Berner Fachhochschule
Haute école spécialisée bernoise
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Industrial valorization of wood bark extracts

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Chemical valorization of the forestry biomass

Bark

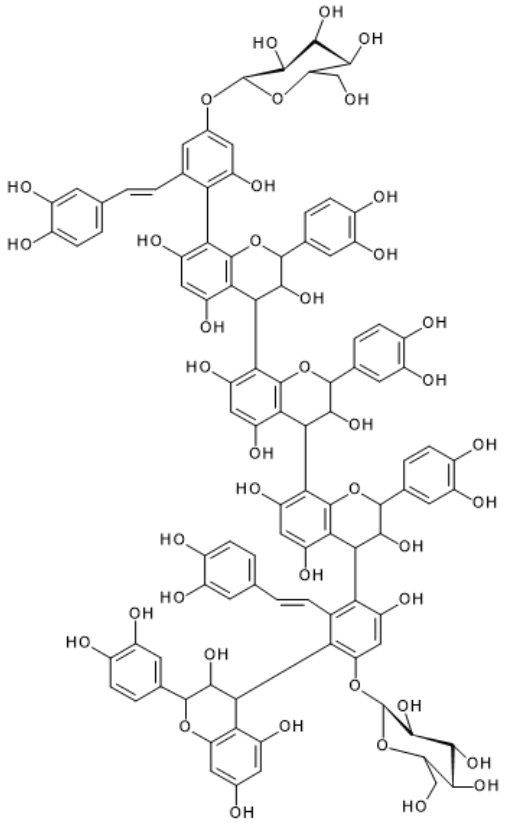
Tannin

Roundwood

Lignine

The chemical properties of condensed tannins

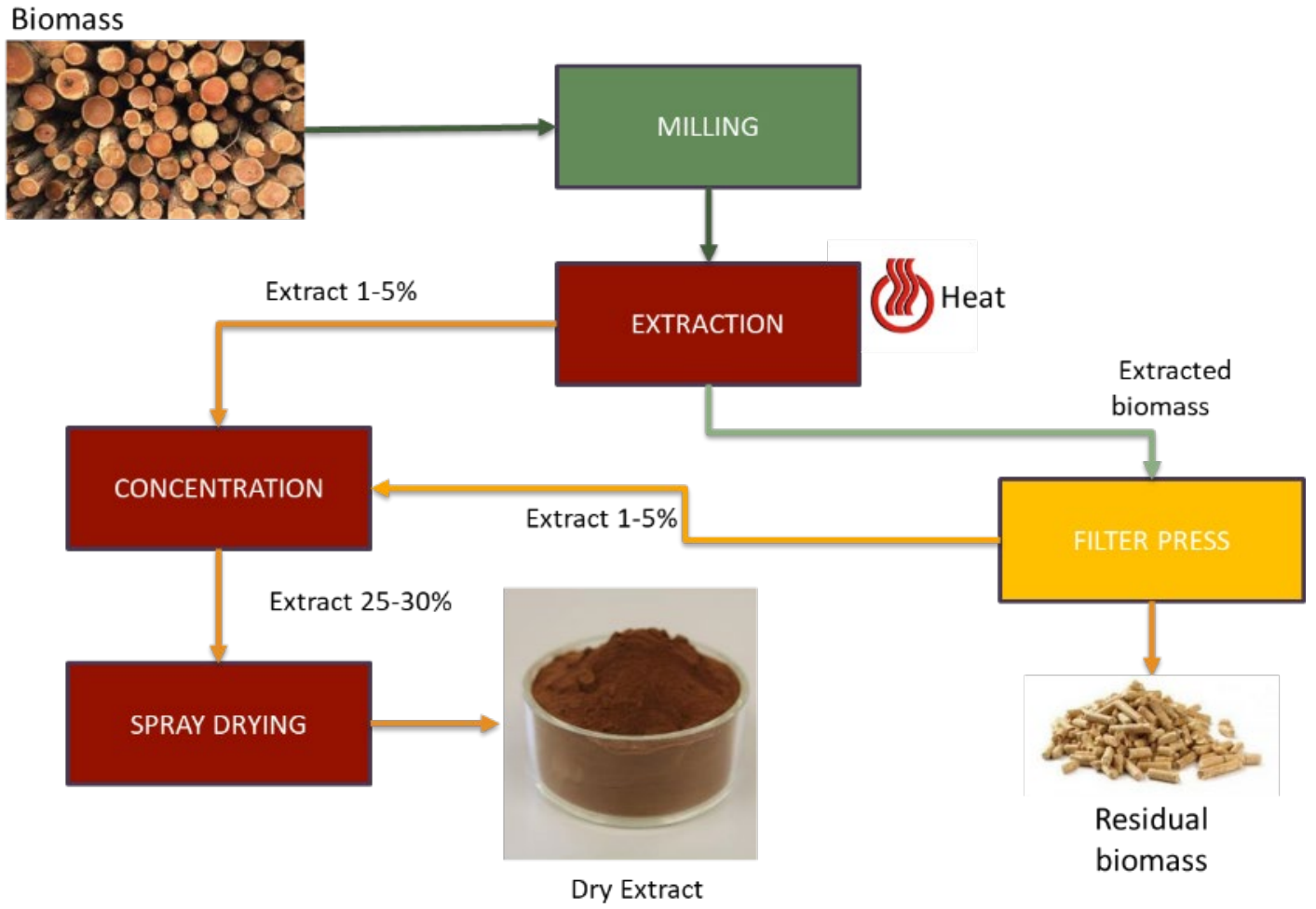
Tannin structure



Properties

