

PhD position in Aquatic Ecotoxicology

Title:

Relative toxicity of metals from different classes in the freshwater crustacean *Daphnia magna* : modelling, interactions and subcellular targets

Summary

Modelling the relative toxicity of metals based on the relationship between their chemical structure and their biological activity is an excellent way to estimate the toxicity of metals, specifically those for which toxicological information remains insufficient or even non-existent. This is the case of various critical metals for the ecological transition urgently needed to face current environmental challenges, which are not under environmental regulation. To contribute to the development of such predictive tools, this PhD project has the goal to generate a body of knowledge on the subchronic toxicity, the type of interactions and the toxic behavior (at the subcellular and molecular level) of a series of contaminants encompassing class A (La, Ce, U), B (Ag, Cu, Pd) and borderline (Ni, Co) metals in the freshwater crustacean *Daphnia magna* to relate their chemical characteristics with the observed toxic behavior.



This project applies innovative approaches in toxicology, environmental modelling, metallomics, such as subcellular metal partitioning approach and hyphenated techniques (e.g., SEC-ICP-QQQ; RP-HPLC ICP-QQQ). The candidate will have access to cutting-edge analytical platforms located in both universities. This research will contribute to the development of a thorough and rigorous understanding of metal toxicity necessary to anticipate metal impact on aquatic ecosystems. All the results expected in this project have the potential to accelerate the establishment of predictive tools in the environmental regulation of emerging contaminants.

Requirements

- ✓ To meet the eligibility requirements for the PhD in Biology research program offered by UQAM.
- ✓ Background and skills in environmental chemistry, biochemistry, biology, toxicology, analytical chemistry or other related fields
- ✓ Good skills in laboratory work
- ✓ Strong interest in scientific research and environmental toxicity

- ✓ Knowledge of spoken and written French and/or English

Start date

September 2023 is preferred but negotiable.

Supervisors

Maikel Rosabal (UQAM)

<http://rosabal-laboratory.com/>

Isabelle Lavoie (INRS)

<https://inrs.ca/en/research/professors/isabelle-lavoie/>

Claude Fortin (INRS)

<https://inrs.ca/en/research/professors/claude-fortin/>

Funding

PhD scholarship offer for 4 years.

Applicants must send:

- An updated CV (pdf format), including project and academic works in preparation
- Unofficial academic transcripts (BSc, MSc)
- A description of research interests and relevant experience for the position.
- Recommendation letters or contact information from 2 potential references

Closing date for applications: 1 June 2023 (preferred)

Once all applications have been received, the selection process will begin and will continue until the position is filled.

Contact:**Maikel Rosabal**

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