

PERSONAL INFORMATIONS Cecilia Baldassarri

OCCUPATIONAL FIELD

Extraction, isolation, and characterization of secondary metabolites from aromatic and medicinal plants, evaluation and investigation of their biological activity and synthesis of organic and organometallic bioactive compounds.

Rearing of laboratory and field colonies of various mosquito species and Medfly *Ceratitis capitata*, with a focus on genomic and biochemical investigation of insecticide resistance in both vectors and pest also through the analysis of their symbiotic bacteria.

EDUCATION AND TRAINING

- 2014** High school leaving qualification in linguistic studies at IIS “Leonardo da Vinci” of Civitanova Marche (MC).
Final grade: 100/100
Subjects studied: English, French, German, Latin, Italian literature, Math, Physics, Science, Biology.
- 03/04/2020** Master degree in “Chimica e Tecnologia Farmaceutiche” (Medicinal Chemistry) at University of Camerino
Final grade: 110/110 cum laude and encomio.
Thesis: “SYNTHESIS AND ANTIPROTOZOAL ACTIVITY OF A NEW SERIES OF PYRAZOLONE-BASED HYDRAZONES”.
- 26/09/2019** Teaching expertise improvement with the PF24 course (24 CFU credits in anthro-psycho-pedagogical disciplines and didactic technologies (D.M. 616, 10/08/2017).
- July 2020** National Abilitation as professional pharmacist.
- 15/11/ 2020 – 12/06/2024** PhD in Chemical and Pharmaceutical Sciences and Biotechnology – Pharmaceutical, nutraceutical and food sciences (XXXVI cycle) in UNICAM - Chemistry Interdisciplinary Project (ChIP), School of Pharmacy, University of Camerino, Via Madonna delle Carceri 9/B, 62032, Camerino, Italy
- Synthesis of organic bioactive molecules;
 - Synthesis of bioactive organometallic complexes;
 - Isolation of medicinal and food plants’ bioactive compounds;
 - Identification and quantification of essential oil/extracts constituents;
 - Employment of the analytical techniques GC-MS, GC-FID and HPLC to determine the chemical composition of essential oils or extracts, obtained by various extractive techniques;
 - Study of the biological activity of natural products, with the focus on their

antioxidant activity, antiprotozoal, and insecticidal potential;
 - Encapsulation of essential oils, extracts, and pure natural compounds into stable formulations, such as nano- and microemulsions, to be used to develop easily administrable products.
 Supervisors: Prof. Riccardo Petrelli and Prof.ssa Loredana Cappellacci (Medicinal Chemistry).

CURRICULAR TRAININGS

- 01/09/2019** Master Thesis in the Laboratory of Medicinal Chemistry of Prof.ssa Loredana Cappellacci (University of Camerino, Italy).
- 07/11/2019 – 26/02/2020** Attendance at the Department of Medical Biochemistry and Biophysics in the laboratory of Prof. Anders Hofer (University of Umea, Sweden) to complete the work of Thesis with an Erasmus + Traineeship programme.
- 17/04/2023 – 27/09/2023** Attendance at the School of infection and immunity (Parasitology) in the laboratory of Prof. Harry de Koning (University of Glasgow, Scotland, UK) to perform the PhD research activity abroad.

WORK AND INTERNSHIP EXPERIENCE

- 12/2018-07/2019** 900-hour Pharmacy internship at ASPP Farmacia comunale Potenza Picena (MC).
- 15/02/2021 – 23/02/2021** Assignment of 'Tutor Didattico' of Analisi dei farmaci II of the Degree Course in 'Chimica e Tecnologia Farmaceutiche'.
- 04/11/2022 – 01/06/2023** Assignment of 'Tutor Didattico' of Analisi dei farmaci II of the Degree Course in 'Chimica e Tecnologia Farmaceutiche'.
- 24/11/2023 – 07/12/2023** Assignment of 'Tutor Didattico' of Analisi dei farmaci II of the Degree Course in 'Chimica e Tecnologia Farmaceutiche'.
- 31/03/2025 -16/04/2025** Assignment of 'Tutor Didattico' of Metodologie avanzate in chimica farmaceutica of the Degree Course in 'Chimica e Tecnologia Farmaceutiche'.
- 14/05/2024-Present** Research fellowship (PRIN 2022) with the project: "The bacterial community as protection against insecticides: *Ceratitis capitata* as a model for studying the role of symbionts in insecticide resistance and the insect's role in disease transmission." Supervisor: Prof. Claudia Damiani

