



RE-ADVERTISED CALL FOR PHD SCHOLARSHIP APPLICATIONS IN ORGANIC CHEMISTRY

I. Background

The Department of Chemistry of the University of Rwanda in collaboration with the Department of Chemistry –Biomedical Science (BMC) of Uppsala University, Sweden, would like to hire three highly motivated and knowledgeable candidates to conduct PhD research in organic chemistry.

II. Project description and roles of PhD students

Nature has provided humankind with sources of drugs and other bioactive natural products for millennia. The World Health Organization estimates that approximately 80% of the world's population rely mainly on traditional medicines for their primary healthcare. These traditional medicines include diverse health practices, based on knowledge and beliefs which incorporate plant, animal and mineral based products to maintain well-being, as well as, treat, diagnose and prevent illnesses. Although traditional medicines can be prepared from various sources such as animals, fungi and minerals, plant-based drugs remain the most common. For example, in 2018, the main origins of natural compounds used in traditional medicines were animals (2.6%), fungi and lichens (9.3%), microorganisms (12.9%), marine organisms (13.2%), and plants (44.1%). Plants have the ability to synthesize bioactive secondary metabolites with highly diversified structures. These secondary metabolites are characterized as compounds that increase the overall ability of plants to survive and overcome local challenges by allowing them to interact with their surroundings and endowing them with disease resistance and stress tolerance. Plant secondary metabolites have been used as drugs, food preservatives and flavoring agents in the form of isolates, preparations such as extracts, tinctures and decoctions. Some examples of compounds that played an important role in the development of natural product-based drugs include morphine, quinine and penicillin.

The project will be carried out at university of Rwanda in close collaboration with Uppsala University Department of Chemistry - BMC and hence some research visits at Uppsala university will be organized. The work will mostly be conducting research focusing on isolating, characterizing, modifying the structure of plant natural products. Their biological activity will be evaluated in collaboration with molecular biologists. This will generally include the use of various chromatographic (TLC, HPLC, gravimetric and size exclusion chromatography) and spectroscopic (e.g. NMR, IR, UV and CD) and mass spectrometric techniques. The successful candidates are expected to perform high quality research as part of a team, with the aim of disseminating resulting data through high impact peer-reviewed journals, and at national and international conferences.



III. Funding

During this PhD research activities, selected candidates will be financially supported in the laboratory activities, field data collection, travel and living cost during the research visits at Uppsala University. The candidates will pay for other expenses.

IV. Application requirements

- UR and non UR staff of Rwandan nationality
- No UR staff from institution partners to UR have to submit a proof of study leave from their employers that shows that they will continue to get a salary
- Applicants should hold a master's degree in organic chemistry or in another related field.
- Having published at least 2 articles in peer reviewed journal(s) would be an advantage.
- Women are encouraged to apply

V. Application file

The interested candidates should submit the following documents:

- A motivation letter addressed to the Director of the UR Centre for Postgraduate Studies demonstrating commitment and reasons for applicant's interest in this programme,
- A short research proposal (5 - 10 pages),
- A curriculum vitae (CV),
- Notified copies of previous degrees,
- Three recommendation letters from academic senior staff members, one preferably from the Master's program where the candidate studied.
- Transcripts of Master's degree.

VI. Selection methodology

Shortlisted candidates will be invited to the interview on dates that will be communicated through emails. Successful candidates will be registered in the Department of Chemistry, College of Science and Technology, University of Rwanda, Rwanda. After registration, the candidates will immediately start research activities.



Research visits will be organized and funded to perform advanced spectroscopic analyses (NMR, MS) at the Department of Chemistry – BMC, Uppsala University, Sweden.

VII. How to apply and key dates

A copy of complete application file should be submitted by email to the UR-CPGS officer at ur-cpgscholarship@ur.ac.rw with a copy to Dr. Daniel Umereweneza (umereweneza@gmail.com), Prof. Théoneste Muhizi (tmuhizi66@gmail.com) and Prof. Mate Erdelyi (mate.erdelyi@kemi.uu.se).

The application files should be submitted not later than Friday, June 19th, 2023 at 5:00 pm.

VIII. For further information, please contact:

Dr. Daniel Umereweneza (umereweneza@gmail.com, +250785260541), Prof. Théoneste Muhizi (tmuhizi66@gmail.com, +250785319618) and Prof. Mate Erdelyi (mate.erdelyi@kemi.uu.se, +46 72 999 9166).

Done at Kigali, on May .3.0., 2023



Dr. KAYIHURA Muganga Didas, PhD
Acting Vice Chancellor