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MATERIALS-RESEARCH.EU

NEWS IN TRANSPORT OF LIGNOHUMATE THROUGH PLANT CUTICLES

Marcela Laštůvková



Česká Republika

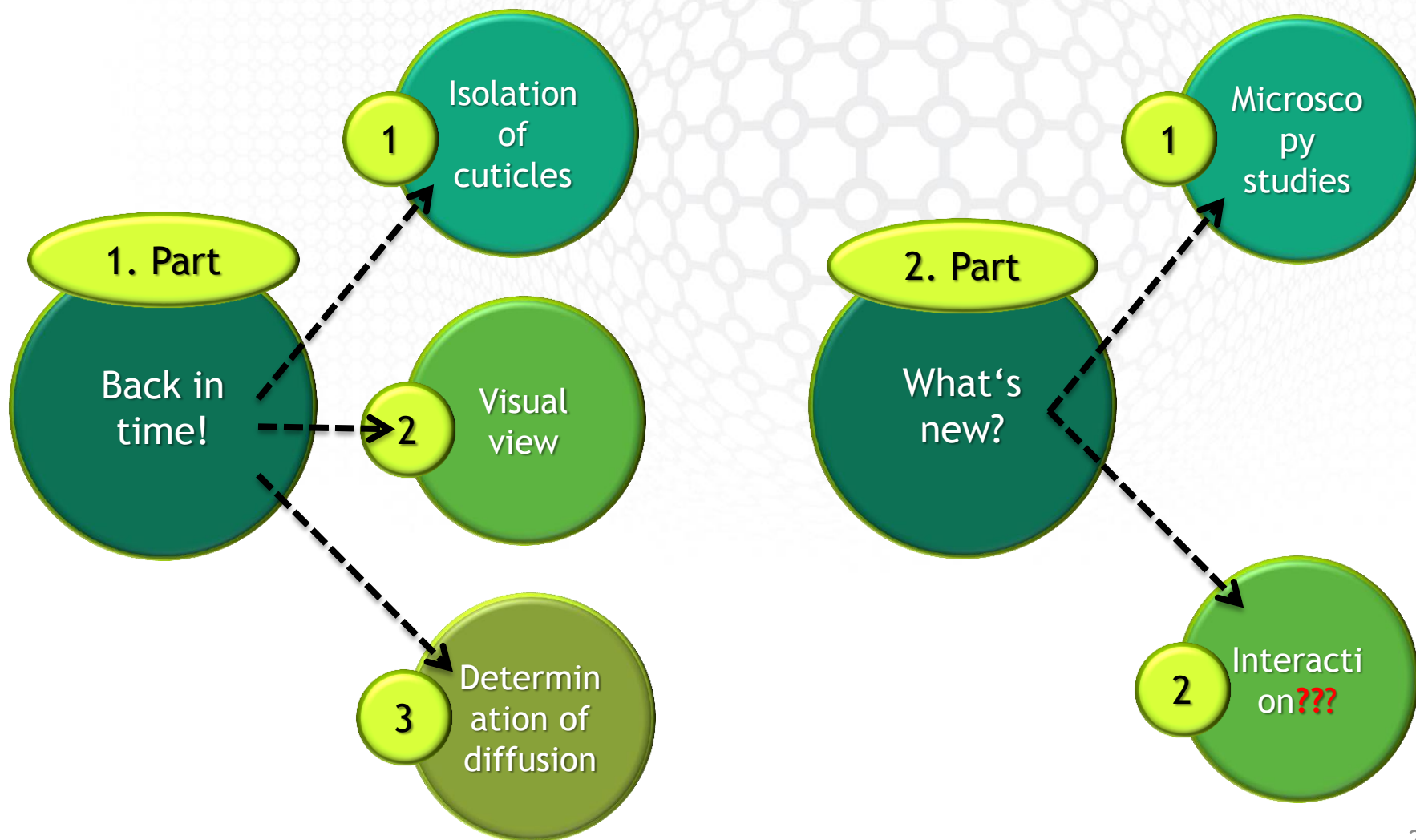


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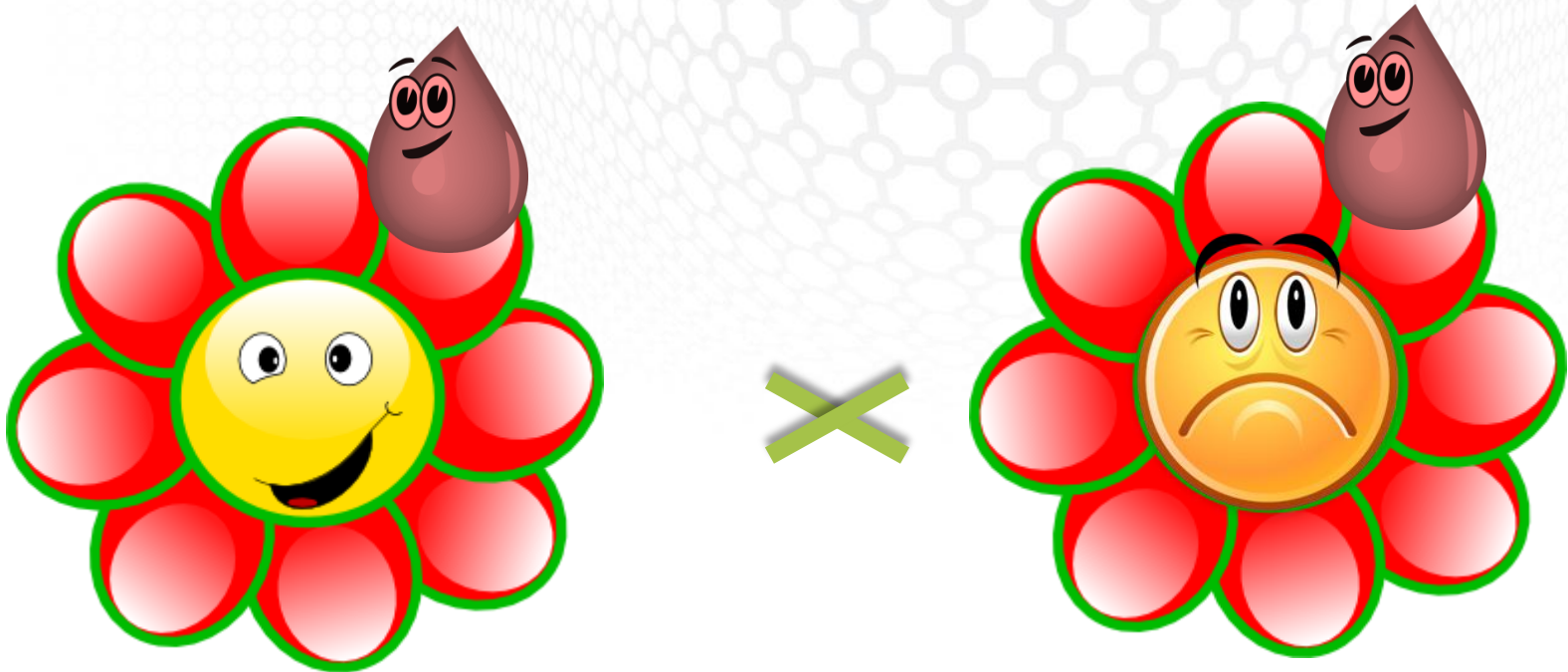
CONTENT



BACK IN TIME!

Cooperation between Amagro and Faculty of Chemistry, BUT

➤ Q: Are the humic substances respectively lignohumate able to penetrate into the leaves?



BACK IN TIME

How can we do it?

Isolation of top respectively bottom part of leaves?

