



Research and
Development

JUSTUS-LIEBIG-



UNIVERSITÄT
GIESSEN



HPTLC-SOS-Umu-C

*Intérêt d'un dosage HPTLC-SOS-Umu-C
comme alternative en recherche
directe de faible teneur de composés
généotoxiques dans l'alimentation*

Pourquoi c'est important ?

proteinase inhibitor

chaconine

methylbutanal

oxalic acid

asparagine

iron

phenylalanine

Nutrients

DDT

Processing aids

Antioxidants

Additives

Contaminants

Minerals

Anti-nutrients

deltamethrin

gly

acrylamide

Microplastics

lead

Isopropylthioxantone

folate

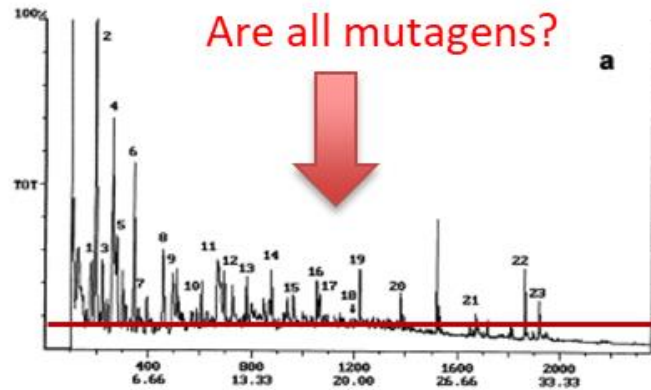
cadmium

dans votre assiette tout est chimique

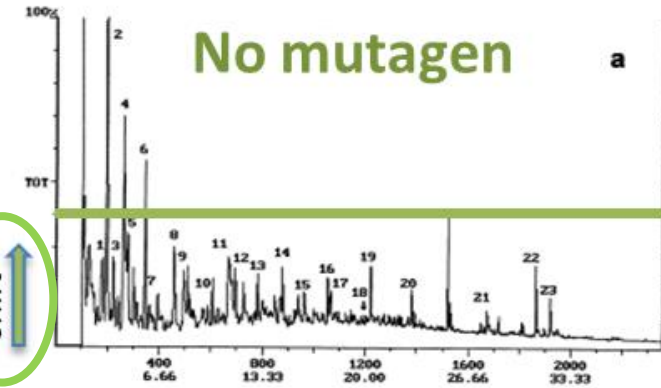
4-nonylphenol

hydroxymethylfurfural

— besoin de sensibilité (LOBDs /tox.)

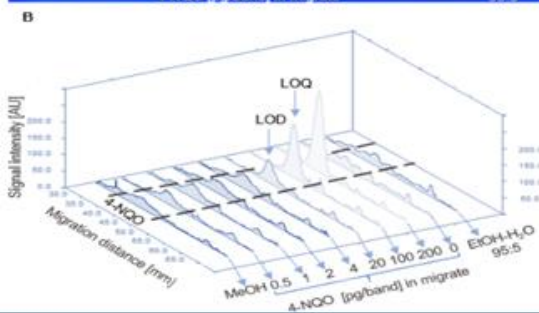
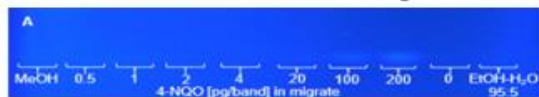


High
priority



MUTAGENICITY ASSESSMENT

HPTLC-bioassay



NanoAmes





Les MOTS CLÉS

- Dosage
- Alternative
- Directe
- Faible teneur
- Génotoxique
- Alimentation
- HPTLC



Parlons

HIGH-PERFORMANCE THIN-LAYER CHROMATOGRAPHY

Depuis 1998 l'association + le symposium international



Depuis 2003 le distributeur exclusif du matériel CAMAG



Depuis 1958 Leader mondial d'HPTLC INSTRUMENTALE

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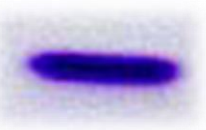
UNIVERSITÄT
GIESSEN

Institute of Nutritional Science, &
TransMIT Center of Effect-Directed Analysis



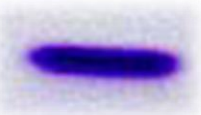
Research and
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Chemical Food Safety Group,
Société des Produits Nestlé SA - Nestlé Research



Les + de l'HPTLC

- Simplicité
- Rapidité
- Économie
- Écologie
- Sélectivité
- Adaptabilité
- Sensibilité
- Polyvalence
- Fiabilité
- Visibilité
- Orthogonalité
- Validité



