CURRICULUM VITAE Dr. Gabriele Lupidi

University of Camerino

School of Science and Technology – Chemistry Division

Via Madonna delle Carceri, ChIP building

EDUCATION

Dr. Gabriele Lupidi began his studies in Chemistry in 2009 at the University of Camerino (Italy), where he received his bachelor's degree in 2013, with the dissertation of the thesis entitled: "*Biologically Active Small Molecules: Eco-sustainable Strategy for the Synthesis of Omega-3*", under the guidance of Professor Enrico Marcantoni. In 2015 he received his master's degree at the same university, with the dissertation thesis: "*New synthetic approach to 1,4-asymmetrically functionalized B-cyclodextrins as drug carriers and receptor mimics*", under the guidance of Professor Enrico Marcantoni. During this period, he spent 6 months in Portugal, at the Instituto Superior Técnico (Lisbon, Portugal) thanks to the Double Degree project promoted by University of Camerino. In December 2015 he started his PhD studies in collaboration with Dompé Farmaceutici S.p.A. and in March 2019 he obtained the PhD degree in Chemical and Pharmaceutical sciences at the University of Camerino, with a thesis "*Functionalization of Cyclic Structures for Advanced Biological and Pharmaceutical Applications*". During his PhD, in 2018, he spent 6 months as visiting PhD student in the organic chemistry laboratory of Professor Giovanni Poly at the Université Pierre et Marie Curie (Paris, France). Here, Dr Gabriele Lupidi worked on the selective C-3 functionalization of furan ring in furfural and its derivative via Directed *ortho* Metalation approach. From April 2019 to December 2019, he received a scholarship at University of Camerino on "*Modification of the packaging polymer by adding a new antioxidant molecule that can be released upon contact with the meat*" under the supervision of Professor Enrico Marcantoni in collaboration with Elettrogalvanica Settimi S.r.l. From January 2020 to January 2022, Gabriele Lupidi worked as postdoctoral fellow in the laboratory of Professor Marino Petrini, where his research has focused on the study of new, more eco-sustainable catalysts to promote organic reactions. Here he was able to experience the use of new processes such as flow synthesis and the use of eco-friendly solvents such as deep euthectic solvents (DES) in organic synthesis. From February 2022 he is enrolled as researcher (RTDa) at the University of Camerino in collaboration with the pharmaceutical industry Dompé Farmaceutici S.p.A. with the aim of transitioning several industrial synthetic processes currently in use into more sustainable processes from an ecological and green chemistry point of view. From May 2023 to December 2023, he worked in Dompé Farmaceutici S.p.A. laboratories in L'Aquila (AQ) where he improved his experience with Structure Activity Relationship (SAR) studies. Here, he synthesized several analogues of a promising API for pharmaceutical use. His research interests include synthesis and functionalization of heterocyclic systems, and synthesis of biologically active small molecules exploring new synthetic methodologies following more environmentally friendly approaches. Additionally, Dr. Lupidi collaborates with materials science groups focused on developing new biopolymers and on the chemical recycling of existing materials.

TEACHING ACTIVITIES

- TUTOR of Food Chemistry

In 2016, he supervised the laboratory course of Prof. Dennis Fiorini in Food Chemistry.

- TUTOR of Organic Chemistry 1
In 2017, he supervised the laboratory course of Dr. Fabrizio Papa in Organic Chemistry 1.
In 2019, he supervised the laboratory course of Dr. Serena Gabrielli in Organic Chemistry 1.
In 2020, he supervised the laboratory course of Dr. Serena Gabrielli in Organic Chemistry 1.
- TUTOR of Organic Chemistry 2
In 2018/2019, he supervised the laboratory course of Prof. Cristina Cimarelli in Organic Chemistry 2.
- TUTOR of Organic Chemistry 1
In 2022/2023, he supervised the laboratory course of Prof. Serena Gabrielli in Organic Chemistry 1.

