

Ina Varfaj

Curriculum vitae

Education

- February 2023 – August 2023: Visiting PhD student at University of Tuebingen, Germany, group of Prof. Michael Laemmerhofer for metabolomics and lipidomics studies on plasma samples.
- November 2020 till now: Ph.D. Student in “Pharmaceutical Technology and Nutraceuticals”. Supervision of Prof. Andrea Carotti and Prof. Roccaldo Sardella.
- July 2020 – October 2020: Winner of a post lauream scholarship for research activity in enantioselective liquid chromatography with Prof. Roccaldo Sardella.
- July 2020 - State Examination for professional license for Pharmacist 49/50.
- May 2020: Degree in Pharmacy at University of Perugia (Italy), discussing the Thesis: “Efficient preparative-scale enantioseparation of hydrogenated 2H-indazoles with a donor-acceptor type stationary phase” with a votation 106/110. Supervision of Prof. Benedetto Natalini and Prof. Roccaldo Sardella.

Awards

- First Award for the competition “Separation Science Slam” – HPLC 2023, Dusseldorf (GERMANIA).
- Scholarship for the congress “27th National Meeting in Medicinal Chemistry (NMMC27)”, Bari 11-14 Sept 2022.
- Scholarship for “Summer School in Pharmaceutical Analysis (SSPA2022)” Rimini 21-23 Sept 2022.

Supporting for teaching and reasearch activities

- Reviewer for the scientific journal “Advances in Pharmacological and Pharmaceutical Sciences”
- Co-tutor for Master’s degree thesis for students:
 1. Evaluation of the nati-inflammatory activity of phenolic extracts from edible seeds
- November 2023 - Laboratory Tutor (Tutorato) for “Analisi dei Medicinali I -Mod I” with Prof. Andrea Carotti.
- April 2022 - Expert (Cultore della materia) on the subject of “Analisi dei Medicinali I -Mod II” CHIM/08, with Prof. Roccaldo Sardella.
- March 2022 - Laboratory Tutor (Tutorato) for “Analisi dei Medicinali I -Mod II” with Prof. Roccaldo Sardella.
- January 2022 - Expert (Cultore della materia) on the subject of “Scienza dell’Alimentazione” CHIM/10, with Prof. Federica Ianni.
- September 2021 - Teaching Support for “Analisi dei Medicinali I -Mod II” with Prof. Roccaldo Sardella.

SKILLS

Expertise on the field of pharmaceutical and nutraceutical analysis.

Use of the following techniques for nutraceutical, pharmaceutical and chemical analysis: extraction from different natural matrices of extracts as olive oil, propolis, artichoke, analyzed through high liquid chromatography (HPLC), mass-spectrometry (MS), two-dimensional HPLC-UV systems, spectrofluorometer, and different kinds of detection systems (diode array detector, UV-VIS, FLD, IR).

Expertise skills for antioxidant and antiradicals assays like FOLIN-CIOCALTEU, DPPH, ABTS.

Good skills on development of achiral and chiral chromatographic separation methods for the analysis of compounds of nutraceutical/pharmaceutical interest and to the set-up of LC-MS strategies enabling the determination of physicochemical properties of pharmaceutically relevant compounds.

Well trained in extraction and purification of compounds of nutraceutical/pharmaceutical relevance from different kind of biological and natural matrices.

Knowledge on lipidomic analysis and data analysis software.

My studies and works mostly involved in enantioselective chromatography also from the side of molecular modelling. I am gaining knowledge about the main methods in enantioselective liquid chromatography and the main computational techniques for the study of the enantiorecognition mechanisms and data analysis through different platforms (excel, KNIME).

