

Tree bark as a renewable source of wood protection materials for building applications (BarkBuild)



Forests cover 43% of Europe's surface and are valuable resources that will enable the transition to a sustainable circular economy. The most common primary designated function of forests within the EU is production of wood, commonly stripped of the bark before industrial processing. More than 23 million tons of bark are available in the EU-27 as residue from debarking operations by the forest industries. Bark protects the trees from physical, mechanical, and biochemical degradation. Inspired by the natural protective function of bark, we will use industrial spruce and birch bark as resources to develop new wood treatment formulations and bark-based composites for wooden building materials.

Bark is known to contain polyphenols and polysaccharides, with small amounts of inorganic compounds and lipophilic extractives. We propose to exploit the bark polyphenols and extractives as components for wood preservatives in coatings and impregnation processes, owing to their protective properties (scavenging of radical ions) and activity against microorganisms and insects. Additionally, we will exploit the fire-retardant properties of bark and develop new biodegradable polymer composites reinforced by processed bark for improved indoor air quality. Finally, the sustainability, safety of the materials, and possibilities for cascading use of the modified wood products will be assessed and demonstrated.

Overall, the BarkBuild project tackles the societal challenge of climate change by developing new, long-lasting wood building materials with lower environmental impact and more favorable carbon footprint compared to existing commercial products. The demonstration materials are expected to facilitate increased use of wood in construction and buildings, while ensuring safe indoor spaces and preservation of the environment.

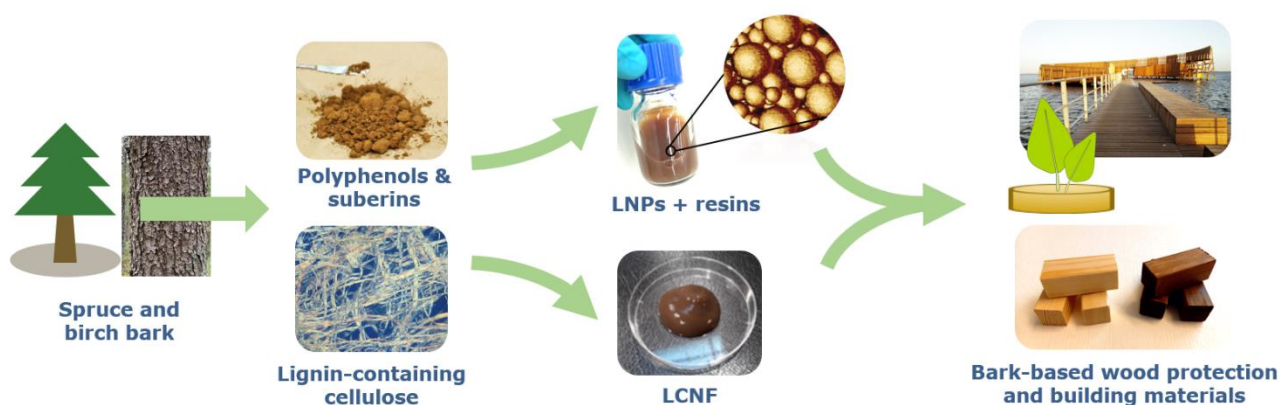


Figure: General approach of BarkBuild to develop new bark-based wood protection and building materials.



The partners in this project consortium are Stockholm University (Sweden), Latvian State Institute of Wood Chemistry (Latvia), InnoRenew CoE (Slovenia), VTT Technical Research Centre of Finland Ltd (Finland), The Norwegian Institute of Bioeconomy Research (Norway), and Warsaw University of Life Sciences (Poland). Sweden, Latvia, Slovenia, Finland, Norway, and Poland account together for 46% of the EU's forested areas.

More information

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- Project website: under construction