Au commencement

1938 N.A.Ismailov et M.S.Shraiber 'ultra-chromatograms'

1951 J.G.Kirchner invente la CCM actuelle

1961 Merck Silica d'après Egon Stahl

1975 HPTLC et plaques greffées par E.Merck

1986 AMD par Klaus Burger de Bayer(ci-contre)

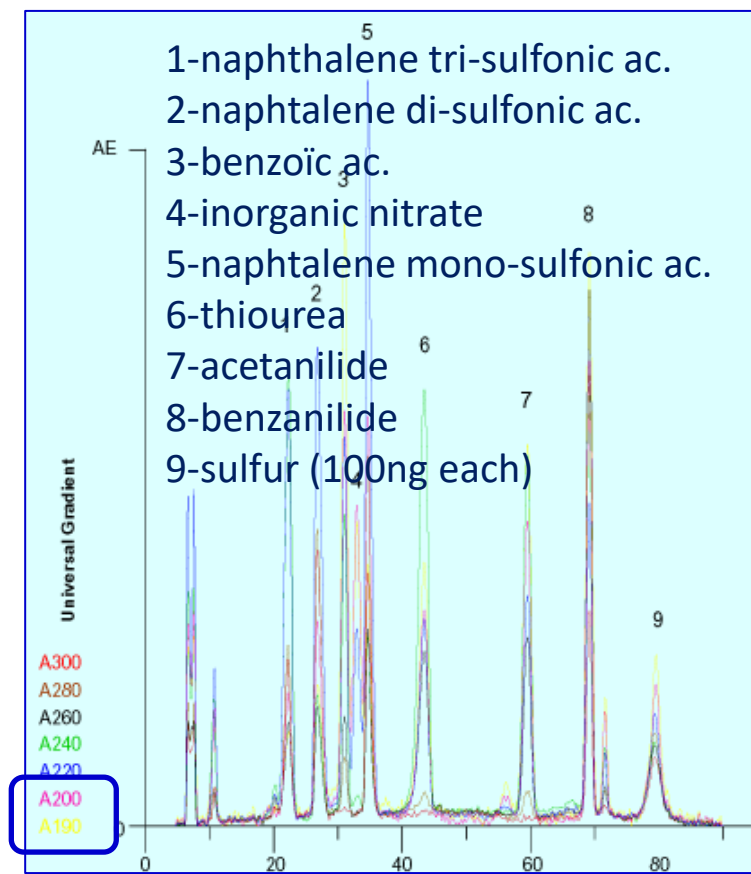
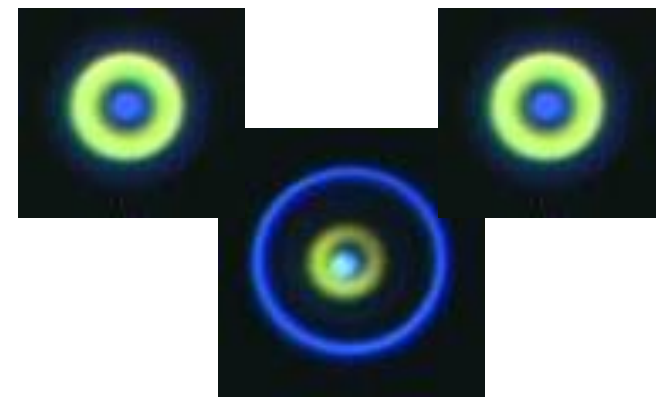
1990 DuoChrom (idem)