Enzymatic
isolation



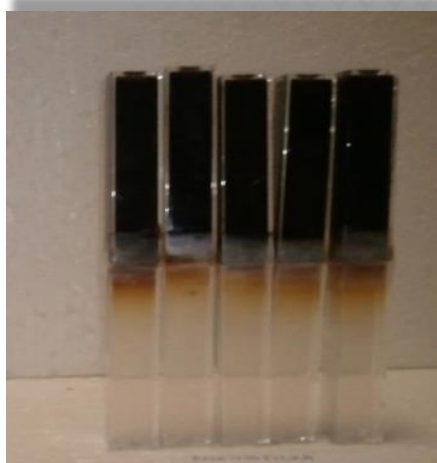
Chemical
isolation



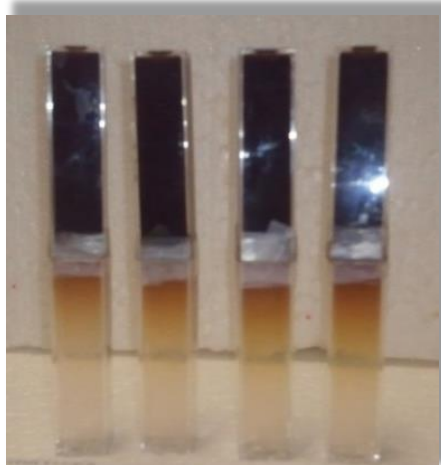
BACK IN TIME!

Diffusion experiment

Bottom site of enzymatic isolated cuticles (Diffusion pair)

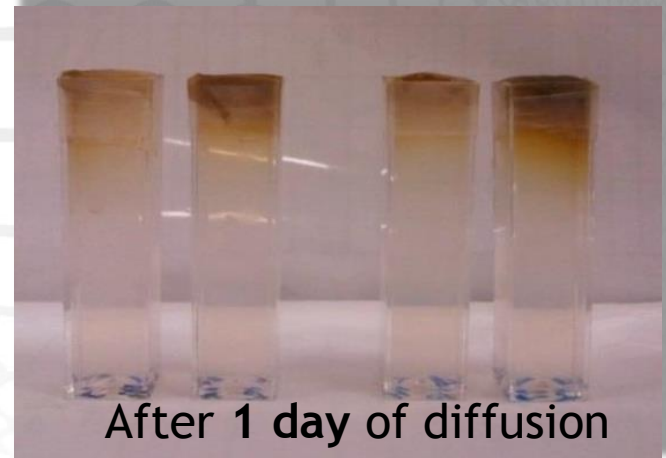


after 2 days

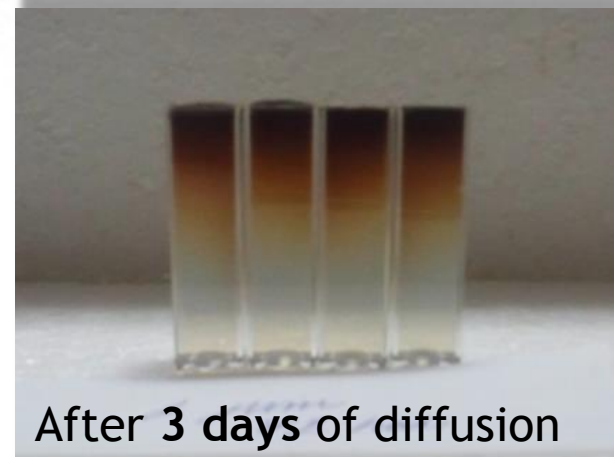


after 7 days

Bottom site of enzymatic isolated cuticles (Non-stationary diffusion)

