Technician (wort preparation process)**
SABMiller-Peroni S.r.l, Padua (Italy)
 ▪ Management of wort preparation plant
 ▪ Chemical analysis of water and wort (including COD, free acidity, nitrates, nitrites, phosphates, pH, and hardness testing)
- 05/2014-10/2014 **QC Technician (Undergraduate Internship)**
SABMiller -Peroni S.r.l, Padua (Italy)
 ▪ Analysis of beer: Diacetyl, 2,3 pentanedione, acidity, iron, calcium, colour, pH, turbidity, bittering units (Iso-alpha-acids), specific gravity, polyphenols, refractive index, microbiology testing (membrane filtration with subculture on an appropriate medium, yeast analysis).
 ▪ Chemical analysis of water (including COD, free acidity, Nitrates, Nitrites, Phosphates, pH, and hardness testing)
Instrumentation: UV-VIS, GC-ECD, HPLC-UV/Vis, EPR, DENSITY METTLER
- 10/2004 -09/2007 **Voluntary service**
Seminario Vescovile di Verona, Verona and Piccola Fraternità, Isola della Scala (Vr)
 Involving work and activity direction with disabled children as a social health operator

Education & Training

- 10/2013 - 04/2014 **Environment and Safety Quality Auditor**
Uninform, Rome (Italy)
 Master Quality®, designer and evaluator of quality systems; ANGQ Course for Auditor / Audit Officers group of management systems for quality qualified by CEPAS (ISO series 9000, ISO 19011); evaluator Systems Designer and Environment (ISO series 14000, EMAS); Check Legislative environmental and waste management consultant; designer of systems for managing health and safety in the workplace (RSPP-RLS, OHSAS 18001)
- 10/2010 -03/2013 **MsC, Chemistry**
University of Padua (Italy)
 Quality control in analytical chemistry, statistical analysis of experimental data using Matlab. Numerical calculation. Inorganic, organic, physical chemistry and environmental chemistry (REACH), analytical chemistry of pollutants
Instrumentation: UV-VIS, IR, GC-MS, HPLC-MS, AA, ICP-MS, IC, NMR, EPR
Thesis: "Point and interval estimation of the detection limits. Application to data obtained with the ICP-MS technique"
Final Grade: 108/110

- 10/2007 -09/2010 **BS, Chemistry**
University of Padua (Italy)
 Analytical, organic, inorganic, physical, biological, pharmaceutical and food chemistry. Laboratory training for each of these subjects
Instrumentation: UV-VIS, IR, GC-MS, HPLC-MS, AA, IC, NMR, EPR
Thesis: "Optical sensors for Oxygen: effect of temperature and aging on the response parameters"
Final Grade: 104/110
- 09/1999 - 06/2004 **Diploma QC Chemist**
ITIS "G. Ferraris", Verona
 Analytical chemistry, organic chemistry, inorganic and physical chemistry.
 Analysis of water, wine, oil, milk, soil, biscuits
Final Grade: 98/100

Skills

Languages

Italian: Native | English: B2 | French: A2

Communication

- Flexibility and adaptability in collaborative settings
- Demonstrated experience meeting deadlines in high-pressure environments

Computer

- MATLAB (advanced)
- Statistical analysis (e.g. ANOVA, Fischer, and Dixon tests)
- Microsoft Office (advanced)

Technical

- HPLC and GC systems
- Chemical analysis troubleshooting
- Proven track record of instrument maintenance (GC, HPLC, TC/EA, CHN)
- Expertise in the validation of novel analytical techniques for API
- Different detectors (e.g. UV-Vis, MS, MS², FID, IRMS)

Workshops attended

- 26/05/2021 "L'interpretazione stratigrafico-sedimentologica in sottosuolo, integrazione con la geologia di superficie e applicazione al sequestro della CO₂", **Dott. Massimo Rossi (ENI S.p.a.)**
- 10/02/2022 "Hydrogen underground storage in salt", **Prof. Giorgio Minelli**

Courses

- 22-25/09/2020 "DELTA V - CONFLO IV – FLASH HT-IRMS: Familiarization Customer Training", *Thermo Fisher*, **Dr. Umberto Traldi**
- 03/2021-05/2021 "Soil Fertility Management", 6 CFU, *Alma Mater studiorum (BO), Italy*. **Prof. Ciavatta Claudio**
- 04/2021-06/2021 "Chemometrics", 6 CFU, *La Sapienza (Rome), Italy*. **Prof. Marini Federico**
- 09-2021-12/2021 "Geochemistry", 6 CFU, *University of Parma (PR), Italy*. **Prof. Toscani Lorenzo**

Publications

- 2021 M. Boito, P. Iacumin, **M. Rossi**, N. Ogrinc, G. Venturelli (2021). Isotope partitioning between cow milk and farm water: A tool for verification of milk provenance. *Rapid Comm. Mass Spectro*, 2021, 35 (22).
- 2022 P. Iacumin, **M. Rossi**, G. Venturelli (2022). Oxygen isotope phosphoric acid fractionation factor and uncertainty on the $\delta^{18}\text{O}$ measurements of calcite, *Appl. Sci.*, 2022, 12, 10094.
- P. Iacumin, **M. Rossi**, G. Venturelli, Enrico Maria Selmo (2022). Oxygen isotopes in the carbonate and phosphate of modern mammal bioapatite: new data and critical revision after about 25 years from the first recognitions, *Minerals*, 2022, 12, 1204.
- 2023 Sammarco G, **Rossi M**, Suman M, Cavanna D, Viotto L, Pettenà P, et al. Hazelnut products traceability through combined isotope ratio mass spectrometry and multi-elemental analysis. *JSFA Reports*.2023;3(12):633–45
- Rizzo, P.; Bucci, A.; Monaco, P.; Sanangelantoni, A.M.; Naclerio, G.; **Rossi, M.**; Iacumin, P.; Bianchi, F.; Mucchino, C.; Riboni, N.; et al. Investigating the Potential Impact on Shallow Groundwater Quality of Oily Wastewater Injection in Deep Petroleum Reservoirs: A Multidisciplinary Evaluation at the Val d'Agri Oilfield (Southern Italy). *Sustainability* 2023, 15, 9161
- Rossi, M.**; Iacumin, P.; Venturelli, G. $^{87}\text{Sr}/^{86}\text{Sr}$ Isotope Ratio as a Tool in Archaeological Investigation: Limits and Risks. *Quaternary* 2024, 7, 6.
- 2024 M.O.Varrà , L. Husáková , P. Iacumin , M. Piroutková ,**M. Rossi**, J. Patočka, S. Ghidini, E. Zanardi (2024). A synergistic solution for fighting fraudulent practices in squid using light stable isotope ratios and lanthanide tracers. *Food Chemistry*, 459, 2024, 140303

Co-Supervisor of Thesis

- 2021 "Analisi isotopiche nell'acqua del vino: influenza delle variabili climatiche. Il caso di studio del Trentino". *Master Student: Dr. Fornaciari Federico*
- 2022 "Ricostruzione stagionale del clima e dell'ambiente in Siberia tramite la tecnica isotopica". *Master student: Dr. Michele Azzini*