



Student assistant: Plant Seed-based Adhesives

Deadline	Start of work	Working time model
01.12.2024	ASAP	Part time (10h or 20h/week)

Join us at the department of Sustainable and bio-inspired materials (Director Prof. Dr. Vignolini) at the Max Planck Institute of Colloids and Interfaces (MPICI) in Potsdam Science Park, Germany (hybrid work possible) as a **Student assistant to study the composition and properties of natural adhesive materials.**

About us

We are tackling research questions at the interface of chemistry, soft-matter physics, optics, and biology. Our studies focus on how natural materials are assembled into complex architectures within living organisms and how these architectures define their response. We believe that, by understanding the design principles found in nature, it is possible to fabricate a novel class of truly sustainable functional materials.

What we look for?

We are looking for a highly motivated student in the field of bio-adhesives and biological materials. The candidate should have a degree in Chemistry, Chemical Engineering, with an outstanding profile, a strong background, and interests in

- Bioadhesion
- Polysaccharide chemistry
- Cellulose, Hemi-cellulose and Pectin
- Understanding molecular-surface interactions
- Extraction techniques from biomass
- Compositional, structural and mechanical characterization

The position is available as soon as possible.

The candidate CV will be evaluated internally according to the project and the best candidates will be invited for an online interview. After the online interview the interviewed candidates will receive an email with the final decision.

The accepted candidate will join the Max Planck Institute of Colloids and Interfaces, Sustainable and Bioinspired Materials Department led by Prof. Dr. Silvia Vignolini and will be supervised by Dr. Tobias Priemel.

The Max Planck Society strives for gender equality and diversity. We welcome applications from all backgrounds. The Max-Planck Society is committed to increasing the number of individuals with disabilities in its workforce and therefore encourages applications from such qualified individuals.

Furthermore, the Max Planck Society seeks to increase the number of women in those areas where they are underrepresented and therefore explicitly encourages women to apply.

To apply or for further information, please send an email to Tobias.Priemel@mpikg.mpg.de

THE PROJECT:

Many plant seeds form mucilage around the seeds upon hydration which due to their interesting properties have a high potential for developing eco-friendly, sustainable and cost-effective materials for various industrial applications. In plants, seed mucilage prolongs hydration to help germination, protect against predators and microorganisms and attach seeds to the ground or animals for seed dispersal. Its adhesive properties make the seed mucilage an intriguing candidate for sustainable glue development. This project aims to understand the composition, structure and mechanical properties of certain seed mucilages. The first objective is to establish extraction protocols for the different plant seed mucilages and characterize their chemical composition and adhesive properties. Furthermore, we plan to analyze the physiochemical interactions between the various polysaccharides and different surface chemistries.

REQUIREMENTS: The candidate should have a degree in Chemistry, Chemical Engineering, with an outstanding profile, a strong background, and interests in

- Extraction techniques from biomass
- Compositional, structural and mechanical characterization
- Cellulose, Hemi-cellulose and Pectin

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