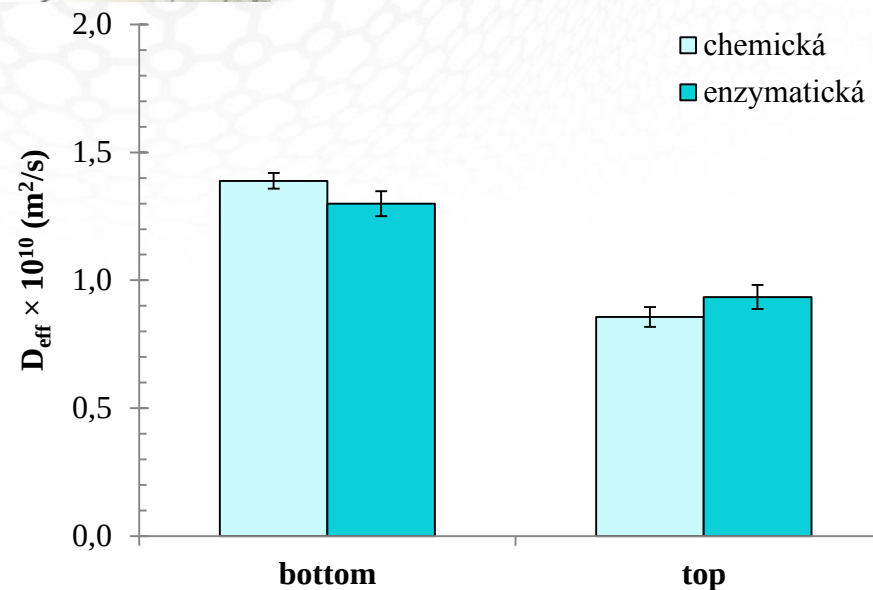
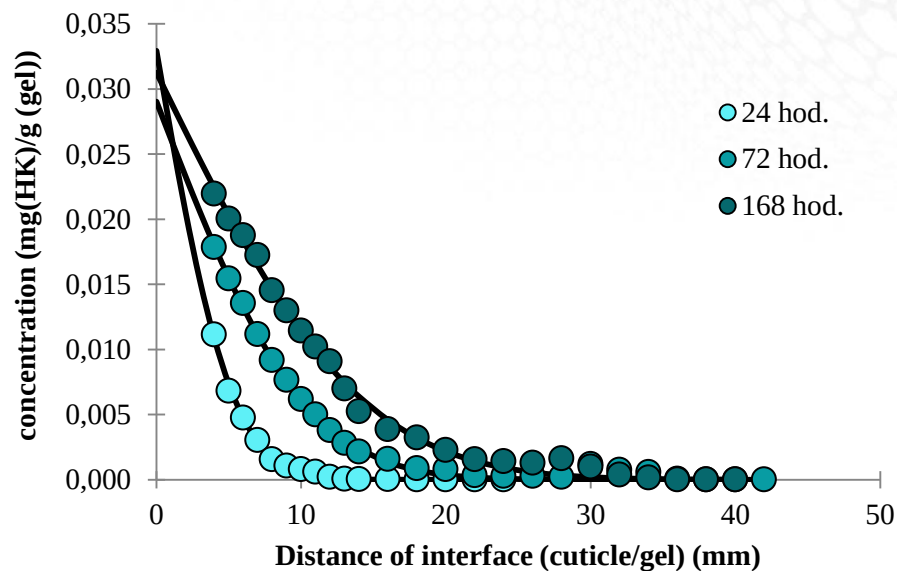


After 1 day of diffusion



After 3 days of diffusion

Non-stationary diffusion experiments

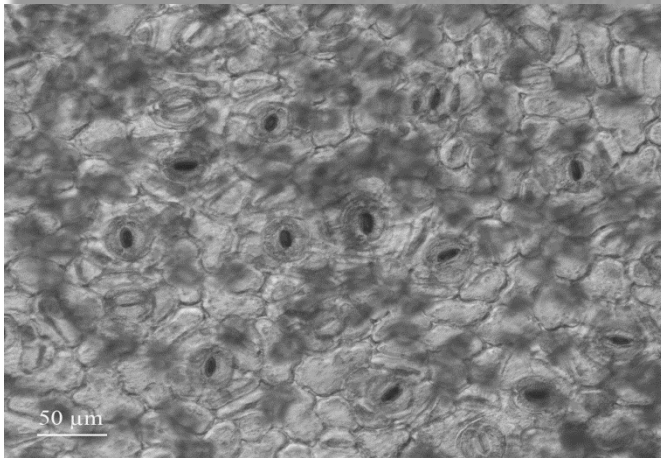


Graph 1. Determination of diffusion coefficient and concentration on interface (cuticle/hydrogel).