PERSONAL SKILLS

Mother tongue Italian

Other languages UNDERSTANDING SPEAKING WRITING

	Listening	Reading	Spoken interaction	Spoken production	
English	B2	B2	B2	B2	B2
	Cambridge Certificate FIRST, B2				
French	A2	A2	A2	A2	A2
	DELFI Certificate, A2				

Communication skills Excellent verbal and communication skills.
Good collaborative skills and good listening skills.

Organisational skills Excellent organisational skills.

Job-related skills Excellent team working skills and study method.

Technical skills

- Expertise in bioactive molecule and organometallic complexes synthesis.
- Advanced knowledge of extraction techniques from natural matrixes (hydro/steam distillation, Soxhlet) and analytical methods (GC-MS, HPLC, NMR, MS).
- Skilled in bioactivity testing (antioxidant, antiprotozoal, insecticidal), encapsulation techniques (nano- and microemulsions), and in vitro cell culturing of BSF parasites (*Trypanosoma brucei*, *T. congolense*, *T. evansi*, *T. equiperdum*, *Leishmania mexicana*).
- Experienced in field collection of mosquitoes by human landing and B4-sentinel traps.
- Experienced in field collection of larval instar *Ceratitis capitata* and adult flies through aspirator.
- Proficient in isolation of symbiotic bacteria from insect vectors (mosquitoes) and insect pests (*Ceratitis capitata*) using selective and differential media.
- Trained in lab-rearing of mosquitoes' species (*Culex pipiens*, *Anopheles stephensi*, *An. gambiae*, *Aedes albopictus*, *Ae. aegypti*, *Ae. koreicus*) and *C. capitata*.
- Advanced proficiency in metabolic fragmentation analysis of pyrethroid insecticides operated by bacteria isolated from *C. capitata* using GC-MS technique.
- Skilled in DNA/RNA extraction, PCR technique, fluorescence microscopy, and flow cytometry.
- Trained in in vivo pesticide assays through inhalation, feeding, and topical applications on adult *C. capitata* flies
- Competent in analysis of microbiota of insect vectors and insect pests by NGS technique.

Digital skills

- Skilled in the use of various biological and chemical analysis software such as Microsoft Excel, Chemdraw, MestreNova and Topspin, MSD ChemStation software by Agilent for GC-MS chromatograms analysis, GraphPad Prism for data

elaboration.

- Good knowledge of the main sources for bibliographic research (Google Scholar, Scopus, Reaxys and PubMed).

Driving licence B

OTHER INFORMATION

Publications

1. Spinozzi, E., Baldassarri, C., Acquaticci, L., Del Bello, F., Grifantini, M., Cappellacci, L., Riccardo, P. (2021). Adenosine receptors as promising targets for the management of ocular diseases. *Medicinal Chemistry Research (Q2 in Pharmacology, Toxicology and Pharmaceutics)*, 30, 353-370.
2. Baldassarri, C., Falappa, G., Mazzara, E., Acquaticci, L., Ossoli, E., Perinelli, D.R., Bonacucina, G., Dall'acqua, S., Cappellacci, L., Maggi, F., Ranjbarian, F., Hofer, A., Petrelli, R. (2021). Antitrypanosomal activity of *Anthriscus nemorosa* essential oils and combinations of their main constituents. *Antibiotics (Q1 in Pharmacology, medical)*, 10(11), 1413.
3. Marchetti, F., Tombesi, A., Di Nicola, C., Pettinari, R., Verdicchio, F., Crispini, A., Scarpelli, F., Baldassarri, C., Marangoni, E., Hofer, A., Galindo, A., Petrelli, R. (2022). Zinc (II) Complex with pyrazolone-based hydrazones is strongly effective against *Trypanosoma brucei* which causes African sleeping sickness. *Inorganic Chemistry (Q1 in Chemistry, miscellaneous)*, 61(34), 13561-13575.

