

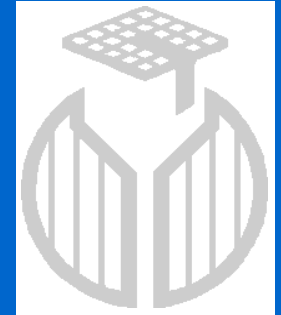
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Unité de brasserie et des industries alimentaires

Université catholique de Louvain

Faculté d'Ingénierie Biologique,
Agronomique et Environnementale

Earth and Life Institute (ELIM)



INBR

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INBR in a few words



A. Flavour Quality (aromas, polyphenols ..)



FLAVOURS IN FERMENTED FOODS



B. Flavour Stability through Food Processing and Storage

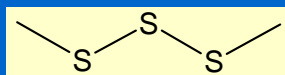
ELUCIDATION OF THE PATHWAYS LEADING TO BEER STALING

the main international contributions of our laboratory since 1990

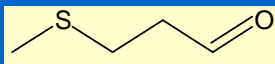
⇒ *trans*-2-Nonenal (cardboard)



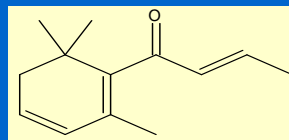
⇒ Dimethyltrisulfide (cabbage)



⇒ Methional (potato)

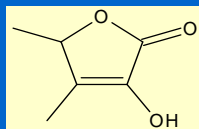


⇒ β -Damascenone (red fruit)



⇒ 4-Vinylsyringol (smoky, old)

⇒ Sotolon (Madeire)



⇒ Polyfunctional thiols (onion, empyreumatic, ribes)

PhD theses :

S. Noël (98) G. Lermusieau (02)
C. Liégeois (04)

L. Gijs (03)

Ph. Perpète (00)

D. Callemien (07)

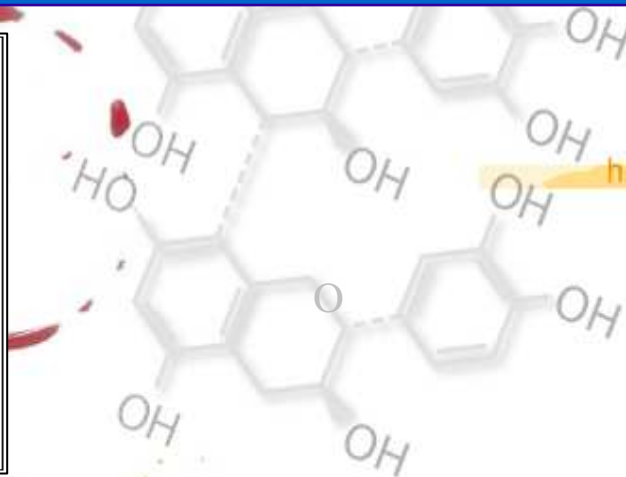
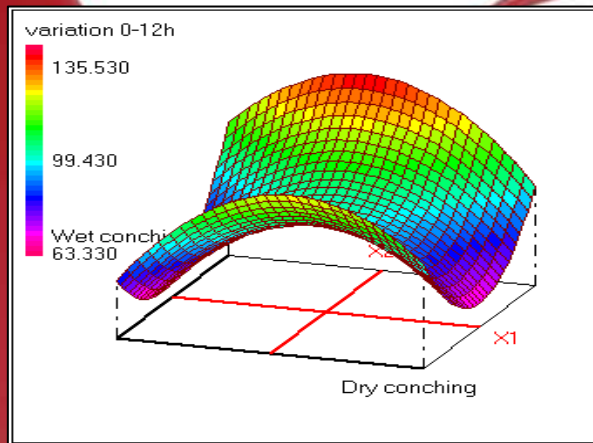
C. Vermeulen (05)
S. Bailly, J. Gros, Tran H.

C. Scholtes

NEW QUESTIONS : (CONSALIM, RW)

impact of organic raw materials, special malts, bottle refermentation, dry hopping...

Fundamental research in PhD theses → Discovery of resveratrol in cocoa (C. Counet 04) and hop (V. Jerkovic 07)



2008 • Louvain-la-Neuve
7 - 10 September

<http://www.declerckchair.com>

THE **POLYPHENOL** PARADOX
IN ALCOHOLIC BEVERAGES
A beer and wine paradox ?