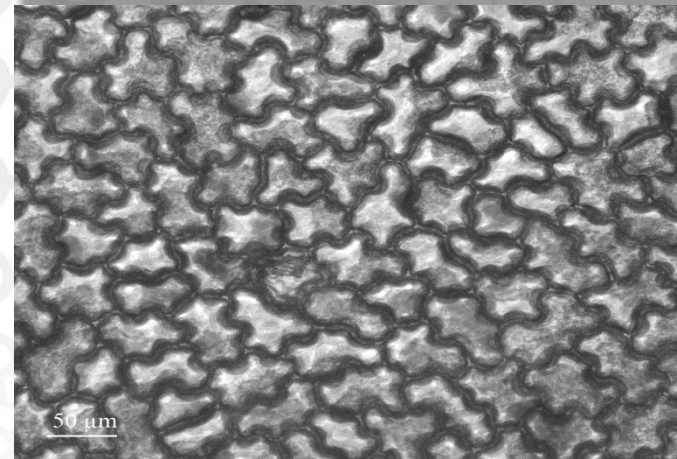
WHAT'S NEW?

Microscopy methods

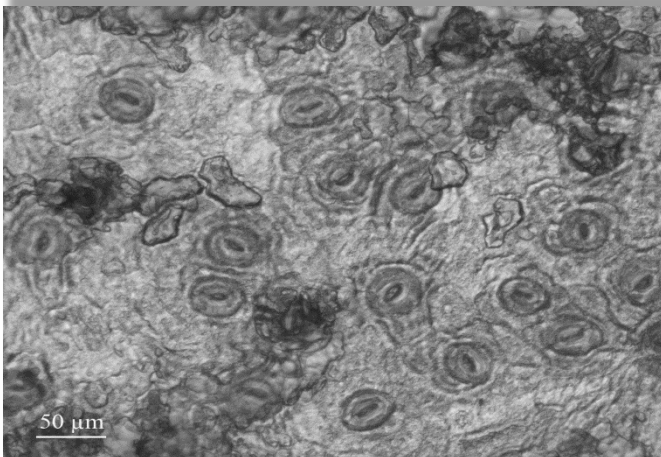
Enzymatic isolation of cuticles - bottom