1995 Lichrospher par E.Merck

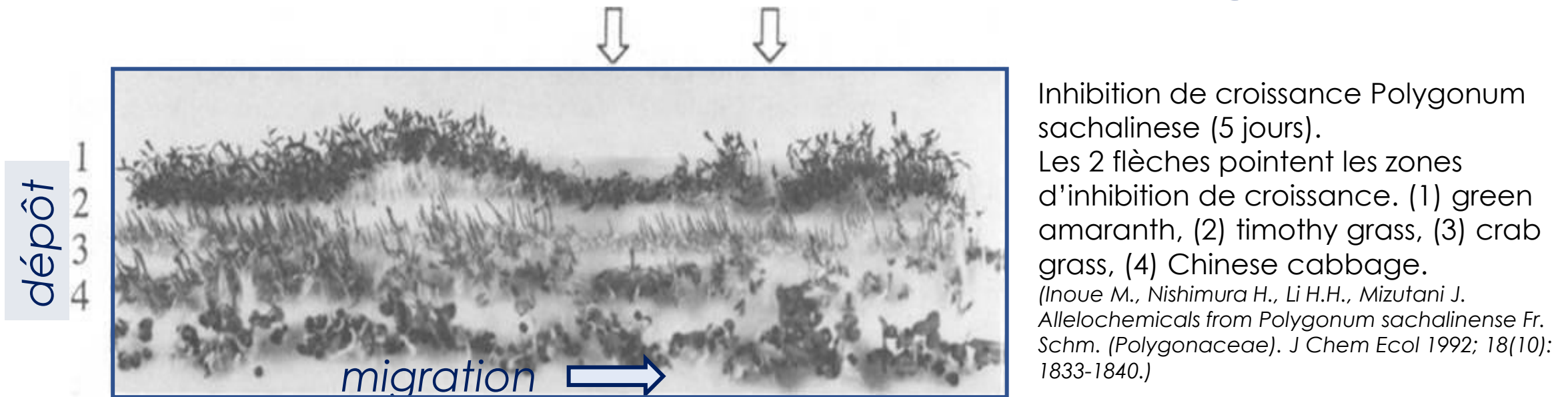
2001 UTLC par Heinz-Emil Hauck de Merck

2005 DART par Jeol : Pittcon's golden award

2010... couplages, détection d'activité, validation



La stratégie commence par la détection et l'imagination



méthode + ouverte : une idée
peut germer sur la plaque



CARACTERISTIQUES

L'HPTLC est une chromatographie liquide