4. Perinelli, D. R., Pavela, R., Bonacucina, G., Baldassarri, C., Spinozzi, E., Torresi, J., Petrelli, R., Morshedloo, M.R., Maggi, F., Benelli, G., Canale, A. (2022). Development, characterization, insecticidal and sublethal effects of *Bunium persicum* and *Ziziphora clinopodioides*-based essential oil nanoemulsions on *Culex quinquefasciatus*. Industrial Crops and Products (Q1 in Agronomy and Crop science), 186, 11524.
5. Spinozzi, E., Ferrati, M., Baldassarri, C., Cappellacci, L., Marmugi, M., Caselli, A., Benelli, G., Maggi, F., Petrelli, R. (2022). A review of the chemistry and biological activities of *Acmella oleracea* (“jambù”, Asteraceae), with a view to the development of bioinsecticides and acaricides. Plants (Q1 in Ecology), 11(20), 2721.
6. Wandjou, J.G.N., Baldassarri, C., Ferrati, M., Maggi, F., Pavela, R., Tsabang, N., Petrelli, R., Ricciardi, R., Desneux, N., Benelli, G. (2022). Essential oils from Cameroonian aromatic plants as effective insecticides against mosquitoes, houseflies, and moths. Plants (Q1 in Ecology), 11(18), 2353.
7. Giordani, C., Spinozzi, E., Baldassarri, C., Ferrati, M., Cappellacci, L., Santibañez Nieto, D., Pavela, R., Ricciardi, R., Benelli, G., Petrelli, R., Maggi, F. (2022). Insecticidal activity of four essential oils extracted from Chilean Patagonian plants as potential organic pesticides. Plants (Q1 in Ecology), 11(15), 2012.

8. Baldassarri, C., Giorgioni, G., Piergentili, A., Quaglia, W., Fontana, S., Mammoli, V., Minazzato, G., Marangoni, E., Gasparrini, M., Sorci, L., Raffaelli, N., Cappellacci, L., Petrelli, R., Del Bello, F. (2023). Properly Substituted Benzimidazoles as a New Promising Class of Nicotinate Phosphoribosyltransferase (NAPRT) Modulators. *Pharmaceuticals* (Q1 in Pharmaceutical Science), 16(2), 189.
9. Ferrati, M., Spinozzi, E., Baldassarri, C., Maggi, F., Pavela, R., Canale, A., Petrelli, R., Cappellacci, L. (2023). Efficacy of *Mentha aquatica* L. Essential Oil (Linalool/Linalool Acetate Chemotype) against Insect Vectors and Agricultural Pests. *Pharmaceuticals* (Q1 in Pharmaceutical Science), 16(4), 633.
10. Spinozzi, E., Ferrati, M., Baldassarri, C., Maggi, F., Pavela, R., Benelli, G., Aguzzi, C., Zeppa, L., Cappellacci, L., Palmieri, A., Petrelli, R. (2023). Synthesis of carlina oxide analogues and evaluation of their insecticidal efficacy and cytotoxicity. *Journal of Natural Products* (Q1 in Analytical Chemistry), 86(5), 1307-1316.
11. Spinozzi, E., Zeni, V., Di Giovanni, F., Marmugi, M., Baldassarri, C., Mazzara, E., Ferrati, M., Ricciardi, R., Canale, A., Lucchi, A., Petrelli, R., Maggi, F., Benelli, G. (2023). Aniseed, *Pimpinella anisum*, as a source of new agrochemicals: phytochemistry and insights on insecticide and acaricide development. *Agriculture Communications*, 100003.