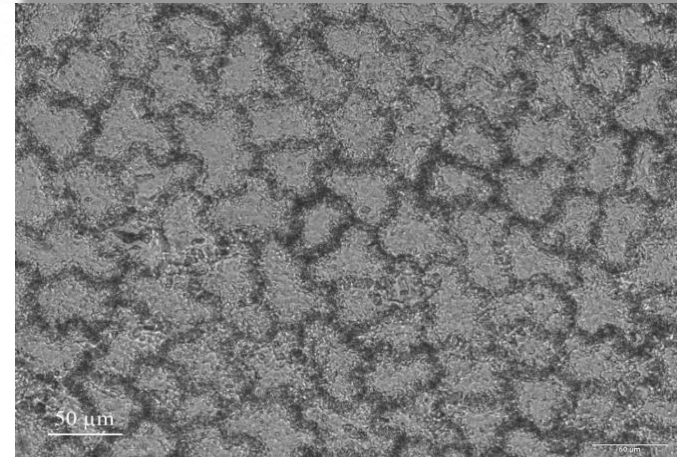
Enzymatic isolation of cuticles - top



Chemical isolation of cuticles - bottom



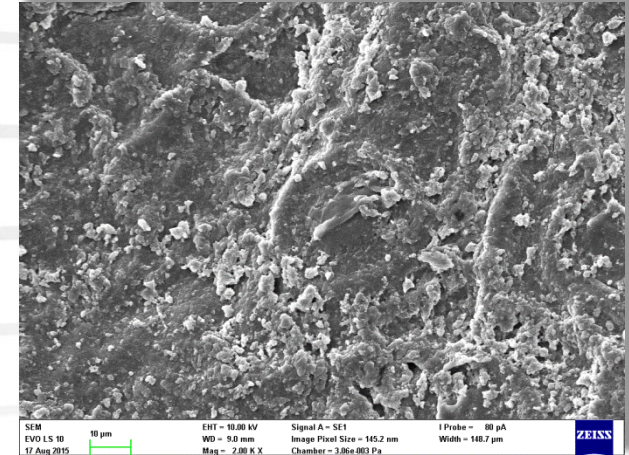
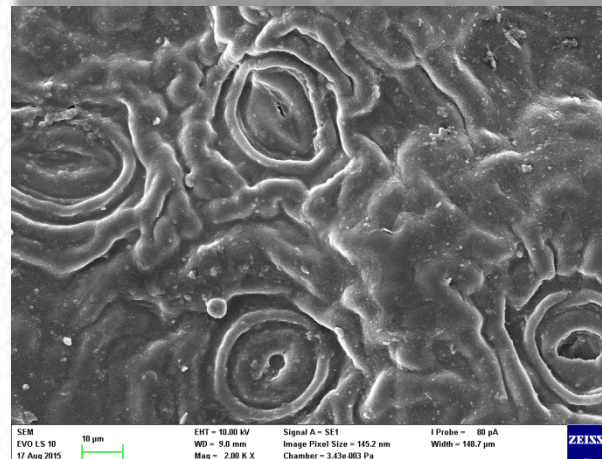
Chemical isolation of cuticles - top



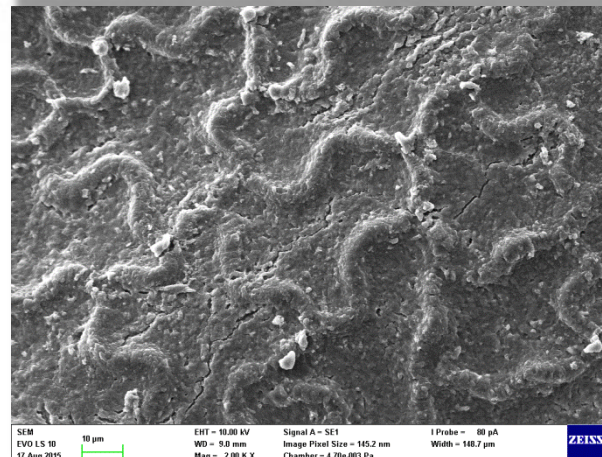
WHAT'S NEW?

