



New insights into the chemical ecology of the Moroccan locust *Locustotaurus maroccanus* (Orthoptera: Acrididae) and the olive fruit fly *Bactrocera oleae* (Rossi) (Diptera: Tephritidae)

The institute

The **Institute for Advanced Chemistry of Catalonia (IQAC)** is one of the research centers of the Spanish National Research Council (CSIC). The Institute is located in Barcelona and it was created in 2007 with the mission to perform research of excellence in Chemical Sciences with the broad goal of improving the quality of life. The general strategy to achieve this mission involves the application of chemical approaches to address and solve societal challenges, mainly those related to human health, the sustainability of chemical processes and products, and the needs for novel materials for different applications. Since its establishment, IQAC has been in a permanent attitude to transfer its knowledge and technology results to the industrial sector.

The research developed at IQAC is organized around two main nodes: **Biological Chemistry** and **Nanobiotechnology** and it is facilitated by a number of Key Enabling Technologies. Considering the objectives pursued, many of the investigations carried out by the Research Groups at IQAC lie at the intersection between nodes.

In addition, our Institute holds a set of scientific and technical facilities run by highly qualified scientists and technical personnel with a solid background and long lasting expertise. These facilities are available not only to IQAC research groups, but also to potential users from both academia and private institutions. In any case, the technical services from IQAC are always wide open to attend any inquiry and to offer their best efforts to find adequate responses to specific needs.

The group

Our group ([RUBAM, Research on Bioactive Molecules](#)) has a multidisciplinary character, and among its multiple research lines, one of these is focused on the identification of semiochemicals for designing novel control strategies for multiple insect pests of agro-forestry interest. Diverse aspects related with the study of the chemical ecology of insects are

conducted, from structural characterization, synthesis and the establishment of their biological activity in the laboratory and in the field.

The role

We are looking for a motivating PhD candidate to provide new insights into the chemical ecology of two major insect pests, namely the Moroccan locust *Docioctaurus maroccanus* (Orthoptera: Acrididae) and the olive fruit fly *Bactrocera oleae* (Rossi) (Diptera: Tephritidae). Part of the thesis will be integrated within a funded project entitled "*Deep learning como herramienta novedosa para la identificación de compuestos odorantes activos para el control de plagas: La langosta marroquí como caso de estudio*".

To achieve this goal, the role of the applicant will be to identify novel compounds involved in the intraspecific communication of both species by means of conventional chemical ecology-related methodologies, such as volatile compounds sampling and analytical procedures (e.g. gas chromatography and gas chromatography coupled to mass spectrometry), electroantennography and behavioural assays under laboratory and (semi)field conditions. In addition, the opportunity for a research stay abroad in a renowned research group and the assistance to national and international congresses and workshops will be also offered.

What do we look for?

• Qualifications

A Bachelor's Degree in Biology, Environmental Sciences, Biotechnology or Chemistry. Holding a MSc in a biology-related field is mandatory. An entomology-related academic formation will be highly considered.

• Professional experience

Not professional experience is required, although it may be positively considered.

• Competences

- Insect rearing and manipulation
- Headspace sampling and analysis
- Electroantennographic and behavioural assays
- Analysis of collected data
- Writing of peer-reviewed articles
- Assistance to national and international congresses and workshops
- Adequate competence in English oral and written communication
- Ability to work in a dynamic environment

Working conditions

- **Contract duration: 3 years**
- Estimated annual gross salary: 22,730 €/year
- Target start date: First fortnight of April 2024

How to apply?



Those interested may email their **CV** and **motivation letter** to Carme Quero (carme.quero@iqac.csic.es) and Sergio López (sergio.lopez@iac.csic.es), adding “Candidatura de tesis” to the email subject.

Deadline: 14/02/2024