POSTERS

1. **Title:** Original Enantioseparation of Synthetic Cannabinoids with Whelk O[®]1 Chiral Stationary Phases: Application to Microfluidic-Generated, Volumetric Dried Blood Spot Microsamples, RDPA 3-6 September 2023.
2. **Title:** Estimation of the Hydrophobicity Extent of Molecular Fragments With a Reversed-Phase Liquid Chromatography Method, HPLC 18-23 June 2023.
3. **Title:** "Enantioseparation of two anti-inflammatory chiral sulfoxides with cellulose-based chiral stationary phases under polar-organic conditions", I giovani e la chimica in Abruzzo, 12-13 July 2022.
4. **Title:** "Successful determination of the absolute enantiomeric configuration of two tetracyclic quinolines performing multiple combined molecular modeling approaches", TUMA, Perugia 1-2 September 2022.
5. **Title:** "Development of environmentally sustainable chromatographic methods for an overall achiral and chiral analysis of amino acids containing food supplements", NMMC14, Bari 11-14 September 2022.
6. **Title:** "Original enantioseparation of illicit fentanyl with cellulose-based chiral stationary phases under polar-ionic conditions", NPCF13: Firenze, dal 26-29/04/2021.
7. **Title:** "Efficient enantioresolution of aromatic α -hydroxy acids with Cinchona alkaloid-based zwitterionic stationary phases and volatile polar-ionic eluents", RDPA Modena, 6/09-08/09/2021.

- NMMC14, Congresso "Nuove Prospettive di Chimica Farmaceutica", Bari 11-14 September 2022.

- **SCHOOL AND CONGRESS**

- Recent Developments in Pharmaceutical Analysis 2023, Novara.
- SSPA -- School of Pharmaceutical Analysis, Rimini 11-13 September 2023.
- HPLC - Dusseldorf , Germany 18-23 June 2023.
- MYCS – Merck Young Chemists' Symposium, Rimini, 21-23 Novembre 2022.
- TUMA-Congresso Interregionale Toscan, Umbria, Marche, Abruzzo, Perugia 1-2 September 2022.
- I giovani e la chimica in Abruzzo, 12-13 July 2022.
- SCI 2021 - XXVII CONGRESS 14/09 - 21/09/2021.
- SSPA 2021: Summer School in Pharmaceutical Analysis, Modena 22-24 Sept 2021
- NPCF13: Firenze, 26-29 April 2021.
- RDPA Modena, 6/09-08/09.
- Winter School of Biotechnology 2022, 17/01 - 21/01/2022.

- **Publications**

1. **I. Varfaj***, G. W. A. Abualzulof*, S. Moretti, A. Migni, I. Uda, L. Goracci, F. Ianni, A. Carotti, R. Sardella, Development of an easy-to-set-up multiple heart-cutting achiral-chiral LC-LC method for the analysis of branched-chain amino acids in commercial tablets, *Electrophoresis* (2024) 1-13.
2. D. Bartolini, L. Pallottelli, D. Sgarretta, **I. Varfaj**, A. Macchiarulo, F. Galli, A. Romani, R. Sardella, C. Clementi, Natural cellulosic biofunctional textiles from onion (*Allium cepa* L.) skin extracts: A sustainable strategy for skin protection, *Industrial Crops Prod.* 212 (2024) 118295.
3. M. Acito*, **I. Varfaj***, V. Brighenti, E. Ceren Cengiz, T. Rondini, C. Fatigoni, C. Russo, D. Pietrella, F. Pellati, D. Bartolini, R. Sardella, M. Moretti, M. Villarini, A Novel Black Poplar Propolis Extract with Remarkable Health-Promoting Properties: Focus on Chemical Composition, Antioxidant, Anti-inflammatory, and Anti-genotoxic Activities, *Food & Function* 00 (2023) 1-3.
4. M. Protti*, **I. Varfaj***, A. Carotti, D. Tedesco, M. Bartolini, A. Favilli, S. Gerli, L. Mercolini, R. Sardella, Microsampling and enantioselective liquid chromatography coupled to mass spectrometry for chiral bioanalysis of novel psychoactive substances, *Talanta* 257 (2023) 124332.
5. A. Carotti*, **I. Varfaj***, I. Pruscini, G. W. A. Abualzulof, L. Mercolini, E. Bianconi, A. Macchiarulo, E. Camaioni, R. Sardella, Estimating the hydrophobicity extent of molecular fragments using reversed-phase liquid chromatography, *J. Sep. Sci.* 46 (2023) 2300346.