- High condensation grade
- Fire resistance
- Good reactivity with cross-linking agent -> suitable for bio resine production (without formaldehyde)

The extraction process



First industrial pilot in Switzerland (50kg of Biomass)

Source BFH

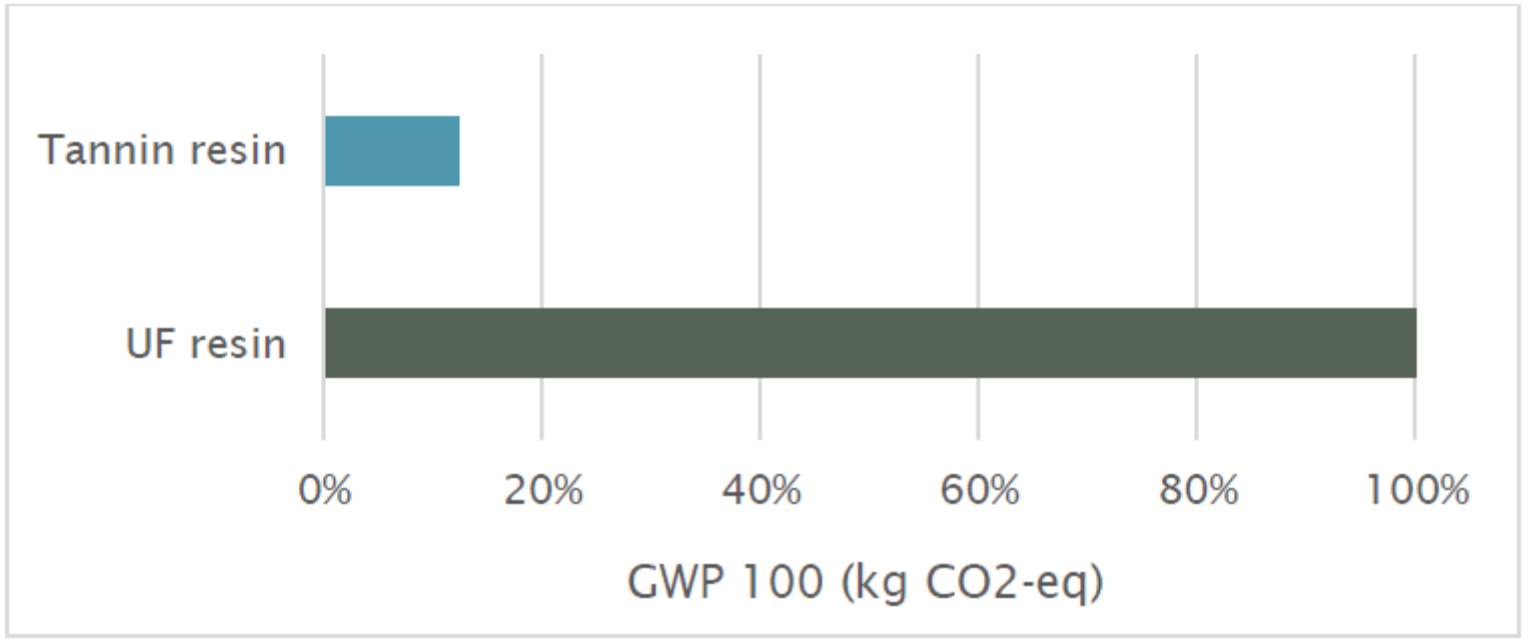
Potential application in the construction sector

Structural beam

Fiberboard

Plywood

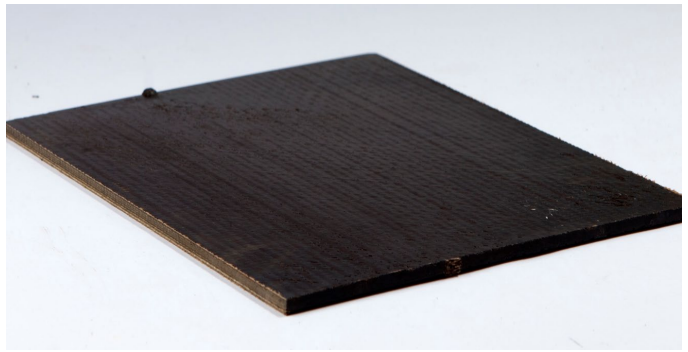
Comparison tannin-based resin vs. fossil-based resin



