

Junior Researcher – in the area of Analytical Chemistry (M/F) - 1 Position Available

Reference: CCMAR/IJ/33/2024

The Centro de Ciências do Mar do Algarve (CCMAR) is opening a recruitment and selection process for one position for a Junior Researcher in the initial level and in the field of Analytical Chemical sciences. This position is open to citizens of any nationality, including stateless individuals, under an unfixed-term employment contract to recruit and select the best candidate for activities within the research projects:

- COSEC, REF. HORIZON-CL5-2024-D3-01-05-101172850 - Biogenic CO₂ capture into Sustainable Energy Carriers: *A novel photosynthetic and hydrogenotrophic CO₂ fixation combined with waste nutrient upcycling for production of carbon negative energy carriers*, funded by the European commission through the HORIZON Research and Innovation Actions programme.

- RHE-MEDIation ref. HORIZON-MISS-2022-OCEAN-01-03-101113045 - *Responsive hub for long term governance to distress the Mediterranean Sea from chemical pollution*, funded by the European commission through the HORIZON Research and Innovation Actions.

- Algae4IBD ref. FNR-11-2020 – 101000501 - From nature to bedside – Algae based bio compound from prevention and treatment of inflammation, pain and IBD funded by the European's Union funding programme: Horizon 2020 – the Framework Programme for Research and Innovation.

programme under the following conditions:

1. About CCMAR:

CCMAR (<https://ccmar.ualg.pt/>) is one of the leading marine science research centres in Portugal, rated Excellent in evaluations promoted by the Foundation for Science and Technology (FCT). With a multidisciplinary team, well-equipped facilities, and laboratories, CCMAR engages in core areas such as research, training, business, societal engagement, and collaboration.

2. Summary and Functions:

The COSEC project aims to chemically characterize biomass of microalgae improved to sustain cultivation under stressful conditions. The RHE-MEDIation aims to evaluate the contamination of microalgal biomass cultivated in wastewater for inorganic and organic pollutants, including metals, PAHs, PCBs, pesticides and PFAS. The Algae4IBD project aims to identify compounds with anti-inflammatory activity in algal extracts.

This position is for a junior researcher in the field of Analytical Chemistry to perform the following tasks:

1. Establish and, when yet unavailable, develop analytical protocols for:
 - a. The nutritional characterization of microalgal biomass

- b. Quantification of high-value compounds (e.g., vitamins, carotenoid pigments, phenolics, fatty acids, etc.) in algal biomass
 - c. Quantification of inorganic (e.g., metals) and organic pollutants (e.g., PAHs, PCBs, pesticides and PFAS) in microalgal biomass
2. Perform untargeted metabolomics of algal biomass, including metabolite identification and annotation
3. Supervision of undergraduate, master and PhD students;
4. Participate on the writing of scientific papers, communications and technical reports.

3. Applicable Legislation:

- a) Decree-Law No. 57/2016, of August 29, amended by Law No. 57/2017, of July 19.
- b) Regulatory Decree No. 11-A/2017, of December 29.
- c) Labour Code, approved by Law No. 7/2009, of February 12, in its current version.
- d) Decree-Law No. 124/99, of April 20, in its current version.
- e) Administrative Procedure Code.
- f) Internal Regulation for Scientific Research and Technological Development Personnel, and Science and Technology Management and Communication at Centro de Ciências do Mar do Algarve [here](#).

4. Start Date: The contract is expected to start in January 2025.

5. Workplace: Activities will take place at CCMAR (University of Algarve, Faro, Portugal) and other locations necessary for the proposed tasks.

6. Working Hours: 35 hours per week.

7. Monthly Salary: Depending on the profile and experience of the candidates, the gross monthly base remuneration to be assigned may vary between 2,294.95 Euros, in accordance with subparagraph a) of paragraph 1 of article 15 of Law no. 57/2017, of July 19, and with the first pay level of the initial level provided for in article 2 of Regulatory Decree no. 11-A/2017, of December 29, approved by Decree-Law no. 108/2023, of November 22, 2023, and corresponding to level 33 of the single remuneration table, and 3,170.28 Euros, corresponding to level 49 of the single remuneration table, in accordance with the internal regulations of the scientific research, technological development, and science and technology management and communication personnel of CCMAR.

8. Application Period: The application period starts on October 8th, 2024, and ends on October 31st, 2024, at 23:59 (Lisbon time, Portugal).