+ Sélective que résolutive

moins précise mais



EXACTE

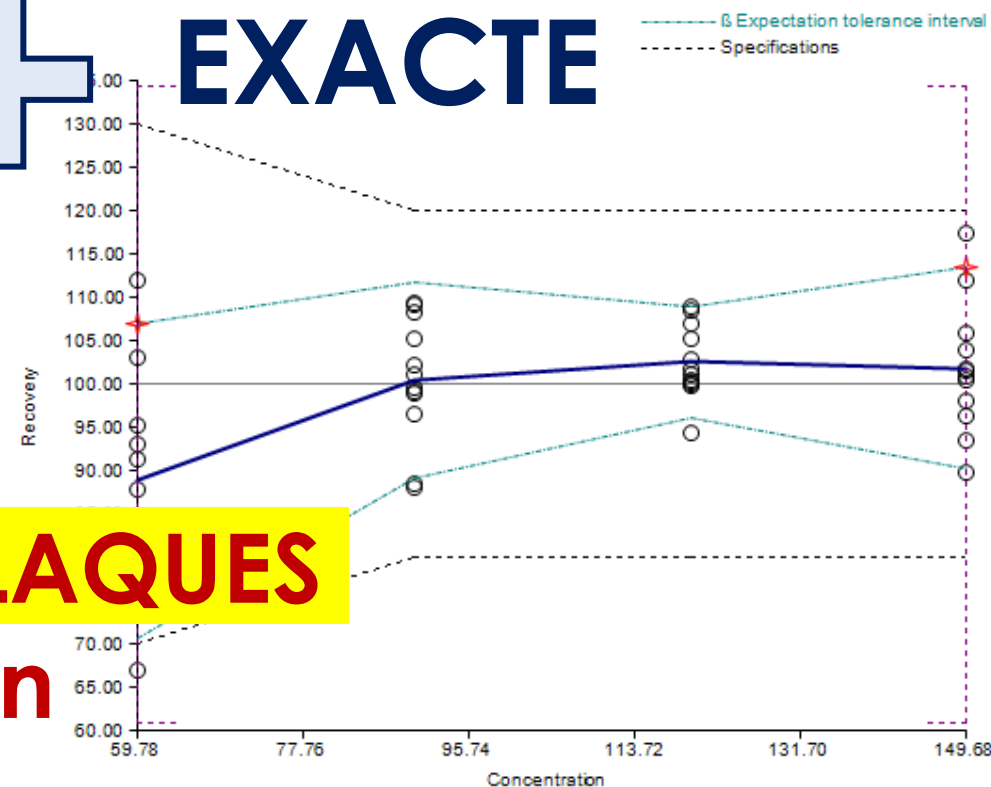
et quantitative



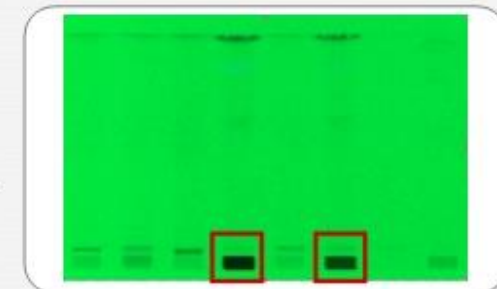
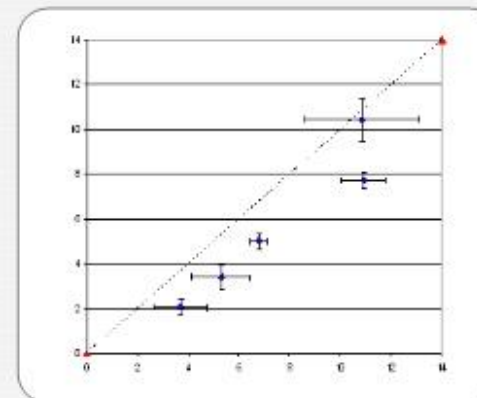
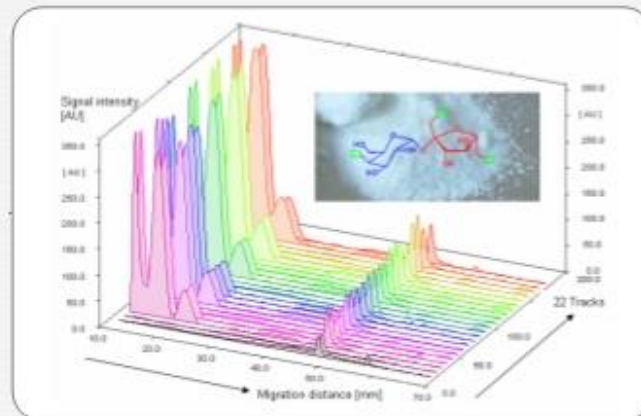
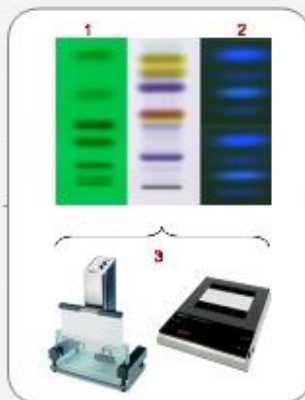
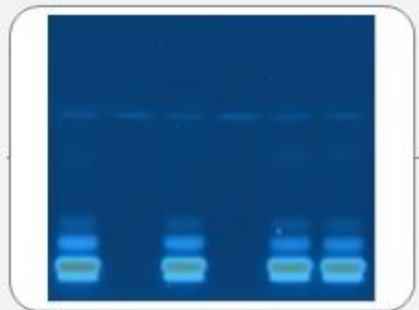
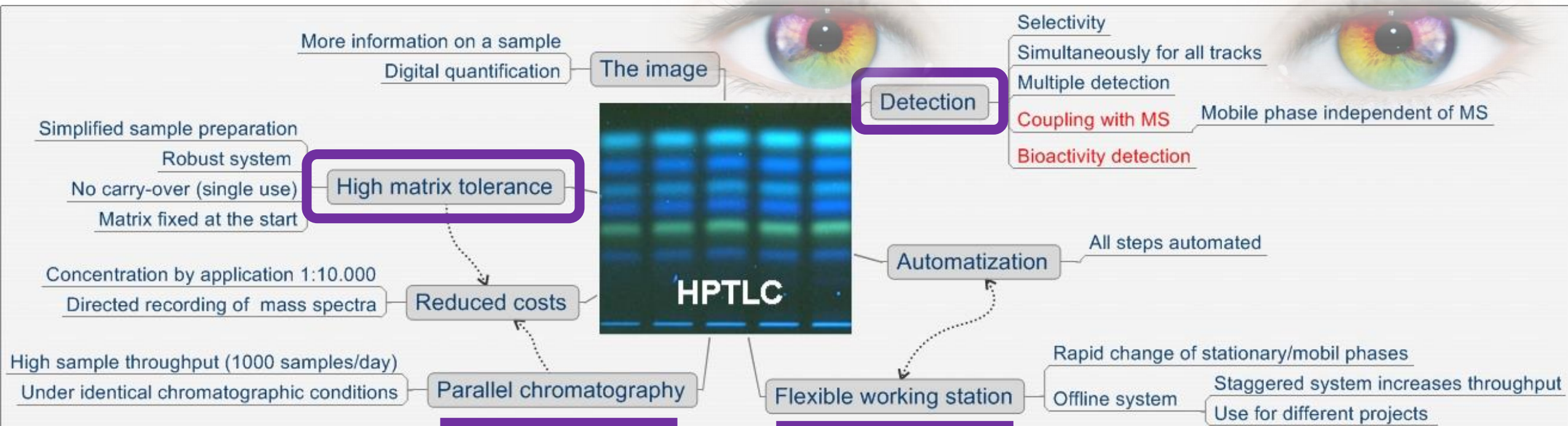
Validation analytique

