

University Academic Curriculum Vitae

Personal information Claire Duménil

Education since leaving school 2011, Bachelor of Ecology, University of Caen, France
2014, Master of Sciences, University of Amsterdam, The Netherlands
2019, Doctor of Philosophy, University of Cardiff, The United Kingdom
Title: Mechanisms of host selection and prospects for novel semiochemical tools to control the invasive agricultural pest, *Drosophila suzukii*.

Present appointment **Research assistant (2024-2025):** Improving soil-plant-insect interactions to promote pollinators (IMPLICIT). With Dr. Sergio Angeli, Free-University of Bolzano-Bozen, Italy
Responsibilities: Carry out field collections of pollinators including honeybees, characterisation of sunflower's volatile organic compounds detected by pollinators

From / to	Job title	Name of academic Institution	Academic level	responsibilities
2021-2023	A. di ricerca	University of Trento-CiMEC	Postdoc	research project
2019-2020	A. di ricerca	University of Bolzano	Postdoc	research project
Jun-sept 2018	Internship	Fondatione Edmond Mach, Italy	PhD training	consultancy
2014-2015	Research assistant	University of Groningen	Post-master	research project
2013-2014	Research assistant	University of Amsterdam	Post-master	research project
2013	Internship	IRD, CIRAD	Master training	research project
2012	Internship	University of Amsterdam	Master training	research project
2011	Internship	University of Caen	Post Bachelor	Field assistant

Responsibilities:

Included the design, collection and analysis of data, dissemination of the results, undergo problem solving related to experiments and logistic. Design of master students research projects, supervision.

- Participation in exhibitions (where applicable)**
- 2023. Poster presentation at CogEvo23, Workshop on Cognition and Evolution, Rovereto, Italy. Fruit odour coding in the brain of the agricultural pest *Drosophila suzukii*
 - 2023. Oral presentation at CNIE23, Annual Conference of the Italian Society of Entomology, Palermo, Italy. Fruit odour coding in the brain of the agricultural pest *Drosophila suzukii*.
 - 2022. Coordinator of round-table discussions at the European Student Conference on Behaviour and Cognition, Rovereto, Italy. Brain and ecology: does animal cognition research benefit only humans?
 - 2022. Oral presentation at Ento22, Royal Entomological Society, UK Fruit odour coding in the brain of the agricultural pest *Drosophila suzukii*.
 - 2019. Oral presentation at the FlyTech molecular genetic technique symposium, Cardiff, UK Imaging of neuron activity via genetically encoded voltage indicators GEVIs.
 - 2018. Oral presentation at the special Interest group insect behaviour meeting of the Royal Entomological Society, Rothamsted Research, UK. Induction of host fruit preference in the invasive agricultural pest *D. suzukii*. **Description published in the journal Antennae.**
 - 2018. SCI Agri-Food Early Career Forum #agrifoodbecause twitter competition 2017Host fruit selection by the olfactory system in the invasive agricultural pest *D. suzukii*. **Tweet was selected as winner entry.**

- 2017. Oral presentation at the joined ISCE/APACE meeting, Kyoto, Japan. Host fruit selection by the olfactory system in the invasive agricultural pest *D. suzukii*. **Awarded the ISCE Student Travel bursary and best oral presentation.**
- 2017. Poster presentation at the 3rd Agriscience Chemical Biology Postgraduate Symposium, UK. Host fruit selection by the olfactory system in the invasive agricultural pest *D. suzukii*. **Awarded runner up poster price.**
- 2016-2018. 3-minute-oral and poster presentations to a multidisciplinary audience at the annual conferences of the SWBioDTP training program, UK. Watch the 3-minute-talk at: <https://youtu.be/0kXNXERMclQ2012>.
- 2013-2014. Poster presentations at the annual meeting of the Netherlands Society for Behavioural Biology (NVG), Soesterberg, The Netherlands
- 2013. Oral presentation at the first national meeting of the french association of young researchers in Chemical Ecology AFJCEC, Montpellier, France
- 2010. Demonstrator on DNA extraction at Annual Science Day, Caen, France

Experience in academic teaching **2013-2023. Master and undergraduate student projects supervision**
co-supervision of 7 students on my projects or distinct. Teaching of techniques, experiment design, analysis of data, poster and presentation.

