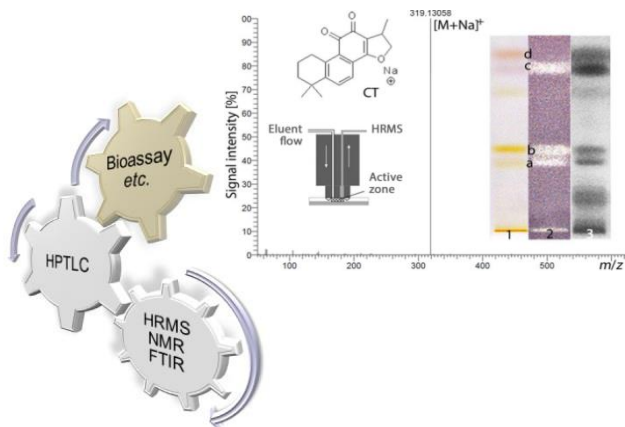




Hybrid Modul Hyphenated HPTLC

Prof. Dr. Gertrud Morlock

- Chromatography combined with assays
- Pointing to single bioactive compounds in complex samples
- Streamlined profiling via biological and biochemical assays in the adsorbent bed
- High-performance thin-layer chromatography combined with effect-directed assays and high-resolution mass spectrometry (HPTLC-UV/Vis/FLD-EDA-HRMS)



PROGRAM

Digitally via MTeams Link:
MON 28.02. – FRI 04.03.2022
09.00 – 16.00 Theory each day

At JLU Giessen:
MON 25.04. – TUE 26.04.22 Lab demonstrations
Start/End depending on your arrival/departure

We recommend as the closest hotel to our place:
<https://restaurant-heyligenstaedt.de/boutique-hotel>

REGISTRATION/CERTIFICATE

Email to gertrud.morlock@uni-giessen.de

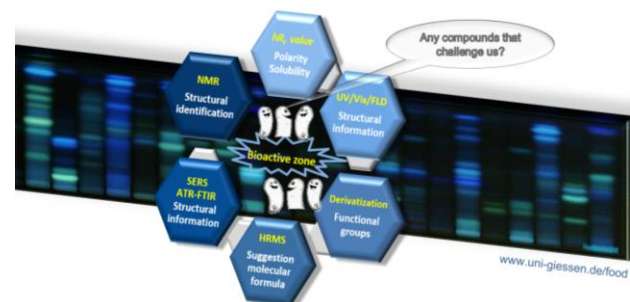
CONTENTS

- Antimicrobials via Gram-negative *Aliivibrio fischeri* bioassay
- Antimicrobials via Gram-positive *Bacillus subtilis* bioassay
- Genotoxic compounds via SOS-Umu-C assay
- Hormone-effective compounds via planar yeast estrogen/androgen screen (pYES/pYAS)
- Agonistic and antagonistic effect detection (pYAES/pYAAS)
- Enzyme inhibitors via α - and β -glucosidase, α -amylase, acetyl and butyryl cholinesterase, tyrosinase and β -glucuronidase assays
- On-surface simulated digestive system: nanoGIT^{active}
- On-surface metabolization by the S9 enzyme system
- Adhesive/adherent cell assays on-surface
- Coupling to ESI-HRMS or DART-MS

RESPONSIBLE FOR MODULE



Justus Liebig University Giessen
Prof. Dr. Gertrud Morlock
Full Professor
Chair of Food Science
www.uni-giessen.de/food