NF V03-110 en – de 10 PLAQUES

**y compris avec détection
directe d'activité**

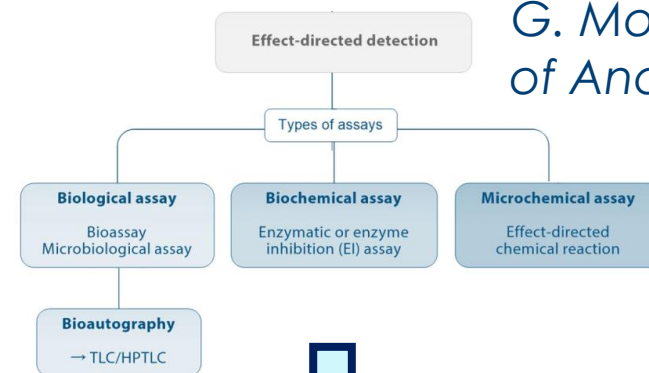
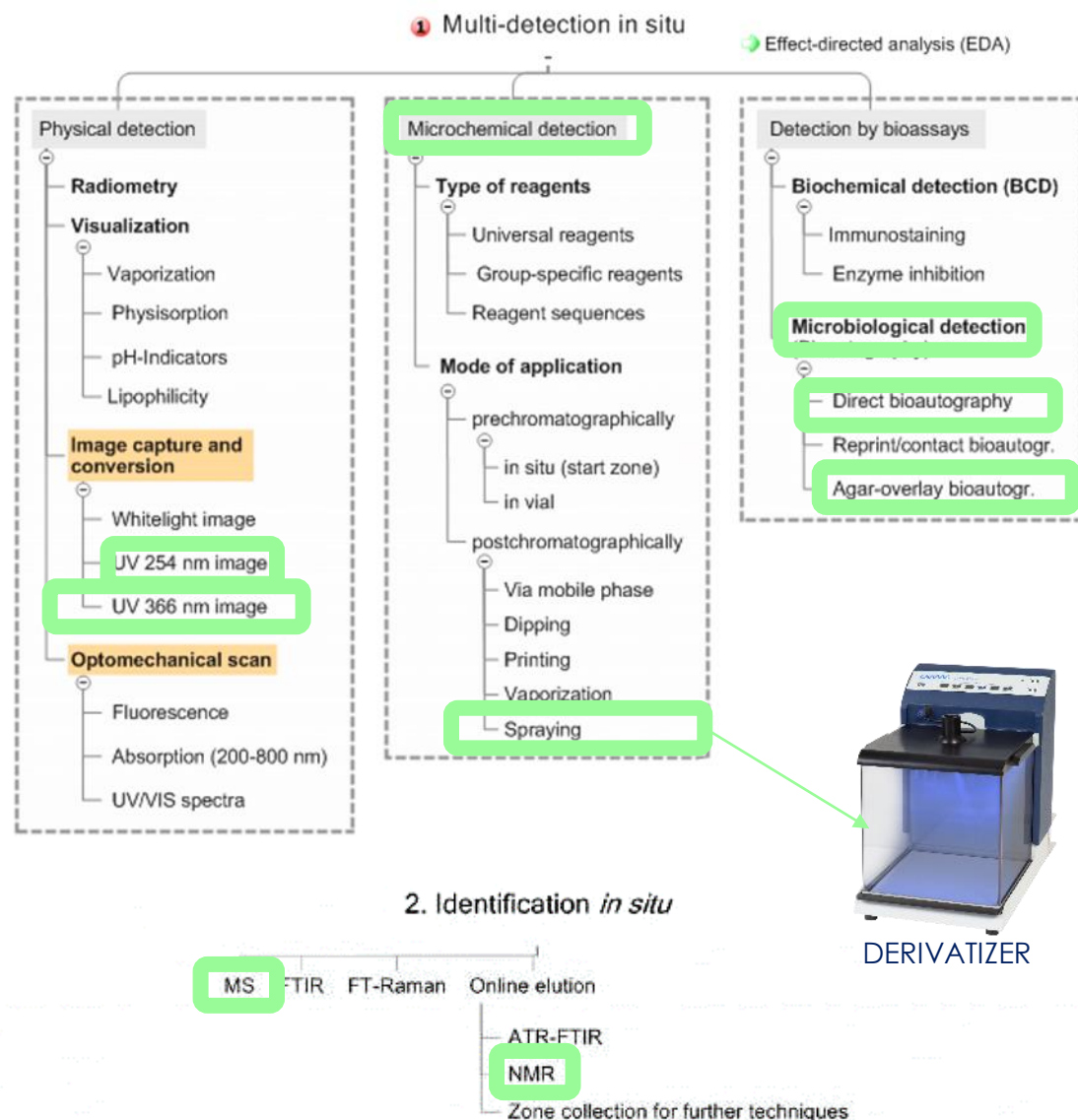