Microscopy

Bottom site of chemical isolated cuticles

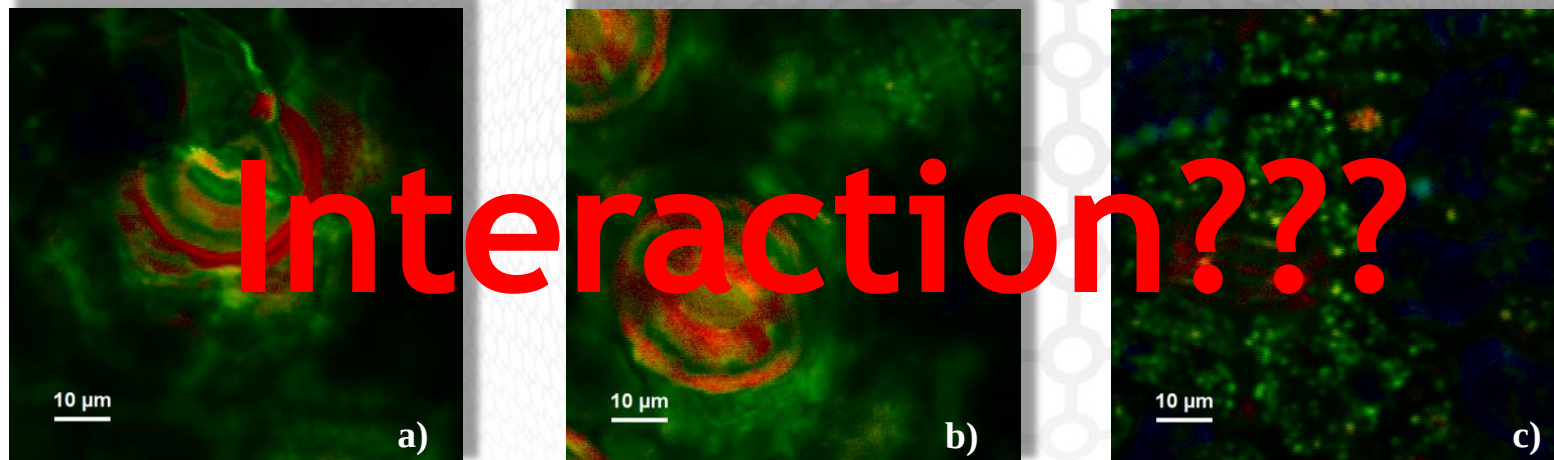


Top site of chemical isolated cuticles

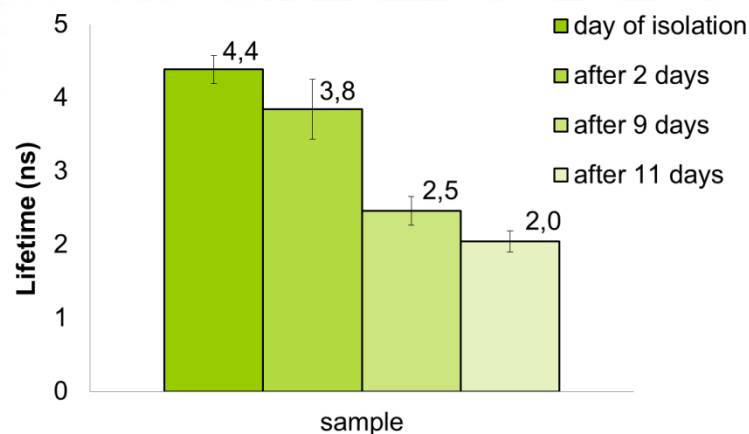


WHAT'S NEW?

Microscopy



Enzymatic isolation of cuticles - time of diffusion a) 1 day, b) 2 days, c) 3 days.

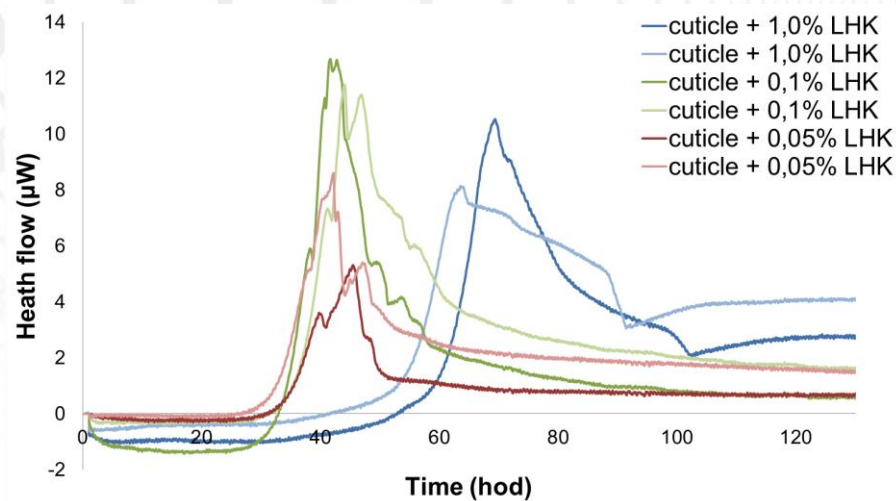


Graph 2. Fluorescence lifetime depending on time and effect of LHK.

WHAT'S NEW?

