

From fundamentals to valorization: Enzymatic oxidation of cellulosic fibres and underlying mechanisms (FunEnzFibres)

Forest Value kick off seminar
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Kaisa Marjamaa

VTT Technical Research Centre of Finland Ltd

Cellulosic fibres are versatile raw materials



Enzymes for cellulose processing

- **Why enzymes?**
 - Specific
 - Mild reaction conditions
- **Targeted modifications**
- **Reduced consumption of energy and harsh chemicals**

- **Lytic polysaccharide monooxygenases (LPMOs)**
 - New tools for **biocatalytic oxidation** of polysaccharides
 - **Improved reactivity** of recalcitrant polysaccharides
 - **Different enzyme variants** → **different specificities**



Crystal structure of Tr AA9A extended catalytic domain 5O2W, Hansson et al. 2018 J. Biol. Chem. 292: 19099–19109

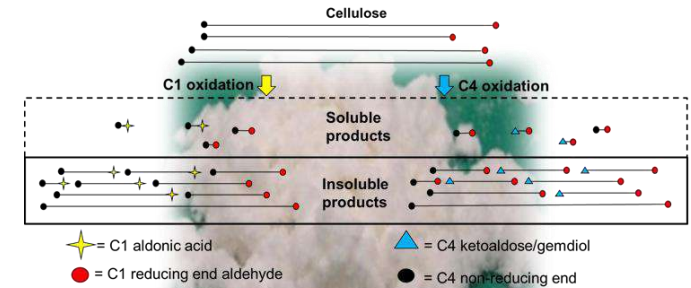
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Objectives:

- To explore the potential of LPMOs in oxidative modification of cellulosic fibres.
- To develop sustainable refining and dissolving processes.

Consortium:

- VTT Technical Research Centre of Finland Ltd
- Norwegian University of Life Sciences (NMBU)
- University of Natural Resources and Life Sciences (BOKU, Austria)
- Industrial advisory board



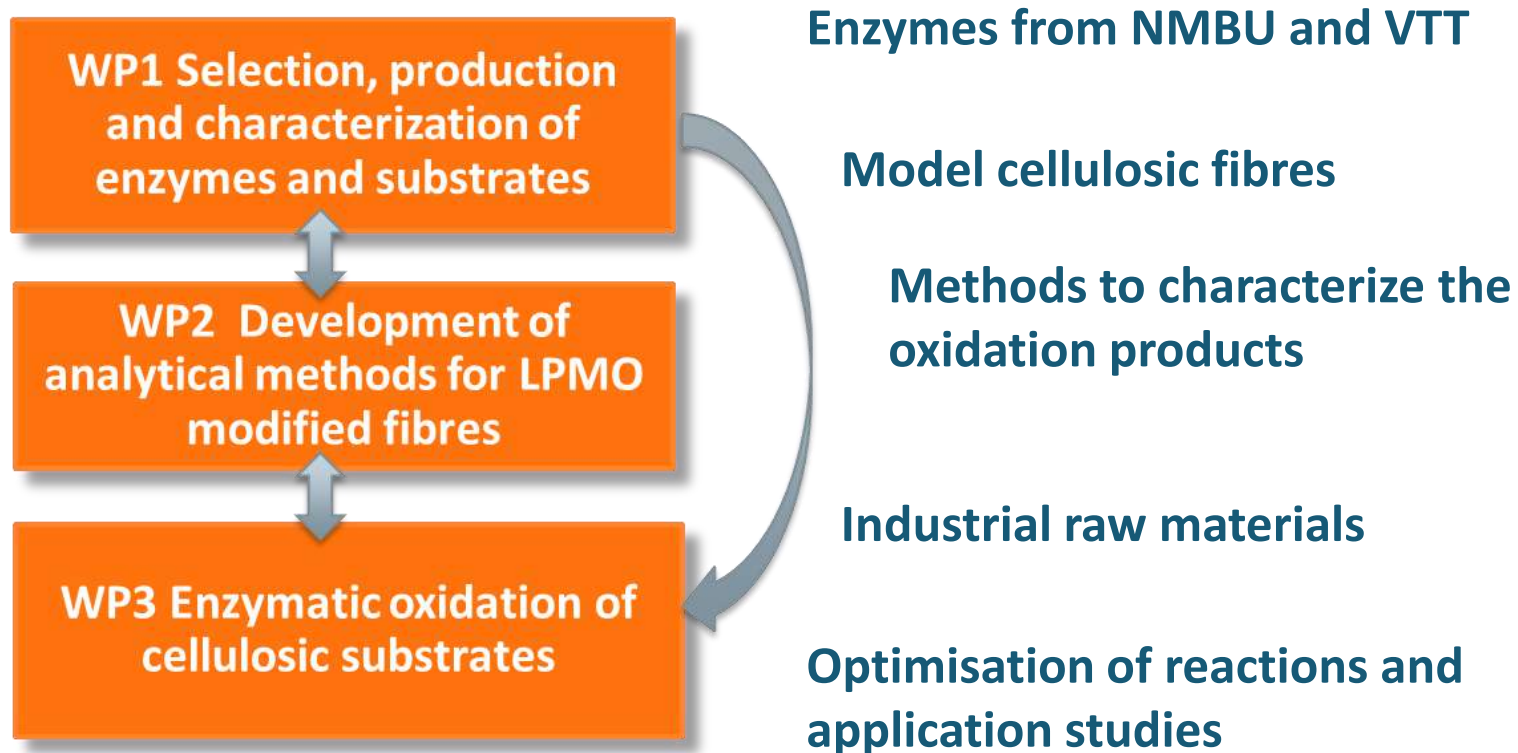
Regenerated
cellulose products



Functionalised
(Nano)celluloses



Project structure



Teams and acknowledgements

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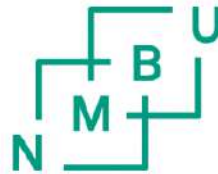
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ForestValue

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