9. Required Profile:

9.1 - A PhD holder (in Chemistry, Chemical Engineering, Biochemistry, Biotechnology, Environmental Sciences, or related areas) with solid foundation in chemistry, metabolomics, and bioinformatics.

9.2 - The candidate should have the following **technical skills**:

- a) **Proficiency in Analytical Techniques:** Experience with key techniques like **chromatography** (HPLC, GC), **mass spectrometry** (MS), and **spectroscopy** (UV-VIS, FTIR, NMR, AAS).
- b) Ability to conduct **untargeted metabolomics** experiments, focusing on identifying and quantifying a wide range of metabolites in complex biological samples.
- c) **Method Development:** Skill in developing and validating analytical methods for complex matrices.
- d) Expertise in **method development** for pollutants analysis in biological matrices and high-throughput untargeted metabolomics, including **sample extraction, data acquisition, and compound identification**. Development of **data workflows** for processing and analysing untargeted metabolomic data.
- e) **Sample Preparation:** Expertise in preparing and handling samples from various sources, ensuring accuracy and precision.
- f) **Metabolite Identification and Annotation:** Proficiency with metabolite databases and data mining tools (e.g., METLIN, HMDB, MassBank, GNPS) for the identification of unknown compounds. Application of data deconvolution strategies to identify metabolites across different sample matrices.

9.3 - Additionally, the candidate should have experience in or be familiar with:

- a) Handling large, multidimensional datasets (e.g., from LC-MS or GC-MS) and conducting statistical analysis.
- b) **Multivariate Analysis:** statistical methods for untargeted metabolomics, including PCA (Principal Component Analysis), PLS-DA (Partial Least Squares Discriminant Analysis), and machine learning approaches for data clustering and feature selection.
- c) **ISO standards, Good Laboratory Practices** (GLP), and regulatory guidelines (FDA, EPA).

10. Selection Panel:

in accordance with article 13º of RJEC the selection panel is composed of:

- 1 – Luisa Barreira, coordinator of the project at CCMAR, team leader and Associate Professor at the University of Algarve (President);
- 2 – João Varela, team leader at CCMA and Professor Associate at UALG (full member);
- 3 – Maria Clara Costa, team leader at CCMAR and Associate Professor (full member);
- 4 – Davide Liberti, researcher at CCMAR (substitute member);
- 5 – Dina Simes, team leader at CCMAR and Associate Professor at UALG (substitute member);

11. Evaluation and Selection Process:

The evaluation will consist of a curriculum assessment (final rating between 0-100).

The evaluation and selection of admitted applications will consider the candidate's scientific and curricular career path focusing on the relevance, quality, and timeliness of the criteria referred to in Article 5 (2) (a) to (d) of the RJEC, as follows:

CA) Scientific and technological, cultural or artistic production in the last five years, deemed most relevant by the candidate to perform the project tasks, in accordance with the value defined. The content of the scientific production is more relevant than the publication metrics, or the publisher entity (40%);

CB) Activities of applied research or based on practice, developed in the last five years, that the candidate considers with greater impact for the tasks to perform in the project, in accordance with the value defined (40%);

CC) Activities of extension and dissemination of knowledge, namely in the promotion of the culture and the scientific practices and developed in the last five years, that the candidate considers more relevant (10%);

CD) Management activities of scientific projects and programmes of research, technology and innovation, or experience in observation, monitoring and evaluation of the scientific and technological system, or higher education, in Portugal or abroad. This includes activities related to the preparation and submission of applications for scientific, technological, or innovation projects. (10%).

Criterion CA will be scored based on the scientific output presented by the candidate.

Criterion CB will be scored according to its relevance to the tasks to be performed in the project, namely:

- Experience with advanced analytical techniques, particularly LC-MS (40%)
- Experience in targeted and untargeted metabolomics (40%)
- Experience in the use of multivariate statistical tools (20%)

The five-year period referred to in the evaluation criteria may be extended by the jury upon the candidate's request when justified by the suspension of scientific activity for socially protected reasons, such as parental leave, prolonged serious illness, and other legally protected situations of work unavailability.

The selection panel reserves the right to contact or interview candidates if additional information or clarification of documentary aspects related to research results is needed. The possible interview, which does not constitute a selection method and is not classified, aims to obtain clarifications or explanations on elements contained in the candidates' CVs.