- LECTURES ORGANIC CHEMISTRY

In 2021/2022 he held teaching course in Organic Chemistry for the Degree Course 'Tecnologie Innovative per I Beni Culturali" of the University of Camerino.

In October 2023 he held teaching course in Organic Chemistry at Zhengzhou University of Light Industry, Zhenzhou (China).

INDUSTRIAL COLLABORATIONS

- Dompè Farmaceutici S.p.A (2015-2019) "*Study and functionalization of cyclodextrins as drug carriers and receptor mimics*".

- Elettrogalvanica Settimi S.r.l. (April 2019 – December 2019) "*Modification of the packaging polymer by adding a new antioxidant molecule that can be released upon contact with the meat"*.

- Dompè Farmaceutici S.p.A (2022-2025) "*Studio di un migliore utilizzo della catalisi in sintesi ecosostenibili di small molecule capaci di trasformarsi in nuovi farmaci in modo tempestivo ed economico"*.

LIST OF PUBLICATIONS

1. "Bioactivity and Structural Properties of Novel Synthetic Analogues of the Protozoan Toxin Climacostol" F. Buonanno, E. Catalani, D. Cervia, F. Proietti Serafini, S. Picchietti, A. M. Fausto, S. Giorgi, G. Lupidi, F. V. Rossi, E. Marcantoni, D. Petrelli, C. Ortenzi *Toxins* **2019**, *11*(1),42. doi:10.3390/toxins11010042

2. "The Natural Compound Climacostol as a Prodrug Strategy Based on pH Activation for Efficient Delivery of Cytotoxic Small Agents" E. Catalani, F. Buonanno, G. Lupidi, S. Bongiorni, R. Belardi, S. Zecchini, M. Giovarelli, M. Coazzoli, C. De Palma, C. Perrotta, E. Clementi, G. Prantera, E. Marcantoni, C. Ortenzi, A. M. Fausto, S. Picchietti, D. Cervia *Front. Chem*. **2019**, *28*, 463. doi: 10.3389/fchem.2019.00463

3. "Catalyst-Free Synthesis of Polysubstituted 5-Acylamino-1,3-Thiazoles via Hantzsch Cyclization of α-Chloroglycinates" M. Tomassetti, G. Lupidi, P. Piermattei, F. V. Rossi, S. Lillini, G. Bianchini, A. Aramini, M. A. Ciufolini, E. Marcantoni *Molecules* **2019**, *24*(21), 3846. doi: 10.3390/molecules24213846

4. "Synthesis of Nitro Alcohols by Riboflavin Promoted Tandem Nef-Henry Reactions on Nitroalkanes" G. Lupidi, A. Palmieri, M. Petrini *Adv. Synth. Catal*. **2021**, *363*, 742. doi: 10.1002/adsc.202001344

5. “Enantioselective Catalyzed Synthesis of Amino Derivatives Using Electrophilic Open-Chain N-Activated Ketimines” G. Lupidi, A. Palmieri, M. Petrini *Adv. Synth. Catal*. **2021**, *363*, 1. doi: 10.1002/adsc.202100292

6. “Visible Light Driven Competitive Stereo and Regio-Isomerization of (E)-β-Nitroenones” S. Protti, A. Palmieri, C. Carrera, C. Raviola, G. Maestri, M. Serra, G. Lupidi *ChemPhotoChem*. **2021**, *5*, 871. doi:10.1002/cptc.202100081

7. “A New and Effective One-Pot Synthesis of Polysubstituted Carbazoles Starting from β-Nitro-β,γ-Unsaturated-Ketones and Indoles” G. Lupidi, B. Bassetti, R. Ballini, M. Petrini, A. Palmieri *Asian J. Org. Chem.* **2021**, *10*, 2334. doi: 10.1002/ajoc.202100342.

