

## PostDoc and PhD positions available

in the international collaborative project

### „Scent biogenesis and deceptive strategies in *Arum maculatum*“

The aroid *Arum maculatum* has long fascinated due to its foetid scent and brood-site deceptive pollination system, its thermogenic activity, and its temporary trapping of fly pollinators (mainly psychodids). Also, it has the most complex floral scent (c. 300 compounds in total, up to 150 per individual) known so far. To better understand the molecular basis and ecological / evolutionary drivers of the strong and hyperdiverse floral scents in this plant species, the project aims to elucidate the physiological and genetic bases of the floral scent biosynthesis and secretion, and identify the floral scent compounds responsible for pollinator attraction. As some of the chemicals released by the plant are chemically similar to psychodid male sex pheromones, the project will further test whether some of those compounds resemble sex pheromones of psychodid pollinators.

The project is supported by FWF (Austria) and ANR (France), and comes with **2 PostDoc** (1-2 years at the Paris Lodron University of Salzburg and 3 years at the Jean Monnet University in Saint-Etienne) and **1 PhD** position (3 years at the Paris Lodron University of Salzburg, in cooperation with University of Corsica – CNRS).

The **PostDoc in Salzburg** will have advanced skills in chemical analytics and synthesis, and focus on the identification of unknown electroantennographically (EAD) active volatiles (both from *A. maculatum* and male *Psychoda phalaenoides*) and the synthesis of EAD-active compounds commercially not available. Some of this work will be performed in the lab of Prof. Stefan Schulz at TU Braunschweig, Germany. The **PostDoc in Saint-Etienne** must have an expertise in bioinformatics (RNAseq and data mining) and molecular biology (gene cloning and functional studies). She/he will mainly study secretion processes and biosynthesis of floral volatiles in *A. maculatum*. The **PhD student in Salzburg** will have expertise in (pollination) biology and / or (chemical) ecology, and study spatial patterns of scent emission (appendix vs. floral chamber volatiles) in *A. maculatum*, perform the work related to psychodid male pheromones (excluding identification of unknown VOCs and synthesis of chemicals), and test for the bioactivity of inflorescence scents of *A. maculatum* using field (Salzburg) and lab (in cooperation with Dr. Sylvain Pincebourde, University of Tours) biotests.

The successful applicants should be highly motivated, proficient in English language and scientific writing. A PhD in Natural Sciences is required for the PostDoc positions, and a MSc, diploma degree or equivalent is required for the PhD position.

Suggested papers to read:

- Leguet et al. 2014 Naturwiss 101, 623-635 – <https://doi.org/10.1007/s00114-014-1197-8>
- Widhalm et al. 2015 Trends Plant Sci 20, 545 – <https://doi.org/10.1093/g3journal/jkac175>
- Onda et al. 2015 Sci Rep 5, 8753 – <https://doi.org/10.1038/srep08753>
- Szentezski et al. 2022 Genes Gen Genet 12, jkac175 – <https://doi.org/10.1093/g3journal/jkac175>
- Gfrerer et al. 2021 Front Plant Sci 12, 719092 – <https://doi.org/10.3389/fpls.2021.719092>
- Gfrerer et al. 2022. Sci Rep 12, 5086 – <https://doi.org/10.1038/s41598-022-08196-y>
- Gfrerer et al. 2023. Front Plant Sci 13, 1046532 – <https://doi.org/10.3389/fpls.2022.1046532>

Please send your application (letter of motivation, CV, certificates, contacts of two potential referees) in electronic form as a single pdf file **latest by November 18<sup>th</sup> 2024** to Dr. Sylvie Baudino ([sylvie.baudino@univ-st-etienne.fr](mailto:sylvie.baudino@univ-st-etienne.fr)), Dr. Jean-Claude Caissard ([caissard@univ-st-etienne.fr](mailto:caissard@univ-st-etienne.fr)), Dr. Stefan Dötterl ([stefan.doetterl@plus.ac.at](mailto:stefan.doetterl@plus.ac.at)) and / or Dr. Marc Gibernau ([gibernau\\_m@univ-corse.fr](mailto:gibernau_m@univ-corse.fr)), and please contact any of these researchers in case you have any requests. The start dates are scheduled for beginning 2025.