Source: BFH, Belen Rovira 2024

Potential applications

Biocomposite



Source BFH

Bioplastic

Biofoam


Philippine forest coverage
1900 = 70%
1950 = 50%
2000 = 18%
Lack of affordable wood-based materials


Coconut husk ≈ 5 million t/y

Cocoboard: a fully biobased building material

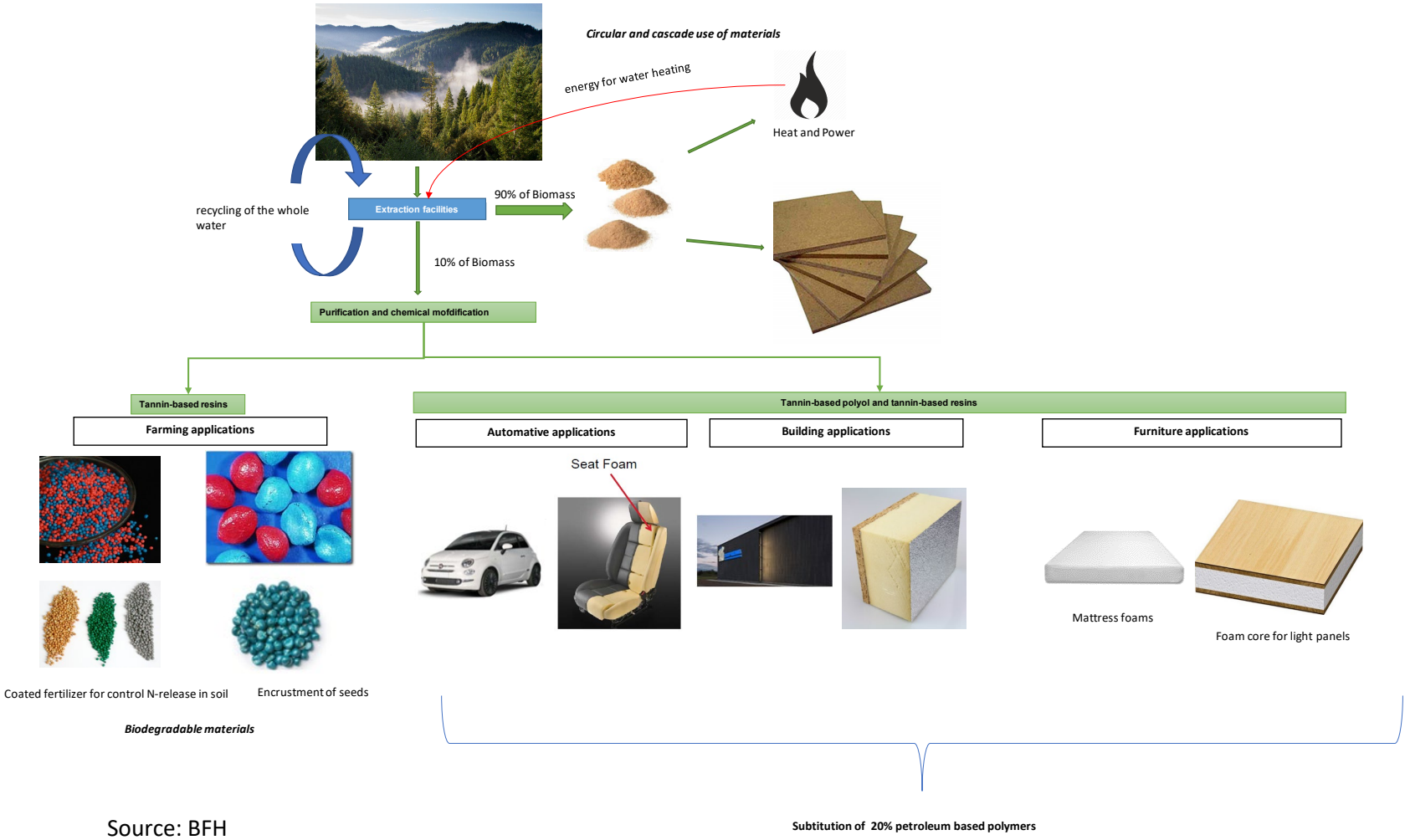
Our vision

Swiss Programme for Research on Global Issues for Development

r4d SNF/SDC Project
«Cocoboard»

HILTI The Foundation.

Conclusion: wood bark and tannins can contribute to circular bioeconomy



Source: BFH

Thank you for your attention

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