un simple coup d'oeil suffit

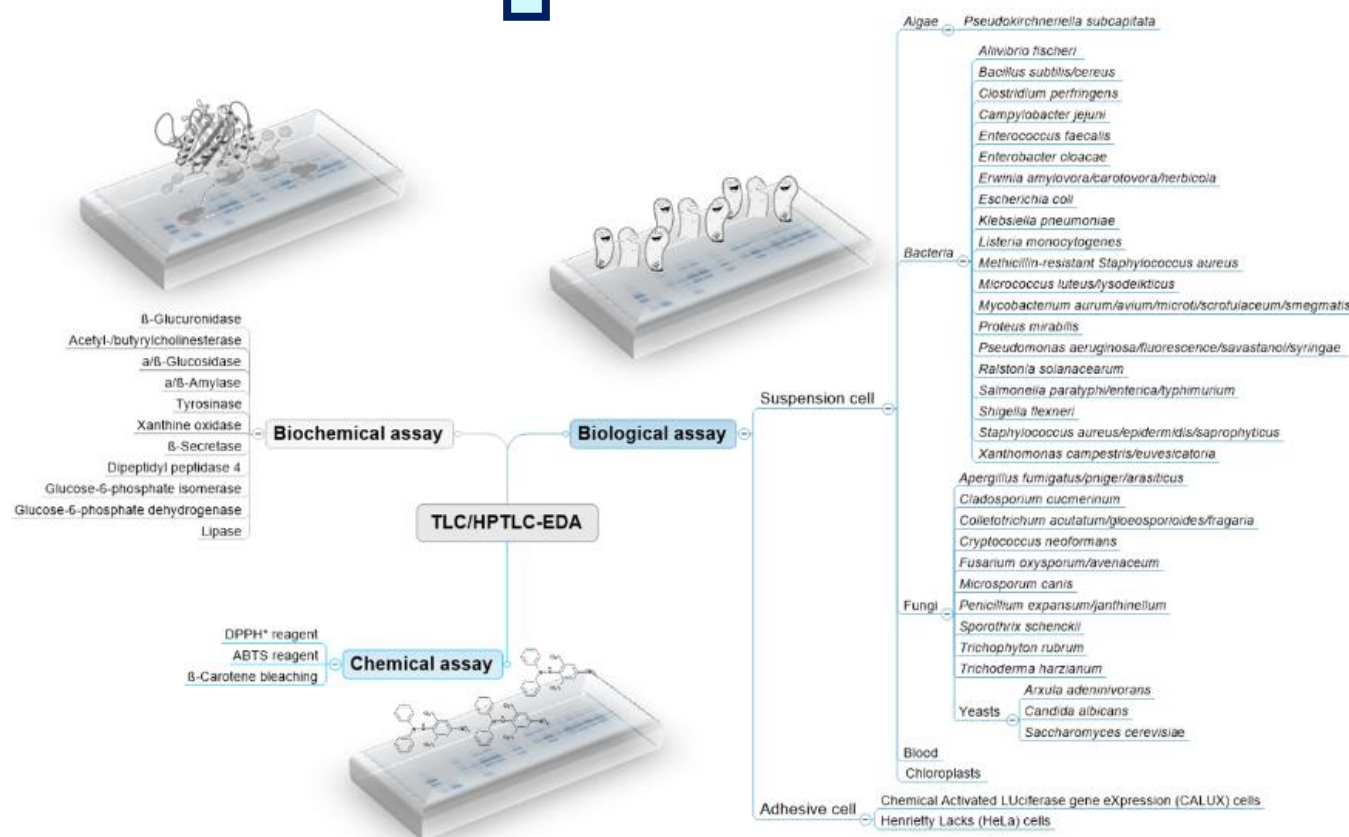


DETECTION

G. Morlock, Encyclopedia of Anal. Sci. 2019, 261-270



<https://www.uni-giessen.de/fbz/fb09/institute/ernaehrungswissenschaft/prof/Imw/Publications/peerreview>



G. Morlock, J. Chromatogr. A 1217, 2010, 6600-6609

G. Morlock, Anal. Chim. Acta, 2021, in revision

la PREUVE de concept (ça marche !)



