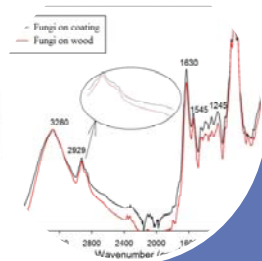


# FTIR study on comparison between wood mould fungi cultivated on wood and cultivated on wood coating



FTIR



Fungi

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**Per Jostein Hovde**

# Introduction



Red, white and yellow coloured paints are common to use for wooden facades

# Mould fungi

Serious threat to building inhabitants

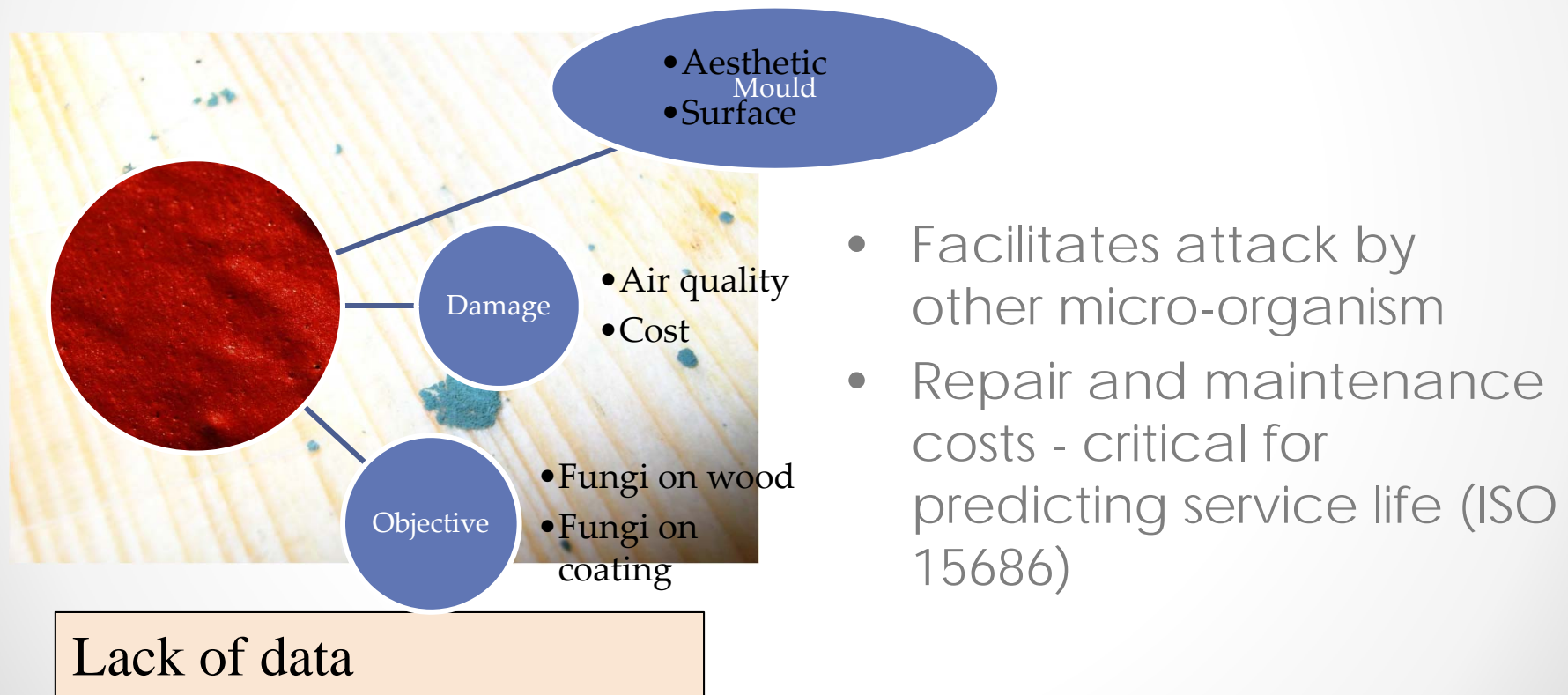
Powder like material, requires high moisture