2016-2019. Teacher assistant for undergraduate practical courses and marking
Subjects: Squid and fish dissections, biophysical processes, Aseptic laboratory techniques, Introduction to *Drosophila* genetics. Mentors: Prof. William Symondson, Drs Walter Dewitte, Sian Griffith, Beatrix Fenhart and Prof. Helen White-Cooper., Cardiff University, UK

2012-2017. Assistant supervision of undergraduate and master student projects in ecology (2-6 months projects). Mentors: Drs Wynand van der Goes van Naters, Cardiff University, UK; Jean-Christophe Billeter, University of Groningen, Prof. Astrid T. Groot and Dr Merijn Kant, University of Amsterdam, The Netherlands

Summary of significant personal achievements in teaching:
Teach and to guide Bsc and Msc students through reasoning and analysis of data. The work of the students was highly graded. I have successfully transmitted enthusiasm, good scientific method and scientific communication.

Academic activities **2021- 2023** Role as a representative of Postdocs at CIMeC and the University of Trento
Since 2021. Member of the reviewing board of MDPI and Wiley (> 5 peer-review activities)

Memberships **Since 2022.** Member of the Royal Entomological Society (RES, UK)
2021-2023. Member of the Society of Chemical Industry (SCI) Agri-Food Early Career Committee: Equality, diversity and inclusion officer. Activities included: Organisation of webinars, competitions and mentoring schemes
Since 2017. Member of the International Society for Chemical Ecology (ISCE)

Research and scholarships **2021. Awarded a funding for a 2 years project by the fondation Caritro.** I co-wrote the project with Albrecht Haase and Gianfranco Anfora. Project: Functional brain imaging in a novel transgenic model of *Drosophila suzukii*: Towards olfactory-guided pest management.

2017. Student Travel bursary from the International Society of Chemical Ecology (ISCE) to attend and present my work at the joined ISCE/APACE meeting in Kyoto, Japan

2015-2019. PhD studentship at Cardiff University and Rothamsted Research
Scholarship and studentship awarded by the South West Biosciences Doctoral Training Partnership (SWBio DTP), funded by the Biotechnology and Biological Sciences Research Council (BBSRC), to undergo a full time PhD training.

Publications Publications open access via <https://orcid.org/0000-0002-8339-5540>

1. Spitaler, U., Cossu, C.S., Delle Donne, L., Bianchi, F., Rehmann, G., Eisenstecken, D., Castellan, I., Duménil, C., Angeli, S., Robatscher, P., Becher, P.G., Koschier, E.H. and Schmidt, S. Field and greenhouse application of an attract-and-kill formulation based on the yeast *Hanseniaspora uvarum* and the insecticide spinosad to control *Drosophila suzukii* in grapes. *Pest Manag Science* 2022. DOI: 10.1002/ps.6748C.
2. Sims, J. Oddy, L. E. Hibbert, A. S. Newell, L. R. Steel, A.T. Gibbons, N. Caporaso, C. Duménil, S. Read, R. C.P. Margerison. Feeding the future: developing the skills landscape in the agri-food sector. *Journal of Chemical Technology & Biotechnology* 2021. DOI: 10.1002/jctb.6844
3. Bianchi F., Spitaler U., Castellan, I., Cossu C.S., Brigadoi T., Duménil C., Angeli S., Robatscher P., Vogel R.F., Schmidt S., Eisenstecken D. Persistence of a yeast-based attract-and-kill formulation against *Drosophila suzukii* on grape leaves. *Insects* 2020. DOI:10.3390/
4. Deletre E., Martin T., Duménil C., Chandre F. Insecticide resistance modifies mosquito response to DEET and natural repellents. *Parasites & Vectors* 2019, 12:89. DOI:10.1186/s13071-019-3343-9
5. Duménil C., Woud D., Pinto F., Alkema J.T., Jansen I., Geest A.M., Roessingh S. and Billeter J.C. Pheromonal Cues Deposited by Mated Females Convey Social Information about Egg-Laying Sites in *Drosophila melanogaster*. *Journal of chemical ecology* 2016, 42(3), 259-269. DOI: 10.1007/s10886-016-0681-3
6. Deletre E., Chandre F., Williams L., Duménil C., Menut C., Martin T. Electrophysiological and behavioral characterization of bioactive compounds of the *Thymus vulgaris*, *Cymbopogon winterianus*, *Cuminum cyminum* and *Cinnamomum zeylanicum* essential oils against *Anopheles gambiae* and prospects for their use as bednet treatments. *Parasites & Vectors* 2015, 8:316. DOI: 10.1186/s13071-015-0934-y
7. Duménil C.; Judd G.J.R.; Bosch D.; Baldessari M.; Gemeno C.; Groot A.T. Intraspecific Variation in Female Sex Pheromone of the Codling Moth *Cydia pomonella*. *Insects* 2014, 5, 705-721. DOI: 10.3390/insects5040705