ALTEX

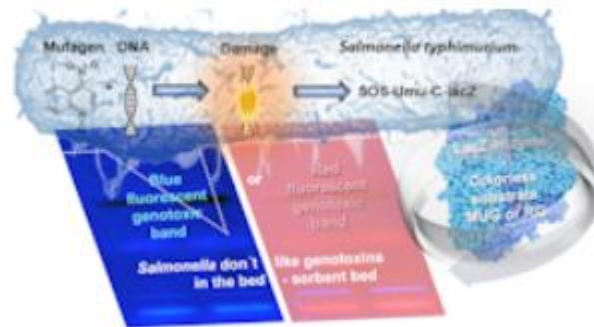
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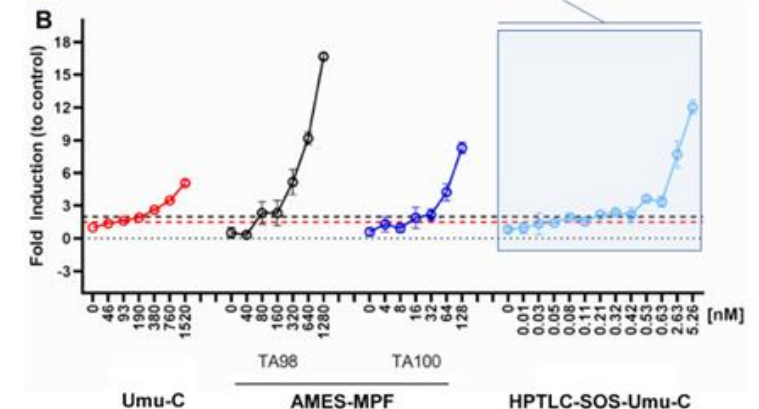
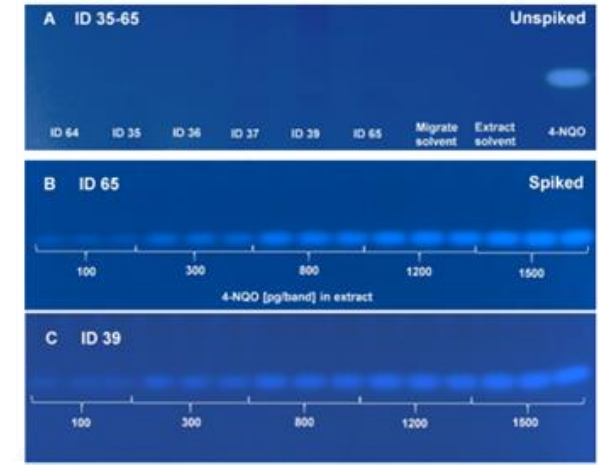
Detection of low levels of genotoxic compounds in food contact materials using an alternative HPTLC-SOS-Umu-C assay

Daniel Meyer¹, Maricel Marin-Kuan², Emma Debon², Patrick Serrant², Claudine Cottet-Fontannaz², Benoît Schilter² and Gertrud E. Morlock¹

¹Chair of Food Science, Institute of Nutritional Science, and TransMIT Center of Effect-Directed Analysis, Justus Liebig University Giessen, Giessen, Germany ²Chemical Food Safety Group, Société des Produits Nestlé SA - Nestlé Research, Vers-chez-les-Blanc, Switzerland

