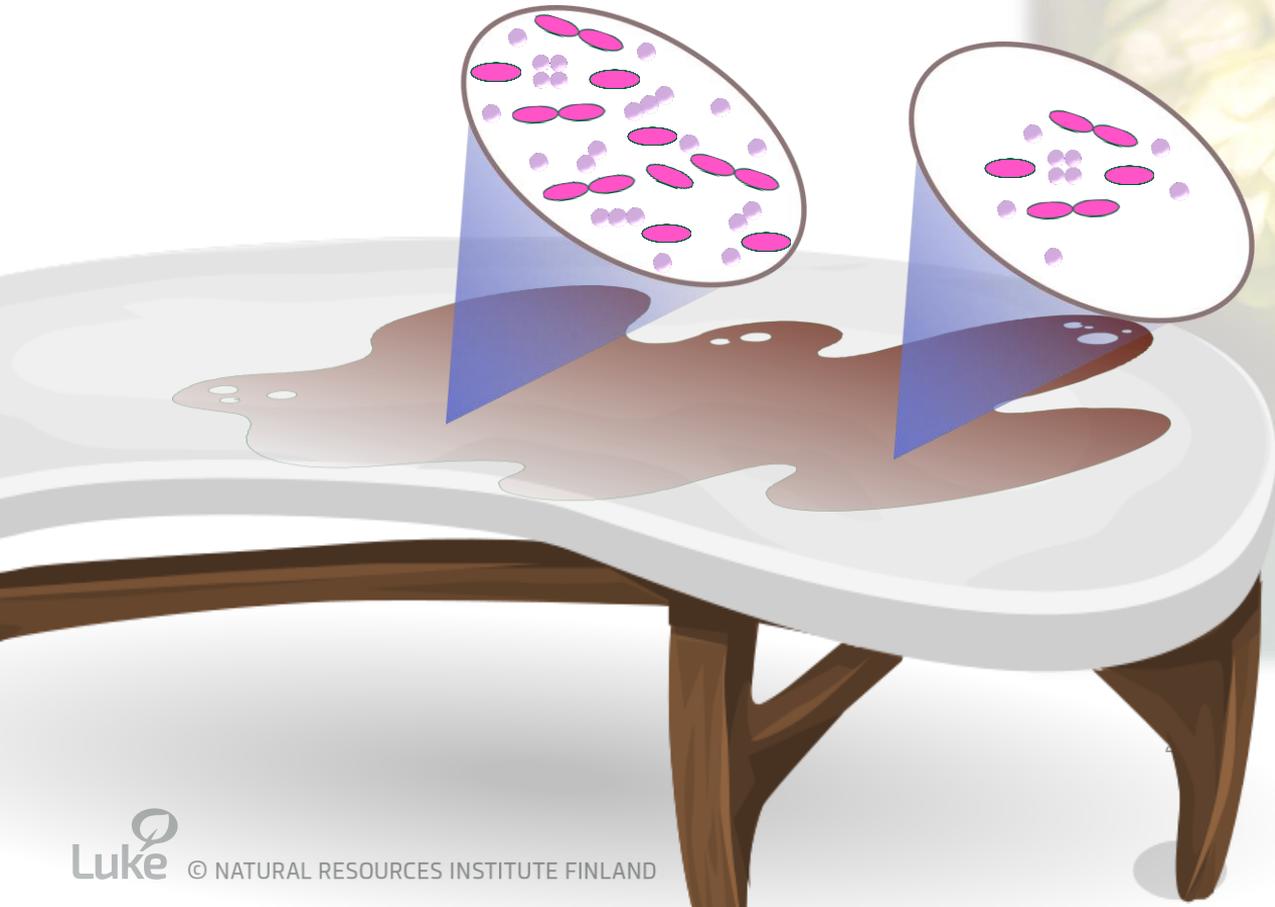


# Antimicrobial properties of hop extracts

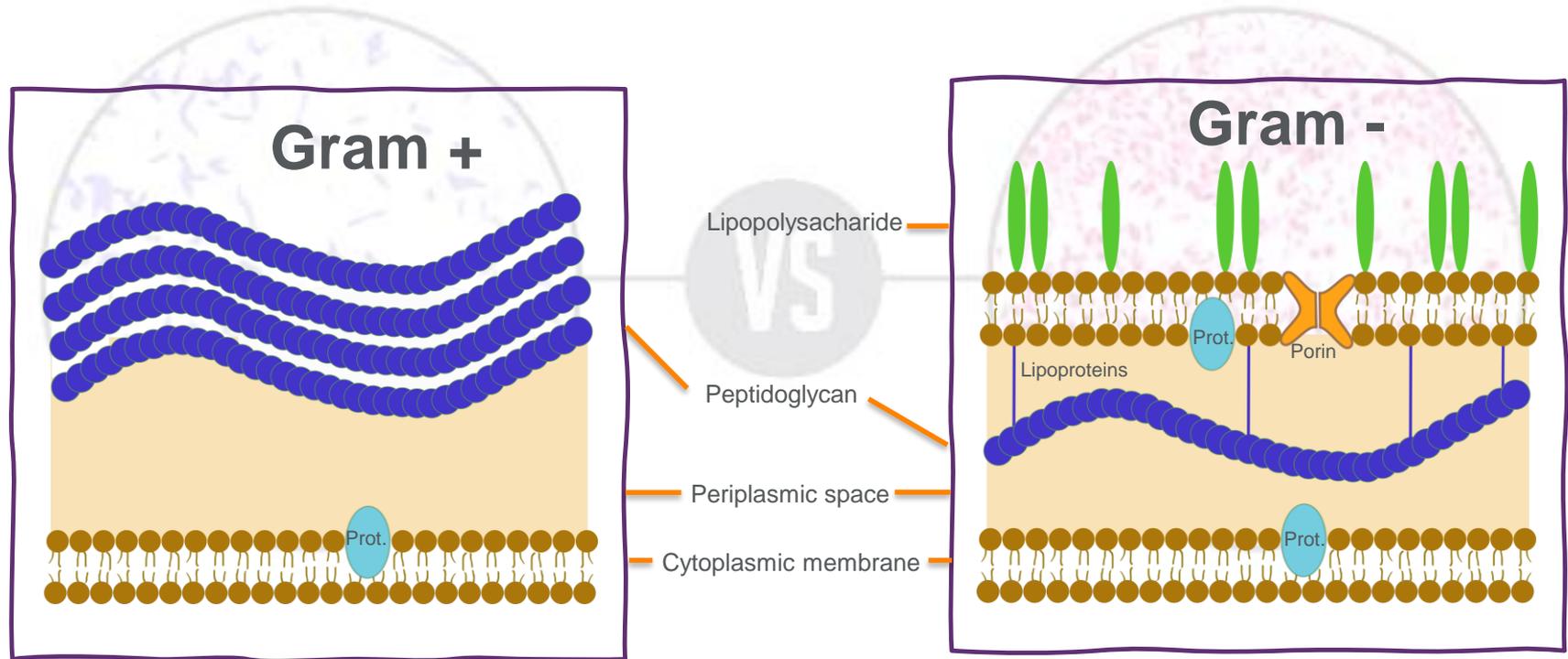
Lucia Blasco  
17.03.2020

# What does antimicrobial mean?

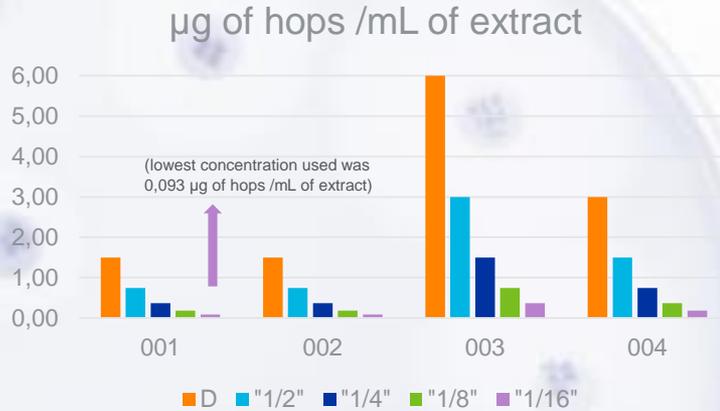


...a bit of easy theory behind

## Bacterial wall

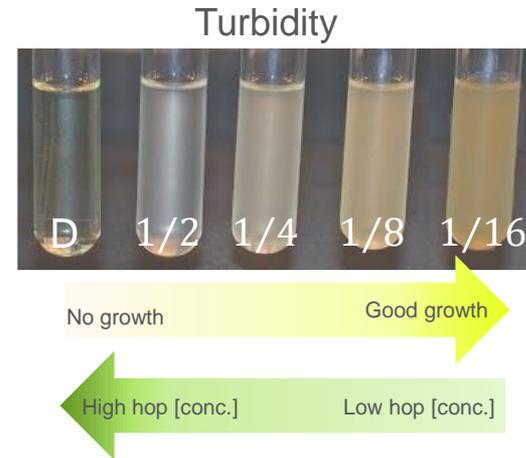


# How did we measure antimicrobial properties?

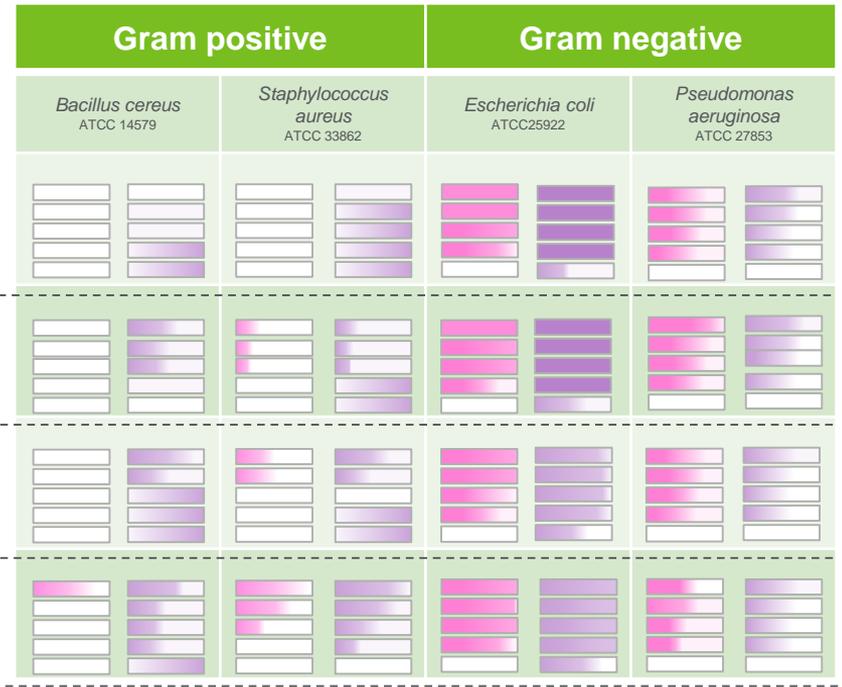
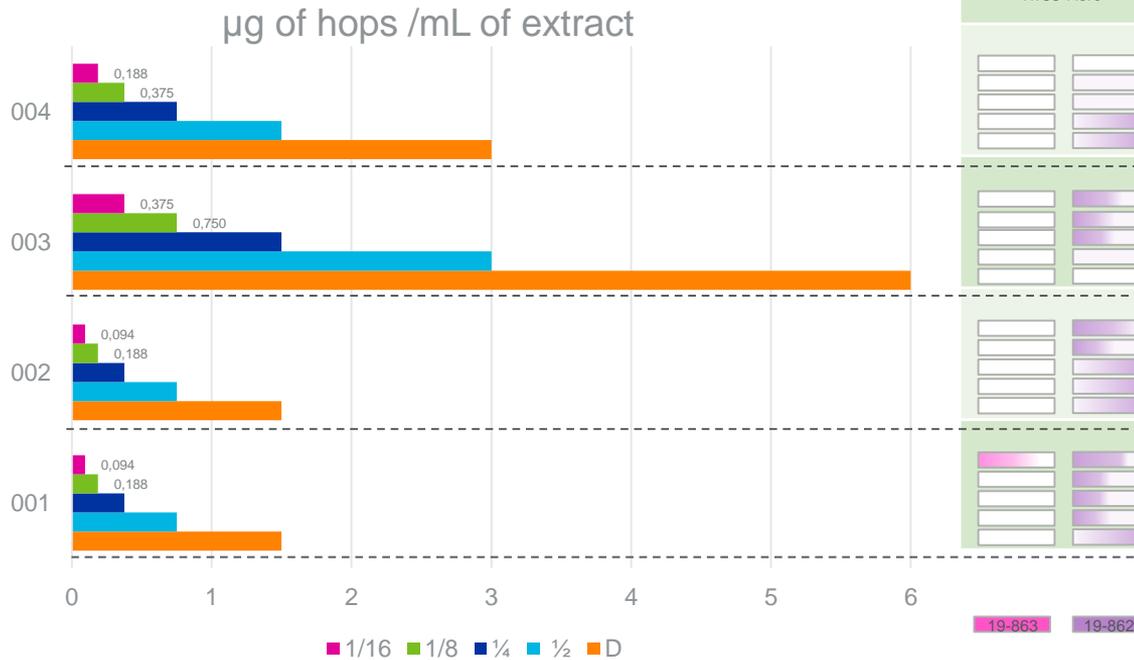


001 N kontrolli lager (no isomerization of  $\alpha$ -acids expected)  
002 N lager (isomerization of  $\alpha$ -acids during long boiling which are more water soluble than the original compounds)  
003 N kontrolli IPA (no isomerization of  $\alpha$ -acids expected)  
004 N IPA (part of the  $\alpha$ -acids isomerized, part not)

- 2 selected hops (19-862, 19-863)
- 4 different extraction procedures (001-004)
- Hop extracts were diluted
- Bacteria were inoculated (2 G+ and 2 G-)
- Growth was measured



# The results



19-863 19-862

MIC80: Minimum Inhibitory Concentration to inhibit the growth in 80%

# Conclusions

- G+ more sensitive to both extracts (19-862, 19-863) and lower doses of them
- Significant activity against **methicillin-resistant *S. aureus*** (MRSA)
- Extract 19-863 had better antimicrobial properties
- Extraction type 004, followed by 002 showed the best results on average



## New applications?

- Food preservation
- Natural pharmaceutical products
  - Oral cavity inflammation
  - Skin inflammation and acne
  - ...

# Thank you!