

Ferticycle PhD Fellowship: Project 2 - Using pH modification of animal manures for reducing emissions and improving fertiliser value

The LEAF research unit of the Instituto Superior de Agronomia-Universidade de Lisboa **is offering a 3 year PhD fellowship** under an EU H2020 Marie Skłodowska-Curie actions European Training Network (ETN), entitled “New bio-based fertilisers from organic waste upcycling -”ref^a MSCA-ITN-2019-860127”, (www.ferticycle.ku.dk) and **starting September 1st 2020 or earlier if possible**. A total of 15 similar positions will be opened on behalf of this project.

The application deadline is April 15th 2020.

Scientific Area

Applicants need to have an MSc degree in Agronomy, Environmental Science, Soil Science, or similar

Project description

The candidate will work on new solutions to reduce ammonia and greenhouse gases emissions and improve the fertilizing value of animal manure, namely pig and dairy slurry. The project includes developing some new treatments by pH modification to simultaneously minimize the environmental impacts associated to manure utilization and to obtain a hygienized manure able to be applied to industrial horticulture and non-agricultural plant production systems, e.g. orchards. The candidate will therefore focus on carrying out experiments for the development of a new integrated process for the hygienization of animal slurry (through pH change) which improves its fertilizer value in order to obtain a new use for animal slurry. The efficiency and environmental impacts associated with these new practices will be evaluated. The main objective will be firstly, to assess the impact of manure pH modifications on the plant nutrient availability and gaseous emissions and secondly, to improve manure treatment allowing manure application in new types of plant production systems. The results should be an optimised technology for manure pH modification with max N retention to obtain some hygienized manure able to be applied in horticulture and other non-agricultural plant production systems, e.g. orchards.

An integrated approach will be undertaken considering the following steps: i) Hygienization of animal manure through alkalization and / or acidification: process optimization; ii) Complete characterization of treated materials with special emphasis on N, P and C dynamics after application to soil. iii) Soil application of treated animal slurry and as organic fertilizers, in industrial horticulture and orchards. v) Evaluation of the impact of slurry hygienization on nutrient dynamics after application to soil.

The candidate will also be asked to do secondment (internship as visiting researcher) at one of the other FertiCycle partners for a shorter period of time (1-3 months).

Job description

Your key tasks as a PhD fellow are:

- Manage and carry through your research project
- Take PhD courses within the Ferticycle network
- Write scientific articles and your PhD thesis
- Participate in international congresses and Ferticycle network meetings
- Stay at a research institution abroad and/or with an industry partner for a few months
- Disseminate your research

Key criteria for the assessment of candidates

- A master's degree related to the scientific area of the project
- The grade point average achieved
- Professional qualifications relevant to the PhD programme, namely expertise in organic wastes treatments, gaseous emissions measurement, soil fertility and plant nutrition
- Previous publications
- Relevant work experience
- Other professional activities
- Fluency in English
- Proposal for research activities
- Experience with i) chemical and microbiological analysis and treatment of soils, organic wastes and other type of residues, ii) animal manure treatment, iii) gaseous emissions measurement, iv) plant fertilisation trials (pot or field) and v) plant nutrition.
- Good skills in data management and analysis.
- Strong communication (written and oral) and interpersonal skills.
- Experience with cross-disciplinary and/or multi-cultural collaboration will be an advantage.

Work place

The proposed work will be performed at the LEAF Research Unit of the Instituto Superior de Agronomia under supervision of Dr David Fangueiro and co-supervision of Dr João Coutinho and Prof. Luisa Brito.

Prof. Lars Stoumann Jensen (University of Copenhagen) and Prof. Peter Groot Koerkamp (Wageningen Research) will act as external co-supervisors.

Formal requirements and eligibility

At the time of recruitment, it is a requirement that the PhD candidates have not been awarded a doctorate degree and are in the first 4 years (full-time equivalent) of their research careers. Furthermore, at the time of selection by the host organization, researchers must not have resided or carried out their main activity (work, studies, etc.) in Portugal for more than 12 months in the 3 years immediately prior to their recruitment. Short stays, such as holidays, are not taken into account.

Terms of employment

Recruitment is done in accordance with the rules set out by the EU H2020 Marie Skłodowska-Curie actions European Training Network (ETN).

The PhD scholarship should start on **September 1st 2020 (or as soon as possible)** for a length time of **36 months**.

Application procedure

Applications – in English – must include:

- Cover Letter, stating which PhD project you are applying for and detailing your motivation and background for applying for the specific PhD project.
- Max 1-page proposal for research activities to pursue in the PhD study program
- CV
- Diploma and transcripts of records
- Other information for consideration, e.g. list of publications (if any), peer reviewed and other
- Personal Recommendations
- A maximum of 3 relevant scientific outputs which the applicant wishes to be included in the assessment.
- Only applications with a letter of motivation for the specific position, incl. a max 1-page proposal for research activities, will be accepted

The application must be sent by email to Dr David Fanguero - dfanguero@isa.ulisboa.pt and received no later than **April 15 2020**. Applications received later than this date will not be considered.

The selection procedure conforms to the European Charter for Researchers and the Code of Conduct for the Recruitment of Researchers

The following assessment committee will be appointed to evaluate the applications:

President: Dr David Fanguero – Instituto Superior de Agronomia

Prof. João Coutinho – Universidade de Trás-os-Montes e Alto Douro

Prof. Luisa Brito – Instituto Superior de Agronomia

Prof. Lars Jensen - Faculty of Life Sciences; University of Copenhagen

Prof. Groot Koerkamp – Wageningen Research

The Fercycle Steering Committee will promote three candidates chosen from the qualified applicants. The final selection of a successful candidate will be made by the principal supervisor following interviews.

By the end of **May 2020**, all applicants will have received information regarding the evaluation of their application. Receipt of the application will not be acknowledged.

The successful applicant of the PhD scholarship must pass an enrolment at the Instituto Superior de Agronomia before the process of employment can be concluded.

The Instituto Superior de Agronomia welcomes applications from suitable qualified candidates regardless of age, gender, race, religion or ethnic background.

Questions

For specific information about the PhD scholarship and the details of the project, please contact Dr David Figueiro email address dfangueiro@isa.ulisboa.pt

General information about PhD programmes at the Instituto Superior de Agronomia is available at www.isa.ulisboa.pt