8. “Sustainable and fast synthesis of functionalized quinoxalines promoted by natural deep eutectic solvents (NADESs)” G. Lupidi, A. Palmieri, M. Petrini *Green. Chem.* **2022**, *24*, 3629-3633.

9. “An efficient synthesis of bio-based Poly(urethane-acrylate) by SiO_2-Supported $CeCl_3 \cdot 7H_2O$–NaI as recyclable Catalyst” G. Pastore, S. Gabrielli, R. Giacomantonio, G. Lupidi, S. Capodaglio, F. Stella, E. Leone, T. Compagnucci, E. Marcantoni *Results in Materials*, **2022**, *15*, 100294.

10. “Modular synthesis of 2-furyl carbinols from 3-benzyldimethylsilylfurfural platforms relying on oxygen-assisted C–Si bond functionalization” S. Curpanen, P. Reichert, G. Lupidi, G. Poli, J. Oblie, A. Perez-Luna *Beilstein J. Org. Chem.*, **2022**, *18*, 1256–1263.

11. “Copper(II) Complexes Based on Isopropyl Ester Derivatives of Bis(Pyrazol-1-Yl)Acetate Ligands with Catalytic Potency in Organic Macro(Molecules) Synthesis” M. Pellei, L. Bagnarelli, S. Gabrielli, G. Lupidi, C. Cimarelli, F. Stella, A. Dolmella, C. Santini *Inorganica Chim. Acta* **2023**, *544*, 121234.

12. “Recent Developments in Chemical Derivatization of Microcrystalline Cellulose (MCC): Pre-Treatments, Functionalization, and Applications” G. Lupidi, G. Pastore, E. Marcantoni, S. Gabrielli *Molecules* **2023**, *28*, 2009.

13. “Novel terephthalamide diol monomers synthesis from PET waste to Poly(Urethane acrylates)” G. Pastore, R. Giacomantonio, G. Lupidi, F. Stella, R. Risoluti, E. Papa, R. Ballini, F. Sarasini, J. Tirillò, E. marcantoni, S. Gabrielli *Front. Chem.* **2023**, *11*, 1-11.

14. “Exposure to the Natural Compound Climacostol Induces Cell Damage and Oxidative Stress in the Fruit Fly Drosophila melanogaster” E. Catalani, K. Brunetti, S. Del Quondam, S. Bongiorni, S. Picchetti, A. M. Fausto, G. Lupidi, E. Marcantoni, C. Perrotta, G. Achille, F. Buonanno, C. Ortenzi, D. Cervia. *Toxics* **2024**, *12*, 102.

15. “Chemical modification for improving drug-like molecular properties of climacostol, a natural resorcinolic lipid” G. Lupidi, E. Catalani, F. Buonanno, D. Gentili, S. Giorgi, V. A. Ponnarassery, S. Gabrielli, K. Brunetti, A. M. Fausto, S. Picchietti, C. Ortenzi, E. Marcantoni, D. Cervia. *Bioorg. Med. Chem.* **2025**, 119, doi: 10.1016/j.bmc.2025.118113.

BOOK CHAPTER

“*The Appropriate Acyclic Precursors to Build Biologically Active 5-acylamino-1,3-thiazoles*” M. Tomassetti, G. Lupidi, S. Gabrielli, F. V. Rossi, S. Lillini, G. Bianchini, A. Aramini, D. Canestrari, E. Marcantoni. Current Advances in Chemistry and Biochemistry Vol. 8, 22 June 2021 , Page 40-56. doi:10.9734/bpi/cacb/v8/9618D. ISBN 978-93-91215-29-3 (Print). ISBN 978-93-91215-37-8 (eBook).

PATENT

"Polietilentereftalato (PET) funzionalizzato con attività antiossidante" – IT Patent Application No. 102021000021686.

CONFERENCES, SYMPOSIUM AND SCHOOLS

2016 - XLI International Summer School in Organic Synthesis "A. Corbella", 12-16/06/2016, Gargnano (BS), Italy.

