

PhD student in the research education subject: Forest Pathology; Chemical Ecology

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Southern Swedish Forest Research Centre

SLU is one of the world's highest ranked universities in several subject areas and is ranked #1 in forestry (CWUR). At our centre we carry out research, teaching and dissemination of scientific findings with direct application to the sustainable management of forests. We are a multidisciplinary institution, with global relevance but specialized expertise on issues related to the dynamic forest landscapes of southern Sweden. We closely collaborate with multiple stakeholders and conduct applied research in silviculture, forest ecology, pathology, policy and planning. We teach bachelor, Masters and PhD level courses addressing all of these subject areas.

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The research group in Forest Pathology at the Swedish University of Agricultural Sciences in Alnarp studies the biology, ecology and epidemiology of endemic and exotic invasive forest pathogens. Our work focuses on aspects of disease control and the interactions of trees with fungi and fungal-like (oomycete) organisms, including host symbioses and tree defense mechanisms. We conduct molecular diagnostics and host-chemical analyses to better understand the infection and resistance biology of trees. We work with a variety of damaging agents affecting these major tree genera: spruce, pine, oak, ash, birch, aspen and elm. Our research has a strong stakeholder focus for managing forest diseases in order to ensure multiple ecosystem benefits from forests and protect biodiversity associated with threatened tree species.

Description:

We have an exciting opportunity for a motivated PhD student in the interdisciplinary area of Chemistry and Forest Pathology. Recent outbreaks of new and emerging forest pathogens such as ash decline, *Diplodia* and *Phytophthora* have clearly demonstrated the vulnerability of Swedish forests to introduced alien pests and pathogens. To safeguard forests against alien invasive species, new and effective early detection and monitoring methods need to be developed to secure provision of a broad range of ecosystem services from forests.

The overall aim of this project is to improve the readiness of society to rapidly detect threats to forest health from a number of priority pest and pathogens and ensure timely interventions to prevent their escalation. This will be achieved by the student developing scientific knowledge about quantitative phenotypic traits of forest trees as indicators of presence of alien invasive pests and pathogens and by developing rapid and accurate, non-destructive detection methods, based on biogenic volatile organic compound (BVOC) fingerprints. BVOCs are chemicals emitted by either pests or pathogens, or by the diseased host plant which can be detected using advanced analytical chemistry techniques. The successful applicant will have excellent opportunities to work with other international collaborators. One or several short research exchanges with a partner university in Europe and/or North America is foreseen.

Qualifications:

Applicants to this position must:

- Have completed a MSc in an appropriate field (in chemistry, biochemistry, molecular biology, materials science or related subject).
- Have a strong interest for and general expertise in biochemistry/molecular biology, specifically host-plant interactions.
- Have knowledge of advanced chemical analytical techniques (GC-MS, I-MS); experience in spectroscopic characterization using these techniques is of merit.
- Have knowledge, or willingness to learn, to conduct measurements of VOCs
- Be able to travel to international collaborator's on short-term research stays to for experimental work during the project period (Note: travel costs for the PhD candidate will be covered).
- Have experience working in field and laboratory conditions.
- Have interest in interdisciplinary science, enthusiasm and scientific curiosity

Attached to application should be curriculum vitae, copies of degrees and transcripts of academic records, link to, or copy of master thesis and two listed references with email addresses. Also attached to application should be a written motivation or reflection, of maximum one A4-page written in English. The motivation shall discuss the student's personal interest in the topic of this study and in forest pathology and chemical ecology in general.

The position is at the Southern Swedish Forest Research Centre at SLU in Alnarp. The Department undertakes fundamental and applied research for various aspects dealing with forest ecology and forest management, including abiotic and biotic damaging agents that potentially impact the economic, ecological and social values of Swedish forests. The student will be an integrated part of the Forest Pathology research group and take part in Departmental teaching. The department and research group offers an open and stimulating international work environment.

The applicant should also have good communication skills and proven skills in both oral and written scientific English. Creativity and drive are personal characteristics that are desirable (such as the ability to collaborate, work independently, communicate efficiently, adaptable and flexible team player) due to the knowledge-driven aspect of the project.

Place of work:

Alnarp

Forms for funding or employment:

Employment (4 years)

Starting date:

According to agreement.

Application:

We welcome your application no later than 2019-10-18, use the button below.

A person has basic eligibility for third cycle education if he or she has taken a second cycle qualification or has completed course requirements of at least 240 higher education credits, including at least 60 higher education credits at second cycle education. Upper secondary school grades equivalent to English B/English 6 are a basic requirement.

Selection among applicants meeting the requirements is made with reference to written application including curriculum vitae, copies of degrees and transcripts of academic records, one copy of the dissertation for masters or undergraduate degree, a list of at least two references familiar with the applicant's qualifications, certified knowledge of the English language and an interview.

Please observe that applicant/s chosen to participate in an interview shall hand in certified true copies of certificates, diplomas and transcripts from previous studies at an internationally recognized higher education institution (university or university college) and transcripts in connection to the interview. If the applicant is a foreign citizen we require a certified copy of the page in your passport with your personal data and photography.

Read about the PhD education at SLU at www.slu.se/en/education/postgraduate-studies/

Academic union representatives:

<https://internt.slu.se/en/my-employment/employee-associations/kontaktpersoner-vid-rekrytering/>

The Swedish University of Agricultural Sciences (SLU) develops the understanding and sustainable use and management of biological natural resources. The university ranks well internationally within its subject areas. SLU is a research-intensive university that also offers unique degree programmes in for example rural development and natural resource

management, environmental economics, animal science and landscape architecture.

SLU has just over 3,000 employees, 5,000 students and a turnover of SEK 3 billion. The university has invested heavily in a modern, attractive environment on its campuses in Alnarp, Umeå and Uppsala.

www.slu.se

SLU is an equal opportunity employer.

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