

Role of wood hemicellulose solubility in biomass fractionation scenarios

Supervisor: Prof. Tiina Nypelö

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We are now looking for a **Doctoral researcher in the field of lignocellulose chemistry**.

Are you interested in research and working towards the future of forest products and lignocellulose chemistry? We are now looking for a motivated co-worker to a team that is passionate about forest resources, biomass, wood polymers, materials, and their future perspective.

Scientific environment

The position is open in [the research group lignocellulosic chemistry](#) headed by Prof. Tiina Nypelö.

The laboratories are situated within the [Department of Bioproducts and Biosystems](#). The department of Bioproducts and Biosystems (Bio2), one of the three departments in the School of Chemical Engineering at Aalto University, has an internationally leading reputation in basic and applied research for the development of advanced materials from natural resources. It is one of the leading European research and higher education institutions in the field of sustainable chemistry and engineering based on the utilization of renewable resources. Bio2 aims to contribute to the development of novel solutions to move towards sustainable primary production and processing systems that can produce materials with fewer inputs, less environmental impact, and reduced greenhouse gas emissions. Within bioscience, the department has research in bioprocess technology, molecular biotechnology, enzyme technology, metabolic engineering, synthetic biology, biomolecular, and biohybrid materials. Other strengths of the department include sustainable materials and products based on lignocellulose, ranging from nanomaterials to novel cellulose-based textiles.

In the first weeks, you will be assigned your own onboarding buddy who will help you get started with your work and studies at Aalto.

Your role and goals

The doctoral researcher will be working in a project investigating the role of hemicellulose solubility in biomass fractionation. Loss of hemicelluloses in chemical pulping accounts for loss of nearly a fourth of the material resources. Mastering the mechanism of solubilization may help to provide solutions to counteract this loss and make biomass processing more resource-efficient and contribute to the future biorefineries. The aim for the doctoral researcher is to become an expert in biomass fractionation.

Your experience and ambitions

The candidate is expected to have:

- A keen interest to work in the lab, learn how to build your own instruments, perform your own experiments, and analyze your results.
- Excellent student track records

An applicant must have completed by 31 July 2024 or preferably earlier (to start employment on 1 August 2024) or by 31 December 2024 or preferably earlier (to start employment on 1 January 2025)

- a master's degree awarded by a university, or
- a study programme that in the awarding country gives eligibility for doctoral level studies

in forest products, biomass refining, fiber materials science, surface chemistry, chemistry, or similar. A good command of English is required, Finnish language is not.