12. Selection Panel Functioning:

The evaluation (with a score of 0-100) is carried out through the assessment of the motivation letter (with a personal evaluation of the relevance of the activities of the last 5 years to the present competition, highlighting the chosen publications), the CV that will include activities in the specific area and the scientific and professional path of the candidate, and up to 3 articles chosen by the candidate.

The score of each candidate is obtained by summing the points of each criterion multiplied by the respective weights according to the following formula:

$$C = CA*40\% + CB*40\% + CC*10\% + CD*10\%$$

After determining the (C) scores of all candidates, each selection panel member will rank the candidates from highest to lowest score. Voting follows for the first place and each successive place. The candidate receiving the majority of votes will be selected.

If no candidate is selected in the first round of voting, the lowest-ranked candidate is eliminated, and the process is repeated with the remaining candidates. In the event of a tie, applying the previous criteria, the jury president will make the tie-breaking decision.

The selection panel will write minutes of meetings describing the evaluation and selection process, including a ranked list of admitted candidates and their scores. The CCMAR Board of Directors will validate the final decision of the selection panel.

The jury reserves the right to close the competition without recruitment if the candidates do not possess the appropriate profile for the proposed functions. If the selected candidate cannot be appointed due to non-compliance with documentary requirements or other reasons, or if they later terminate the employment contract, the jury reserves the right to appoint the next candidate in the final ranking based on a reserve list that can be used up to 12 months from the date of this announcement.

13. Required Documents, Process, and Submission of Applications:

Only complete applications submitted directly and obligatorily on the CCMAR website <https://ccmar.ualg.pt/oportunidades-de-carreira> are accepted. The application is considered valid only after the candidate receives written confirmation from CCMAR. The application in English must include:

- a) A motivation letter (in English) with a personal evaluation of the relevance of the activities of the last 5 years to the present competition, highlighting the chosen publications, and considering the CA to CD evaluation criteria not exceeding 5000 characters;
- b) Detailed curriculum vitae (in English) that includes activities in the specific area and the scientific and professional path of the candidate organised according to the CV evaluation criteria;
- c) A copy of the Ph.D. certificate;
- d) Up to 3 articles chosen by the candidate.

- e) Email contact of up to 3 references.

Applying without the above-required documents/information results in immediate rejection.

14. Results:

The list of admitted and excluded candidates, as well as the final ranking list, will be posted on the CCMAR website at <https://ccmar.ualg.pt/opportunidades-de-carreira>, and candidates will be notified by email.

15. Prior Hearing and Final Decision Deadline:

15.1) After evaluating all admitted applications, the jury will produce a provisional minute describing the admission, evaluation, and selection process, including a list of candidates ranked and their scores and decisions.

15.2) All candidates will be notified by email of the jury's provisional decision.

15.3) Under Article 121 of the Administrative Procedure Code, all candidates have 10 working days from the date of notification by email to contest the provisional decision by sending an email to the Selection Panel.

15.4) The final decision will be validated by the CCMAR Board of Directors and will be communicated (by email) to all candidates within 90 working days from the application deadline.

16. Final Information:

16.1) Candidates holding certificates proving degrees issued by a foreign university must have their certificate recognised in Portugal when signing the employment contract. Failure to do so justifies exclusion from the procedure. Information on degree recognition can be obtained from any Portuguese university or [here](#).

16.2) The CCMAR Board of Directors reserves the right to cancel this recruitment process without hiring if there are changes in circumstances related to the project.

16.3) CCMAR endorses the European Charter for Researchers and the Code of Conduct for the Recruitment of Researchers (Charter and Code).

16.4) Disabled candidates have a preference in case of equal classification, which prevails over any other legal preference. Candidates must declare in their application, under oath, their disability degree, type of disability, and means of communication/expression to be used in the selection process, under the aforementioned decree.

16.5) CCMAR's non-discrimination and equal access policy: No candidate may be privileged, benefited, prejudiced, or deprived of any right or exempt from any duty on the grounds of, namely, ancestry, age, gender, sexual orientation, marital status, family situation, economic situation, social origin or condition, genetic heritage, disability, chronic illness, nationality, ethnicity, territory of origin, language, religion, political or ideological beliefs, and union membership.

The members of the jury approved this announcement on 01st October 2024.

