

## MWP – Young Researcher Abstract 2025

<b>Project title:</b> LYOHMICELL: Opportunities and challenges of hemicellulose rich Lyocell fibers		
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<b>Abstract</b> (approx. 200 words):  Man-made cellulose fibers (MMCF) such as Lyocell and Ioncell® are gaining attention as sustainable alternatives to synthetic fibers. However, most research has focused on cellulose-rich feedstocks, neglecting the role of hemicellulose—a key natural component of lignocellulosic biomass. This project explores the untapped potential of hemicellulose-rich kraft pulps in MMCF production, aiming to understand how hemicellulose influences fiber structure, dyeability, and mechanical performance. By incorporating higher hemicellulose content in the spinning dope and producing fibers via dry-jet wet spinning, the study investigates improvements in dye uptake, reduced fibrillation, and their implications for downstream processes like yarn spinning and fabric finishing. Preliminary results suggest that hemicellulose may offer functional advantages over conventional cellulose-only approaches. The next phases will assess dyed fabric properties, such as colorfastness and mechanical behavior, to validate these early findings. This research contributes to the development of more sustainable and versatile textile fibers by leveraging the full chemical potential of wood-based raw materials. The anticipated insights could redefine material selection in MMCF production and support industry efforts to reduce reliance on synthetic fibers while enhancing textile quality and process efficiency.		
<b>Key words:</b> Hemicellulose, Lyocell fibers, Man-made cellulose fibers, Sustainable textile, Fiber dyeability		