No structural damage or decay

Aesthetic damage

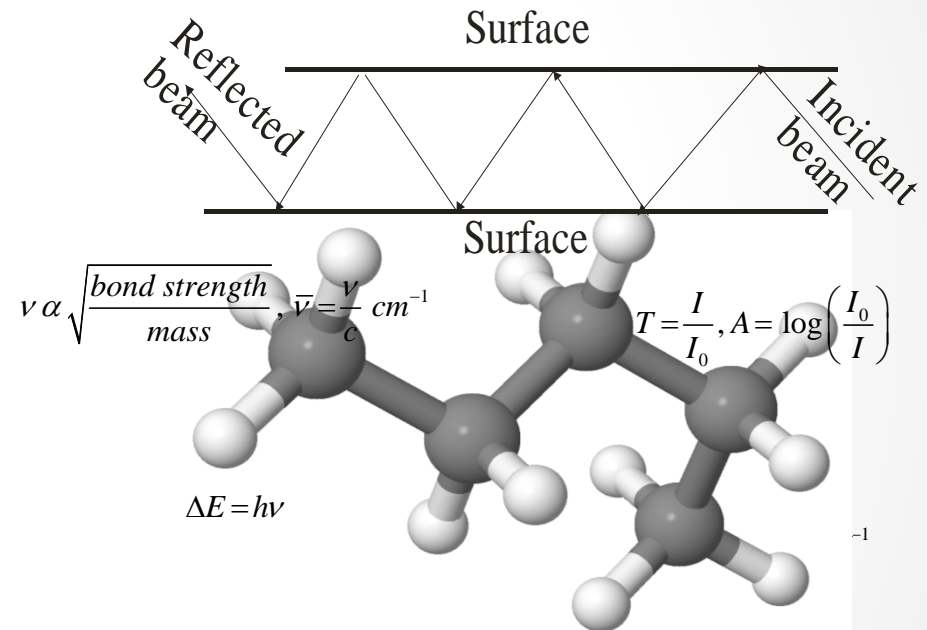


# Problem statement and objective



# ATR - FTIR

Attenuated total reflectance Fourier transform infrared spectroscopy



Research question:

Any difference in cell structure between fungi grown on wood and grown on wood coating ?

# Experimental plan

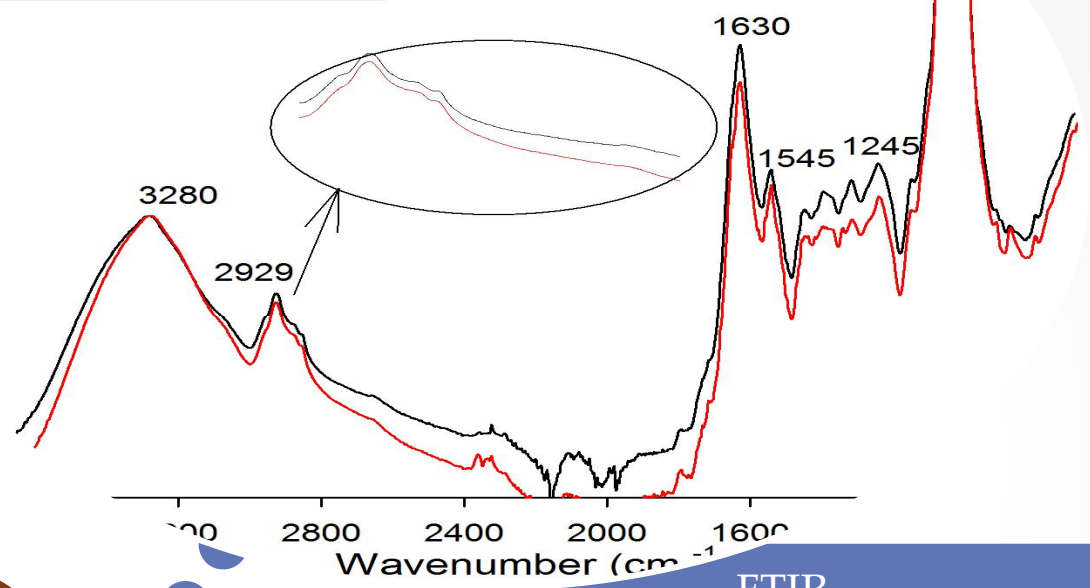
Uncoated  
wood

- Inoculation
- Harvesting & characterization

Red coated  
wood  
(JOTUN  
Optimal®)