Further data **Laboratory and office skills**

Electrophysiology: Single Sensillum Recording (SSR), ElectroAntennoGraphy (EAG)

Chemistry: Identification of chemicals with Gas Chromatography (GC)- Mass Spectrometry (MS). Collection of chemicals from plants and insects in laboratory and field

Entomology: Behavioural experimentation in laboratory with moths, flies and mosquitoes. Moth and fly rearing (including transgenic *Drosophila* lines). Handling of live insects for fine mounting, microdissection and behaviour.

Molecular biology: PCR, design of primers, crosses of transgenic flies

Imaging techniques: 2-Photon and Fluorescent Microscopy (advanced proficiency), Lightsheet (Zeiss Lightsheet Z.1) and Scanning Electron Microscopy (beginner proficiency)

Ecology: Insect collection and field experiments.

Office: Microsoft office and Apache Open Office (advanced proficiency), Referencing managers, Agilent and Syntech suites, IgorPro, Image J, GraphPad Prism, AMIRAxR (intermediate proficiency), Matlab, Python, HTML and JavaScript (beginner proficiency)

Skills learned from inductions, workshops and work experience

Health and safety at work, Laboratory and office protection, first aid intervention, emergency reactions, mental health and stress management,

Interpersonal skills

Ethics, data protection, inclusion, equality, unconscious bias,

Communication (team work, conflict management, mentoring), Science communication, vulgarisation, outreach. Funding schemes, grant writing.

Masterclass on public speech by Feltrinelli Education and CARITRO (march 2024).

European B driving license, issued in France in 2006 and validated in Italy in 2023.

Statement of interest

The position of Research Assistant on the proposed project is ideally suited to my research experience and to my personal and professional interests. I am pursuing an academic career in fundamental research about species interactions with a specialised focus on Chemical Ecology of insects with agricultural impact. I aim to have a meaningful impact in food security by performing research for the development of sustainable and environment-friendly management methods.

My current focus is on *Drosophila suzukii* with which I acquired expertise of various techniques including the necessary one for this project namely electrophysiology. I am very enthusiastic to share my expertise, extend it to pollinators and learn new approaches and methods. Furthermore, I have worked 1 year on the project DROMYTAL which was an exciting experience with valuable learning and exchange. I am very familiar with the group dynamics and lab organisation. It would be an absolute pleasure to join this group once more.

I have a 6-years work experience with electrophysiology techniques including SSR, EAG and coupled electrophysiology with analytical chemistry (GC, GC-EAG, GC-MS). I also have experience with outreach, including published work, manuscripts in progress and successful presentations at specialised and broad audiences. I also participated to and conducted collaborations successfully. With these skills I am confident to be a strong asset to conduct the project successfully and perhaps contribute to further development and collaborations.

Lastly, I have experience with teaching and supervision of international students. I believe the aptitude to adapt to multilingual and multicultural student and work community will benefit the Free University of Bozen-Bolzano.

Language competence

Fluent proficiency in English (Master and PhD degrees taught in English, C2 level).

Fluent proficiency in French (native language).

Intermediate proficiency in Italian (B2 level) and Dutch (B1 level).