

MWP – Young Researcher Abstract 2023

Project title: Wood nanofibers for wound dressing applications	
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Abstract (approx. 200 words): Forests cover 70% of Sweden, and they surely can cover our wounds too. My research focuses on utilization of wood to develop advanced wound dressings. Non-healing wounds cause a global burden with \$100 billion annual expenditure. Traditional dressings require frequent change while patients are exposed to infection risk and pain. In advanced dressings, a “see-through” texture, good absorption capability, durability and a cost-effective production are needed for uninterrupted and affordable care. Today bacterial cellulose is used as advanced wound dressings; however, it has production limitations. Forests of Scandinavia are ideal sources to produce sustainable dressings due to their abundant availability and can offer biocompatible materials with properties like that of bacterial cellulose. In my research, I use wood powder as starting material where it is subjected to mild oxidation to preserve the inherent outstanding characteristics of wood nanofibers. Oxidized wood is then fibrillated to obtain wood nanofibers and assembled into hydrogels for wound dressing applications, only by using their intrinsic properties. This process is simple and offers a “best of both worlds” strategy: a sustainable biomaterial production directly exploiting forests as raw material through a straightforward and efficient treatment, while improving wound care and community health benefits.	
Key words: Wood, cellulose nanofibers, wound dressing	