- Inoculation
- Harvesting and characterization

— Fungi on coating  
— Fungi on wood

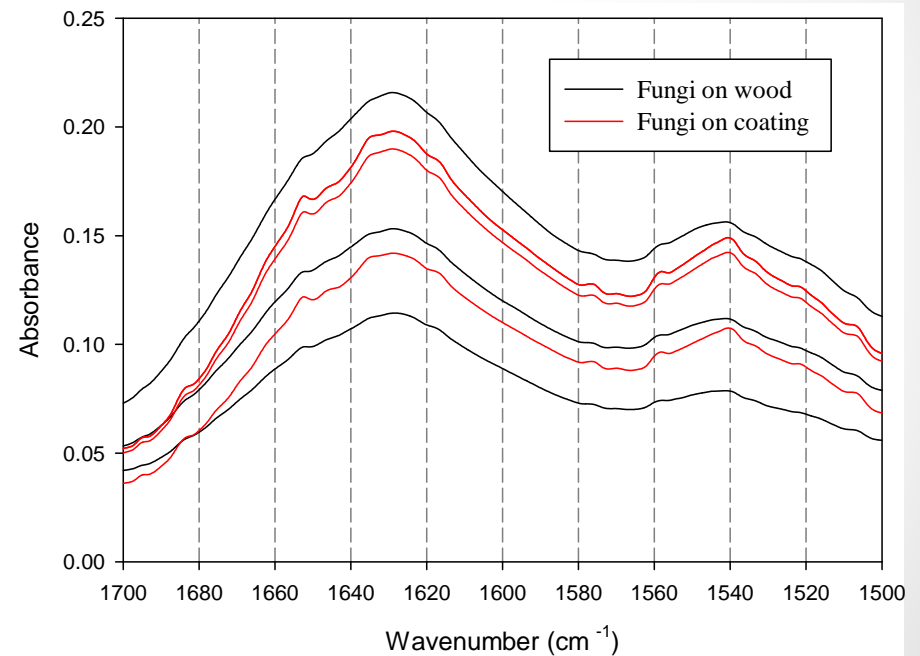
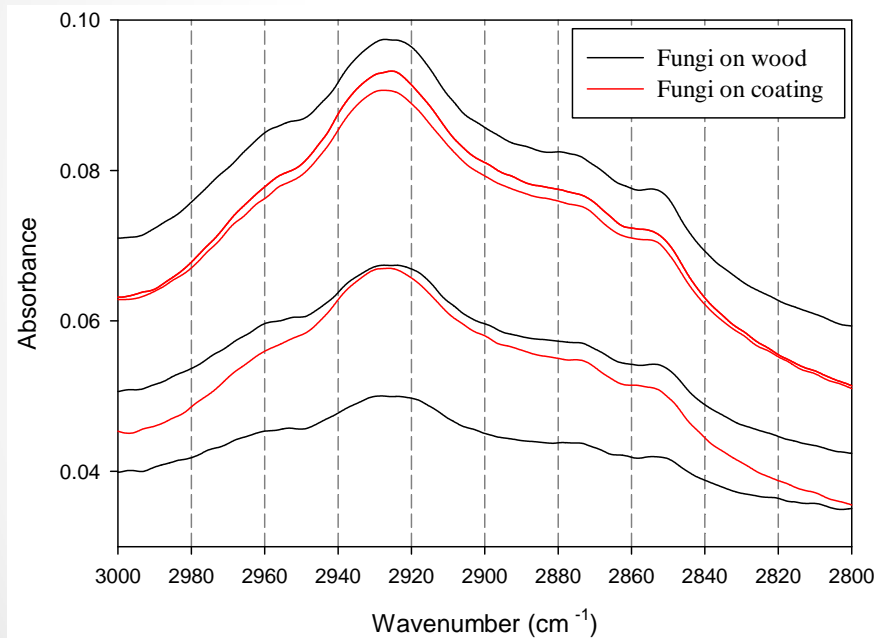