2016 - 5th Scientific Day of School of Science and Technology, University of Camerino, 08/06/2016 Camerino, Italy.

- "Quaternary Ammonium Salts as Highly Efficient Biocides in the Treatment of Microbial Degradation of Artworks" - Poster

- "Synthesis of New Climacostol Analogues: a Natural Molecule Become a Lead Compound" - Poster

- "$CeCl_3 \bullet 7H_2O$/NaI as Lewis Acid Catalyst in the Povarov Reaction for the Synthesis of Functionalized Tetrahydroquinolines" - Poster

2017 – 26th International Society of Heterocyclic Chemistry Congress(ISHC), 03-08/09/2017, Regensburg, Germany. "Cerium-trichloride promoted Povarov reaction: an easy and stereocontrolled synthesis of tetrahydroquinolines". - Poster

2018 – XXXVIII Convegno Nazionale della Divisione di Chimica Organica della Società Chimica Italiana (CDCO 2018), Milano, Scholarship Holder - 09-13/09/2018. "New Sustainable strategies to Obtain Biologically Active Cyclic Structures from Acyclic Precursors" – Oral Communication

2018 - 6th Scientific Day of School of Science and Technology, University of Camerino, 28/09/2018, Camerino.

- "$CeCl_3 \bullet 7H_2O$ in the Nonbiomimetic Synthesis of Biologically Active Compounds" - Poster

- "Sustainable Strategies for the Synthesis of Polyfunctionalized Heterocycles with Potential Biological Activity from Acyclic Precursors" - Poster

2019 – XVIII edition CIMPIS Days, Bologna, 18-19/02/2019. "New Sustainable Strategies to Obtain Biologically Active Cyclic Structures from Acyclic Precursors" – Oral Communication

2019 – XXXIX Convegno Nazionale della Divisione di Chimica Organica della Società Chimica Italiana (CDCO 2019), Torino, 08-12/09/2019. "Novel Synthetic Analogues of Climacostol as Potent Anticancer Nature-Inspired Small Molecules" - Poster

2020 – 1st Virtual Symposium for Young Organic Chemists (ViSYOChem 2020), 03-06/11/2020. "Synthesis of Nitro Alcohols by Riboflavin Promoted Tandem Nef-Henry Reactions on Nitroalkanes" – Poster

2021 - XXVII CONGRESSO NAZIONALE DELLA SOCIETÀ CHIMICA ITALIANA (SCI 2021), 14-23/09/2021. "Vitamin B2 Promoted Tandem Nef-Henry Reactions for the synthesis of Symmetrical β-Nitro Alcohols from Nitroalkanes" – Oral Communication

2022 – **Interregional Meeting of the Italian Chemical Society – Section Toscana, Umbria, Marche and Abruzzo (TUMA 2022)**, **Perugia**, 1-2/09/2022. "Hantzsch Cyclization to Polysubstituted 5-Acylamino-1,3-thiazoles Under Catalyst-Free Conditions" - Poster

2022 - XL Convegno Nazionale della Divisione di Chimica Organica (CDCO 2022), Palermo 11-15/09/2022**.** " Synthesis of a New Polyphenol Derivative with Potential Antiviral Activity Against Sars-CoV-2." – Poster

2023 - 9th Edition of the European Workshop in Drug Synthesis (EWDSy), **Siena**, 21-24/05/2023. "GRAPHENE OXIDE-AMBERLYST 15 CATALYZED PICTET-SPENGLER REACTION: ACCESS TO TETRAHYDRO-β-CARBOLINES THROUGH A 'CATCH AND RELEASE' STEP" – Oral Communication

2024 - XXVIII Congresso Nazionale della Società Chimica Italiana (SCI 2024), Milano, 26-30/09/2024. "Synthesis of a Novel Fluorinated Climacostol Analogue via DAST-Promoted Reaction" – Oral Communication