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## LOG SOAKING WATER

- Spruce logs for making veneer are submerged in warm water for several hours → Extracts turn water brownish
- Extracts present in log soaking water may have commercial uses, however, water is currently an unused resource
- New wood preservatives are needed, and many wood and bark extracts have antifungal characteristics



Q: Could we use spruce log soaking water to recover ingredients for wood preservative formulations?

## MATERIALS AND METHODS

Spruce log soaking water from collected from a plywood mill site

### 1 - Characterization of the spruce log soaking water

- Gravimetric assessment of dissolved material
- High Performance Liquid Chromatography (HPLC)
- Acid-butanol assay to determine tannin content

### 2 - Wood preserving properties

- DPPH radical scavenging activity (antioxidant activity)
- Antifungal test against: *Gloeophyllum trabeum*, *Trametes versicolor*
- Mini-block procedure (in-vitro wood decay test following EN 113)

## RESULTS



Concentration of material dissolved in water:  
1.3 wt%

Condensed tannin concentration:  
372 mg/L

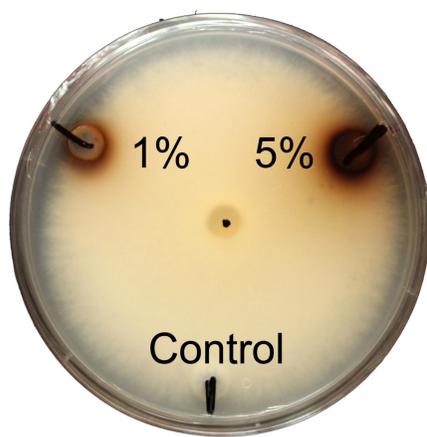
Phenolics identified:  
Lignans  
Procyanidins  
Flavonoids  
Stilbenes  
Phenolic acids

DPPH radical scavenging activity (RSA) at 1g/L:  
Spruce log soaking water:  
77%  
References:  
Gallic acid: 86%  
Butylated hydroxyanisole: 85%  
**Similar antioxidant activities**

## ANTIFUNGAL ACTIVITY TEST

• Diffusion test in petri dish

• Fungi tested: *Gloeophyllum trabeum* and *Trametes versicolor*



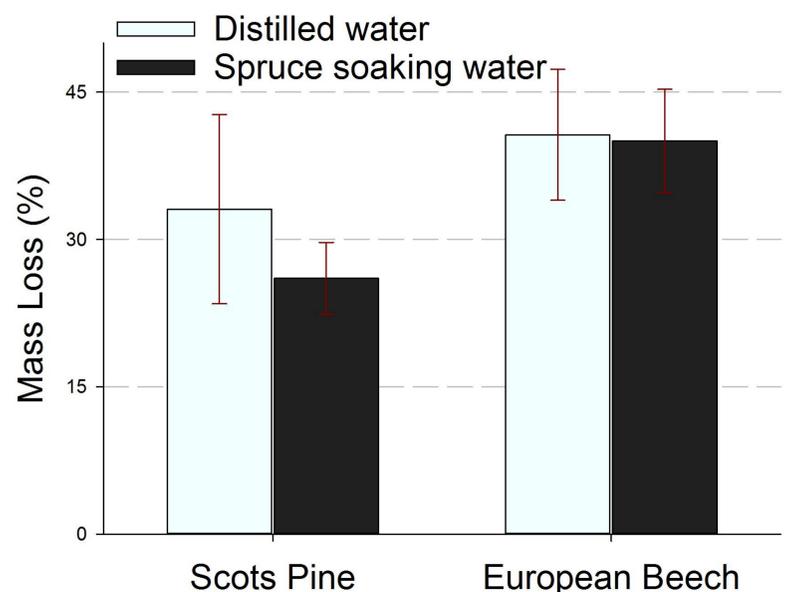
	Inhibition (% ± S.E.)	
	<i>G. trabeum</i>	<i>T. versicolor</i>
Spruce log soaking water at 5%	-8 ± 3	-8 ± 4
Spruce log soaking water at 5%	3 ± 2	9 ± 5

No antifungal activity of spruce log soaking water

## WOOD DECAY TEST

• Mini-block procedure (EN 113)

• 16 weeks exposed to *Trametes versicolor* in petri dish



Spruce log soaking water did not improve decay performance of wood

## CONCLUSIONS

- Spruce log soaking water is **rich in chemicals**, but has **no antifungal activity**.
- Other chemicals, such as **sugars**, might be present in the log soaking water.
- The **constituents** present in log soaking water **vary depending on many factors**.