6. **I. Varfaj***, S. Moretti, F. Ianni, C. Barola, G. Abualzulof, A. Carotti, L. Cossignani, R. Galarini, R. Sardella, Multiple heart-cutting two-dimensional HPLC-UV achiral-chiral analysis of branched-chain amino acids in food supplements under environmentally friendly conditions, *Separations* 10 (2022) 45.
7. **I. Varfaj***, A. Carotti*, L. Mangiapelo, L. Cossignani, A. Taticchi, A. Macchiarulo, F. Ianni, R. Sardella, Environmentally sustainable achiral and chiral chromatographic analysis of amino acids in food supplements, *Molecules* 27 (2022) 7724.
8. F. Ianni, B. Cerra, G. Moroni, **I. Varfaj**, A. Di Michele, A. Gioiello, A. Carotti, R. Sardella Combining molecular modeling approaches to establish the chromatographic enantiomer elution order in the absence of pure enantiomeric standards: A study case with two tetracyclic quinolines, *Sep. Sci. Plus* 5 (2022) 662-670.
9. **I. Varfaj***, M. V. Pershina, M. V. Stepanova, R. Sardella, L. Asnin, A. Carotti, Elucidation of retention mechanism of dipeptides on a Ristocetin A-based chiral stationary phase using a combination of chromatographic and molecular simulation techniques, *J. Chromatogr. A* (2022) 463158.
10. **I. Varfaj***, A. Di Michele, F. Ianni, M. Saletti, M. Anzini, C. Barola, B. Chankvetadze, R. Sardella, A. Carotti, Enantioseparation of novel anti-inflammatory chiral sulfoxides with two cellulose dichlorophenylcarbamate-based chiral stationary phases and polar-organic mobile phase(s), *J. Chromatogr. A Open* 1 (2022) 100022.
11. F. Ianni, C. Volpi, S. Moretti, F. Blasi, G. Mondanelli, **I. Varfaj**, R. Galarini, R. Sardella, G. C. Di Renzo, L. Cossignani, In-depth characterization of phenolic profiling of Moraiolo extra-virgin olive oil extract and initial investigation of the inhibitory effect on Indoleamine-2,3-Dioxygenase (IDO1) enzyme, *J. Pharm. Biomed. Anal.* 213 (2022) 114688.
12. **I. Varfaj***, M. Protti, A. Di Michele, A. Macchioni, W. Lindner, A. Carotti, R. Sardella, L. mercolini, Efficient enantioresolution of aromatic α -hydroxy acids with Cinchona alkaloid-based zwitterionic stationary phases and volatile polar-ionic eluents, *Anal. Chim. Acta* 1180 (2021) 338928
13. **I. Varfaj***, M. Protti, M. Cincirrone, A. Carotti, L. Mercolini, R. Sardella, Original enantioseparation of illicit fentanylis with cellulose-based chiral stationary phases under polar-ionic conditions, *J. Chromatogr. A* 1643 (2021) 462088.
14. A. Di Michele, A. Schoubben, **I. Varfaj**, A. D'Arpino, L. Mercolini, R. Sardella, M. Ricci, E. Tiacci, Improved achiral and chiral HPLC-UV analysis of Ruxolitinib in two different drug formulations, *Separations* 7 (2020) 47.
15. B. Cerra, A. Macchiarulo, A. Carotti, E. Camaioni, **I. Varfaj**, R. Sardella, A. Gioiello, *et al*, Enantioselective HPLC analysis to assist the chemical exploration of chiral imidazolines, *Molecules* 25 (2020) 640.

***First author**

Autorizzo il trattamento dei dati personali contenuti nel mio curriculum vitae in base all'art. 13 del D. Lgs. 196/2003 e all'art. 13 del Regolamento UE 2016/679 relativo alla protezione delle persone fisiche con riguardo al trattamento dei dati personali.

Perugia, 10 April 2024

Ina Varfaj

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