



ADVANCED SOLVENT BIOREFINERY & VALORIZATION

The Advanced Solvent Biorefinery & Valorization research group develops methods for the **separation and valorization of lignocellulosic biomaterials**, such as wood, agricultural residues and waste textiles, **using green and benign solvents**. The aim is to reduce the environmental impact of traditional chemical processing by **investigating the use of different classes of ionic liquids and deep eutectic systems** as extraction or deconstruction solvents and to **create valuable bio-based materials from underutilized biomass fractions**, such as lignin, hemicelluloses and cellulose.

The long-term aim is to **scale the green solvent-based processes to industrial levels**. The research not only advances scientific understanding but also aims to develop practical technologies and business models for a sustainable future.



Led by Associate Professor

Ikenna Anugwom

ikenna.anugwom@lut.fi

+358 50 331 9172

lut.fi/en

FOCUS AREAS

Solvent extraction/deconstruction of lignocellulosic biomaterials

Producing various types of products from the derived fractions and proposing new and sustainable routes to valorize them.

Developing technology and business models

to improve resource efficiency in the use of lignocellulosic biomaterials and bio-based waste

Developing biodegradable membranes from biomass

and their utilization in wastewater purification and solvent recycling.

Investigating a green solvent route for waste textile recycling and revitalization.

Preparing and surface modifying of cellulose-based membranes and hydrogels

to remove contaminants, such as microplastics, dyes and pesticides, from water.

APPLICATIONS

Water and wastewater treatment, waste textile recycling and revitalization, valorization of different raw materials derived from waste and industrial side streams.