12. Baldassarri, C., Spinozzi, E., Ferrati, M., Rossi, P., Maggi, F., Petrelli, R. (2023). Editorial for the Special Issue “Antiprotozoal Activity of Natural Products”. *Antibiotics* (Q1 in Pharmacology, medical), 12(12), 1650.
13. Spinozzi, E., Ferrati, M., Cappellacci, L., Petrelli, R., Baldassarri, C., Morshedloo, M. R., Maggi, F., Pavela, R. (2024). Major monoterpenoids from *Dracocephalum moldavica* essential oil act as insecticides against *Culex quinquefasciatus* with synergistic and antagonistic effects. *Industrial Crops and Products* (Q1 in Agronomy and Crop science), 219, 119060.
14. Acquaticci, L., Angeloni, S., Baldassarri, C., Sagratini, G., Vittori, S., Torregiani, E., Petrelli, R., Caprioli, G. (2024). A new HS-SPME-GC-MS analytical method to identify and quantify compounds responsible for changes in the volatile profile in five types of meat products during aerobic storage at 4° C. *Food Research International* (Q1 in Food Science), 187, 114398.
15. Ferrati, M., Spinozzi, E., Baldassarri, C., Rossi, P., Favia, G., Fiorini, D., De Zordi, N., Drenaggi, E., De Fazi, L., Benelli, G., Zeppa, L., Aguzzi, C., Maggi, F., Petrelli, R. (2024). Green purification of *Acmella oleracea* extract by wiped-film short path molecular distillation boosts the insecticidal activity on mosquito larvae. *Industrial Crops and Products* (Q1 in Agronomy and Crop science), 218, 118818.

16. Spinozzi, E., Ferrati, M., Baldassarri, C., Petrelli, R., Cappellacci, L., De Fazi, L., Benelli, G., Maggi, F. (2024). Unlocking the potential of alexanders (*Smyrnum olusatrum* L., Apiaceae): a neglected species with future crop prospect. *Industrial Crops and Products* (Q1 in Agronomy and Crop science), 218, 118847.
17. Ferrati, M., Baldassarri, C., Rossi, P., Favia, G., Benelli, G., De Fazi, L., Morshedloo, M. R., Quassinti, L., Petrelli, R., Spinozzi, E., Maggi, F. (2024). Unveiling the Larvicidal Potential of Golpar (*Heracleum persicum* Desf. ex Fisch.) Essential Oil and Its Main Constituents on *Aedes* and *Anopheles* Mosquito Vectors. *Plants* (Q1 in Ecology), 13(21), 2974.
18. Spinozzi, E., Ferrati, M., Baldassarri, C., Rossi, P., Favia, G., Cameli, G., Benelli, G., Canale, A., De Fazi, L., Pavela, R., Quassinti, L., Giordani, C., Araniti, F., Cappellacci, L., Petrelli, R., Maggi, F. (2025). Essential oil and furanosesquiterpenes from myrrh oleo-gum resin: a breakthrough in mosquito vector management. *Natural Products and Bioprospecting* (Q1 in Analytical Chemistry), 15(1), 12.