FTIR



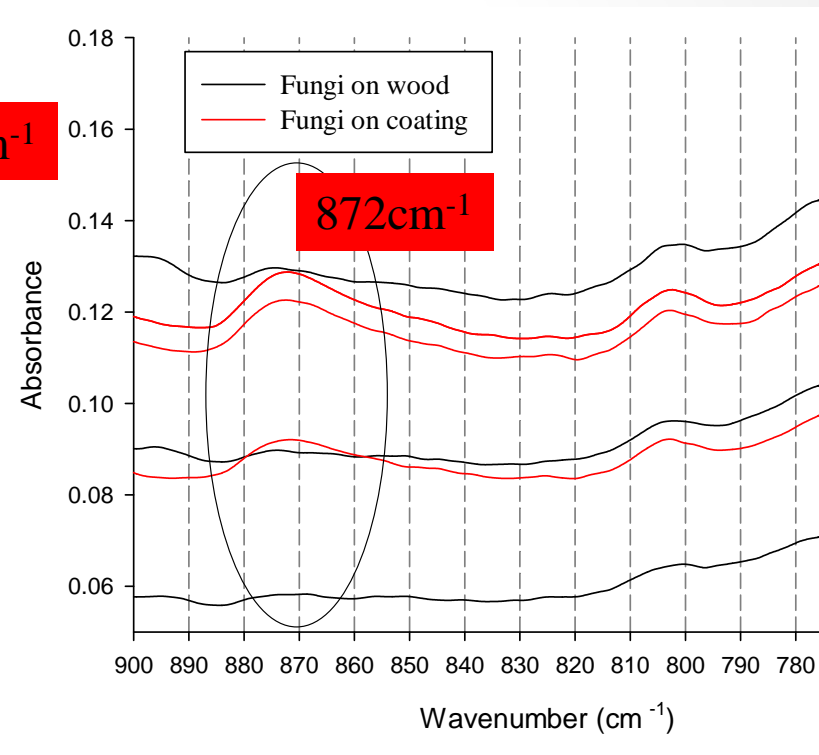
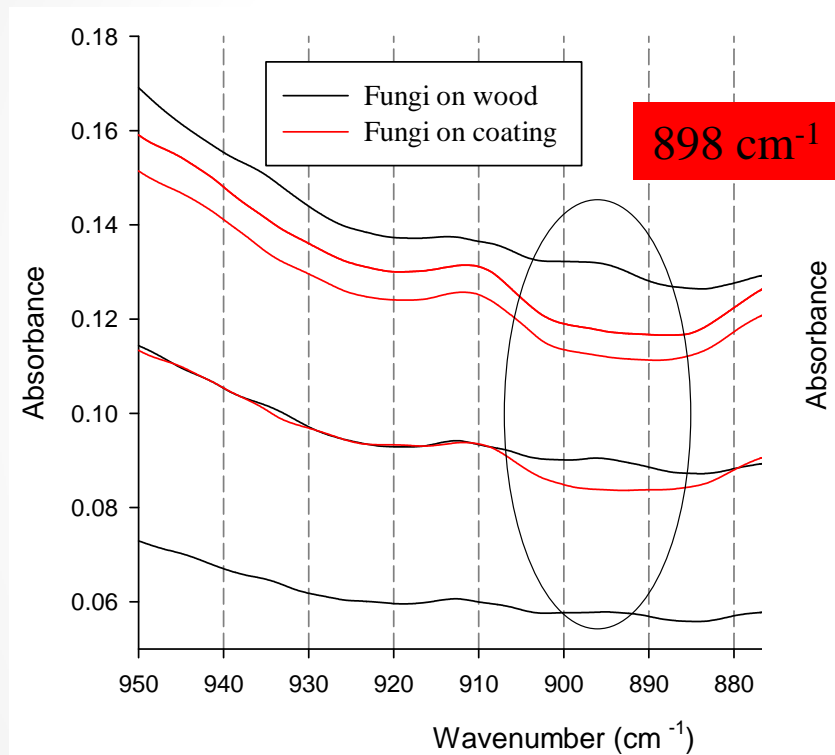
Fungi

# FTIR of fatty acid region and carbonyl region



$$T = \frac{I}{I_0}, A = \log\left(\frac{I_0}{I}\right)$$

# FTIR of fingerprint region



$$T = \frac{I}{I_0}, A = \log\left(\frac{I_0}{I}\right)$$

# Conclusions

- Mould fungus, *A. pullulans*, grown from two different nutrient sources show similar pattern at wavenumbers 4000-1000  $\text{cm}^{-1}$ .
- At lower wavenumbers, fungi grown on red coating
  - lacks the signature peak of cellulosic C-H group at 898  $\text{cm}^{-1}$
  - and show extra peaks that are absent in the fungi that are grown on wood.
- ATR-FTIR may represent a useful tool to discover the nutrient sources of wood mould fungi.

# Acknowledgements

- Research Council of Norway
- Viken Skog BA
- Treindustrien
- The Wood Technology Research Fund at the Norwegian Institute of Wood Technology
- Jotun AS and Kebony ASA
- The Norwegian University of Life Sciences (UMB)
- The Norwegian Forest and Landscape Institute (Skog og Landskap)
- The Norwegian Institute of Wood Technology (Treteknisk)
- <http://www.woodfacade.com/>

# Questions

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