Study of interaction

Isothermal calorimetry

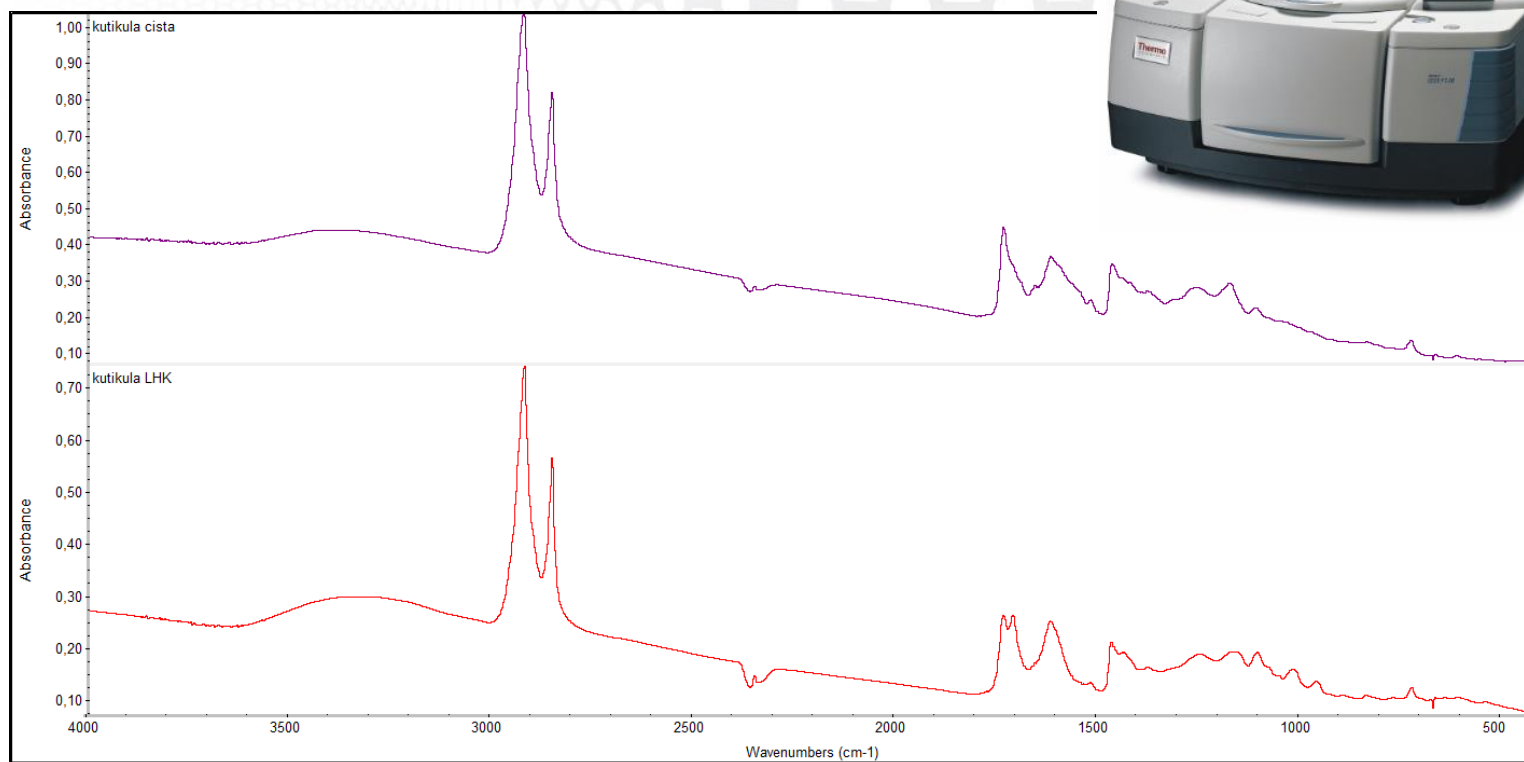


Graph 3. Heat flow depended on time and different concentration of LHK.

WHAT'S NEW?

Study of interaction

FT-IR



Graph 4. FT-IR measurement; sample of cuticle (up) and cuticle in LHK solution (bottom).

Thank you for your attention!