Attendance of schools and
contributions to congresses

1. 3rd European Summer School on Nutrigenomics UNICAM – Jesi (AN), June 25-29, 2018.
2. NPCF13 symposium 2021 – virtual, April 26-29, 2021.
3. European School of Medicinal Chemistry ESMEC 2021 – virtual, June 28-July 1, 2021.
4. SCI National congress 2021 – virtual, September 14-23, 2021.
5. Buchi NIR Master Academy – virtual, March-June 2022.
6. European School of Medicinal Chemistry ESMEC 2022 – University of Urbino, Urbino (PU), July 4-7, 2022.
7. Spinozzi E., Ferrati, M., Baldassarri, C., Maggi F., Pavela, R., Benelli, G., Aguzzi, C., Zeppa, L., Cappellacci, L., Palmieri, A., Petrelli, R. *Carlina acaulis*, a traditional medicinal plant for insect vectors management. 1^o Congresso Intersocietà sui prodotti vegetali per la salute: il ruolo delle piante medicinali nella medicina moderna. Padova, Italy, June 15-17, 2023, p. 91.
8. Spinozzi E., Ferrati, M., Baldassarri, C., Perinelli, D.R., Bonacucina, G., Pavela, R., Cappellacci, L., Petrelli, R., Maggi, F. *Bunium persicum* (Boiss.) B Fedtsch. and *Ziziphora clinopodioides* Lam. essential oils and their nanoemulsions: promising candidates for the management of *Culex quinquefasciatus*. XXX Congreso Peruano de Química, XXX Congreso Italo-Latinamericano de Etnomedicina. Online, October 16-20, 2023.

Poster presentations

1. NPCF13 symposium 2021, Baldassarri C.; Petrelli R.; Cappellacci L.; Marchetti F.; Di Nicola C.; Hofer A. «Synthesis and anti-trypanosomal activity of pyrazolone-based hydrazones Zinc(II) complexes». Book of abstract ref: P3
2. SCI National congress 2021, Baldassarri C.; Del Bello F.; Giorgioni G.; Piergentili A.; Sorci L.; Gasparini M.; Cappellacci L.; Raffaelli N.; Petrelli R. «A new series of 2- and/or 5-substituted benzimidazoles as potential inhibitors of nicotinic acid phosphoribosyltransferase (NAPRT)». Book of abstract ref: FAR PO043
3. XXVII National Meeting on Medicinal Chemistry 2022, Cappellacci L., Baldassarri C.; Tombesi A.; Di Nicola C.; Pettinari R., Marchetti F.; Verdicchio F.; Scarpelli F.; Marangoni E.; Hofer A.; Petrelli R. «Synthesis and trypanocidal activity of novel hydrazones and their Zn(II) and Cu(II) complexes». Book of abstract ref: PO-011.
4. “Indena e UNICAM: un cammino trentennale di ricerca nella farmaceutica e nutraceutica” conference 2022, Baldassarri C.; Ferrati M.; Spinozzi E.; Mazzara E.; Acquaticci L.; Torresi J.; Perinelli D.R.; Bonacucina G.; Cappellacci L.; Maggi F.; Hofer A.; Petrelli R. «Antitrypanosomal activity of *Anthriscus nemorosa* essential oils and their main constituents».
5. “Indena e UNICAM: un cammino trentennale di ricerca nella farmaceutica e nutraceutica” conference 2022, Spinozzi E.; Angeloni S.; Ricciutelli M.; Sensini A.; Ferrati M.; Baldassarri C.; Torresi J.; Petrelli R.; Maggi M. «*Acmella oleracea* (L.) R.K. Jansen: from the optimization of spilanthol-extraction procedure to the identification and quantification of alkylamides».

- Scientific collaborations** Collaboration with Università Politecnica delle Marche, University of Umeå, University of Padova, University of Glasgow, University of Pavia, University of Milan (UNIMI).
- Membership of scientific societies** 2020-2021 SCI (Società Chimica Italiana)
- Honours and awards** 2014-2019: Holder of UNICAM excellence scholarship (borsa d'eccellenza)
- 2019-2020: Holder of a scholarship to take part in an Erasmus + Traineeship programme of 5 months in the Laboratory of Prof. Anders Hofer in the Department of Medical biochemistry and Biophysics of the University of Umeå, Sweden.

In compliance with art. 19 and 47 of D.P.R. n. 445/2000, I declare that everything that is declared in this document correspond to the truth.

In compliance with the Italian legislative Decree no. 196 dated 08/07/2003, I hereby authorize you to use and process my personal details contained in this document.