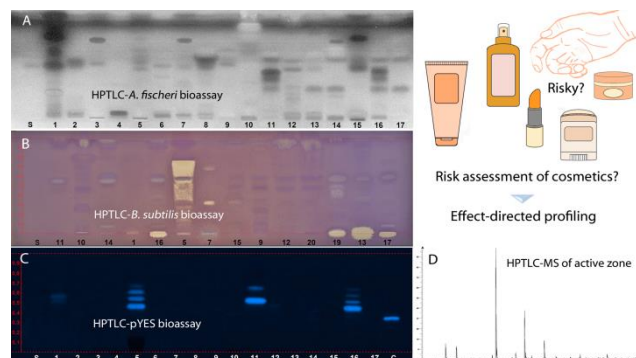


MODULE AIMS

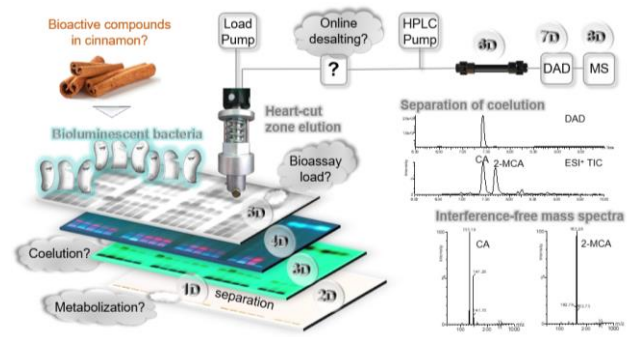
The participants

- Understand the meaning of effect-directed analysis as well as advantages and disadvantages of the different techniques
- Survey the variety of on-surface or *in situ* assays (in the adsorbent bed)
- Know the streamlined workflow on one plate, *i. e.* parallel separation of compounds in complex samples, discovery of active compounds and their characterization by chromatographic, spectroscopic and spectrometric information (3-20 min/sample for up to 20 samples in parallel)
- Recognize the highly efficient combination of planar chromatography with biological and biochemical or other effect-directed assays
- Realize the power of hyphenated HPTLC and can benchmark effect-directed profilings

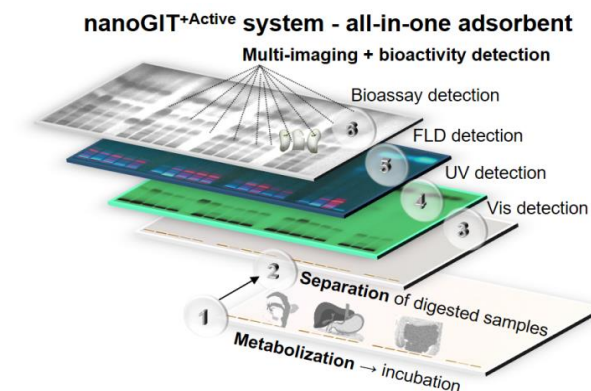
EFFECT-DIRECTED PROFILING OF COSMETICS



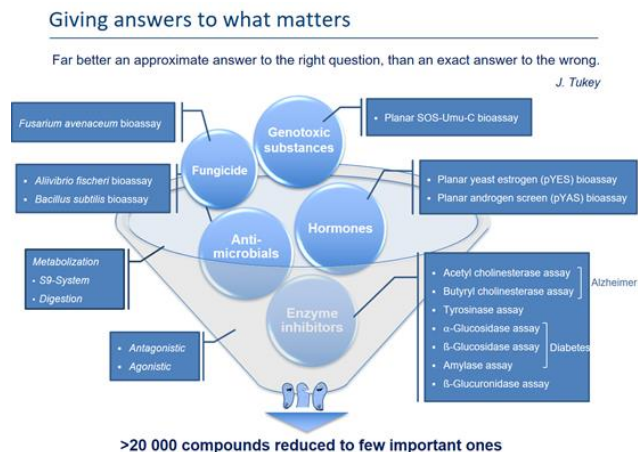
DIRECT RECORDING OF HRMS SPECTRA



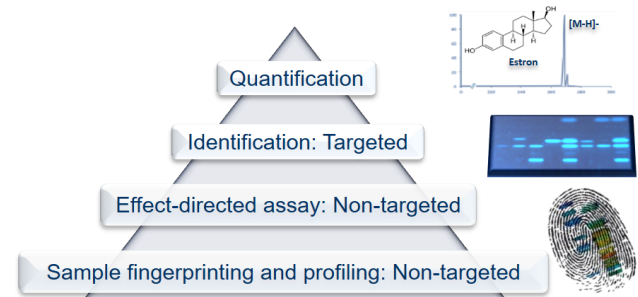
ON SURFACE SIMULATED DIGESTIVE SYSTEM



EXAMPLES OF ASSAYS IN USE



EFFECTIVE SYSTEM



HPTLC-UV/Vis/FLD-assay-HRMS

- Fast profiling of samples in parallel
- Samples remain as native as possible
- Sample preparation is kept minimalistic
- View on sample is comprehensive
- Pointing to single active compounds
- Molecular formulae of active substances
- Data storage is minimalistic

Morlock, G., q-more.chemie.de

LOCATION



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The working place of Justus Liebig:



Source: wikipedia.org