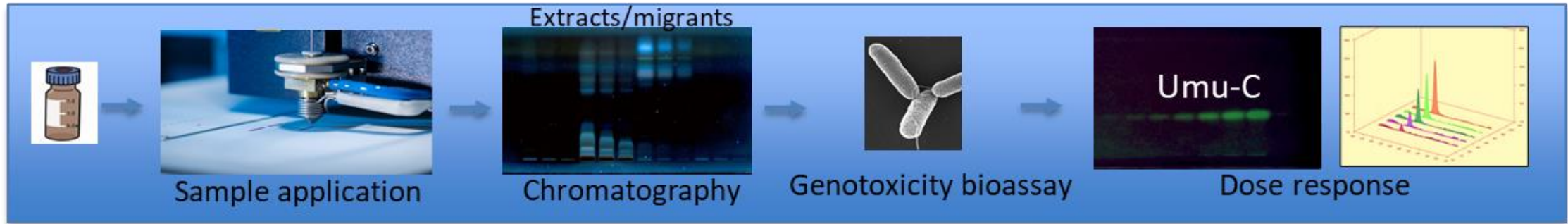


FCM

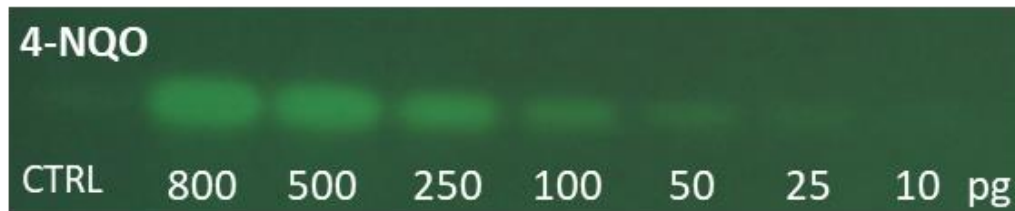


<https://www.altex.org/index.php/altex/article/view/1987>

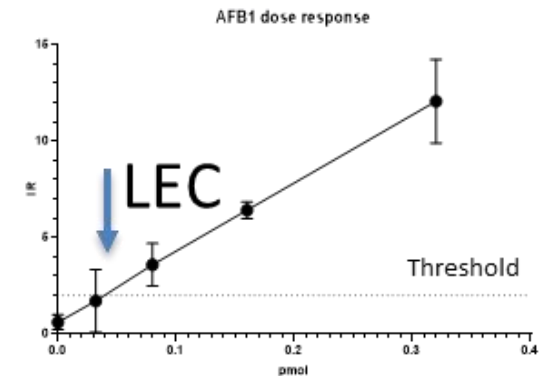
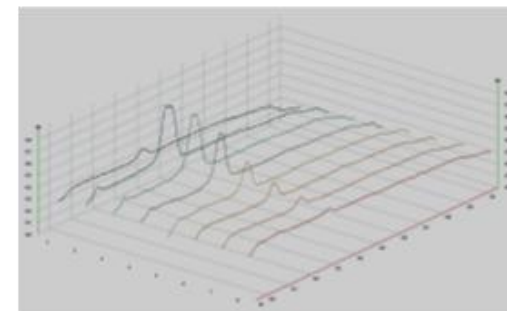
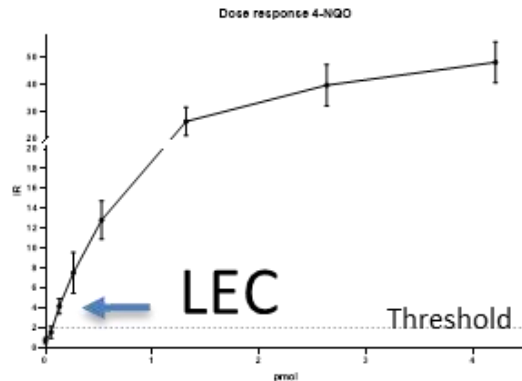
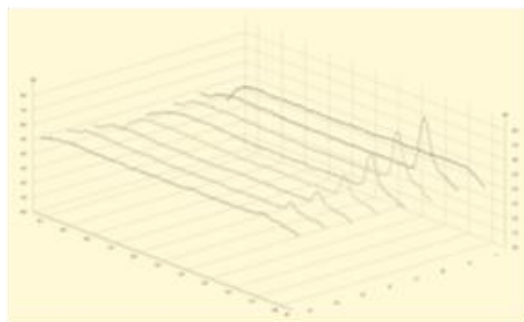
c'est un SUCCES (LOBD ok + ID simplifiée)



Without metabolic activation (n=3)



With metabolic activation (n=3)



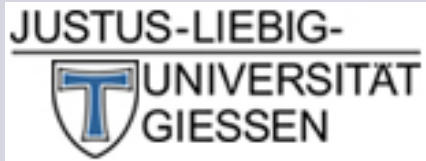
Manuscrit en préparation

Remerciements



Research

Maricel Marin-Kuan
Emma Debon
Helia Latado
Paul Rogeboz (Master)
Benoît Schitler
Gabriele Scholz



Gerda Morlock
Daniel Meyer (PhD)



Clermont Auvergne INP
Grande Ecole d'Ingénieurs

Isabelle Ripoché
Pierre Chalard



Tiên Do

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<https://www.chromacim.com/chromacim-a-vos-cotes/equipe>





le Club de CCM

Association scientifique fondée en 1998.

Organise, depuis, au moins deux réunions annuelles.

La prochaine réunion se tiendra à Clermont Ferrand
les 7-9 Juillet : 'que veut dire performance en HPTLC'

Forum Labo PARIS 6 Octobre après-midi

Organise 2001-2018 le Symposium International pour
l'HPTLC (clubccm@hptlc.com)