CHAIR
J. DE CLERCK

M. BEGHERI
L. BLUYT
L. BELLESTE
V. DIEYONER
M. PASCAL
S. DE ROELINCK
S. GROBENCK
A. VERBRET
D. LAURELIA MONTAUDO
Ph. JAMMET
M. KENTIL
V. JERKOVIC

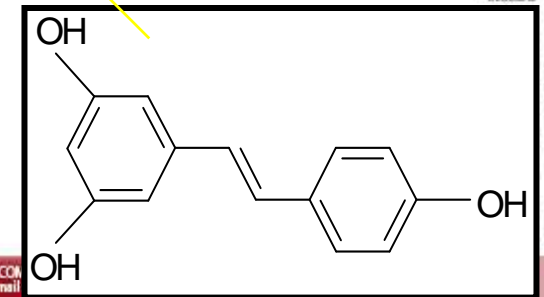
Applied research →

Patent n° EP1894473 : Method to increase the antioxidant activity of chocolate (with Puratos)

Patent n° WO2008 068344 : Spent hop products, their content in stilbenes and their use as antioxidant for comestible production (with AB-Inbev)

Service for industrials (CRQMB platform) →

Malt and beer analyses, yeast propagation, consultancy for improving the process, microbrewery, ..



CHAIR
J. DE CLERCK

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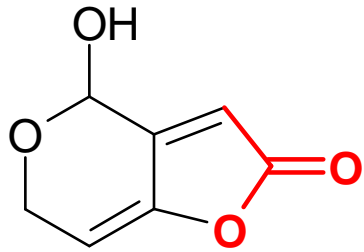
Malt and mycotoxins

in more details

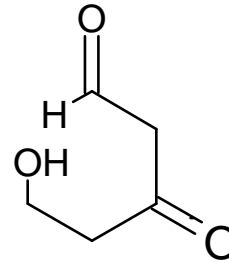
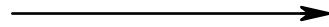
Mycotoxins

- Flavour indicators of mycotoxins (DON, patuline, OTA,..).
- Stability of mycotoxins and identification of some degradation products
- Proposals of detoxification processes

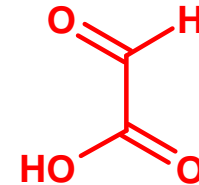
Detoxication of patuline at pH above 6 or in presence of sulfites



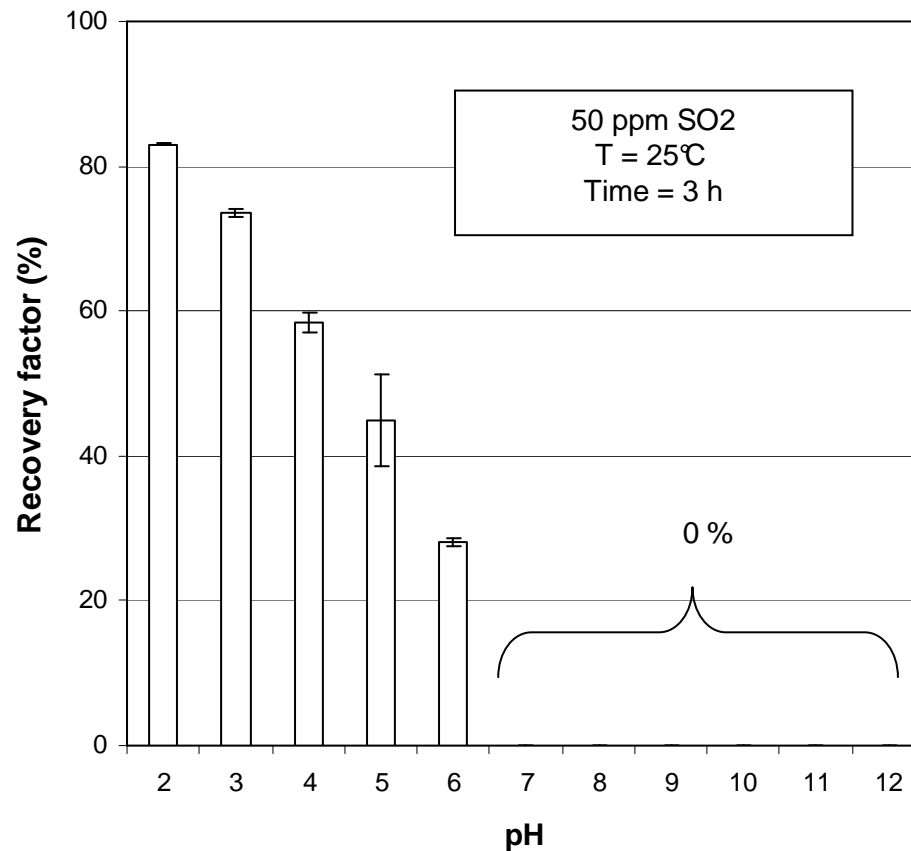
patulin



3-keto-5-hydroxypentanal

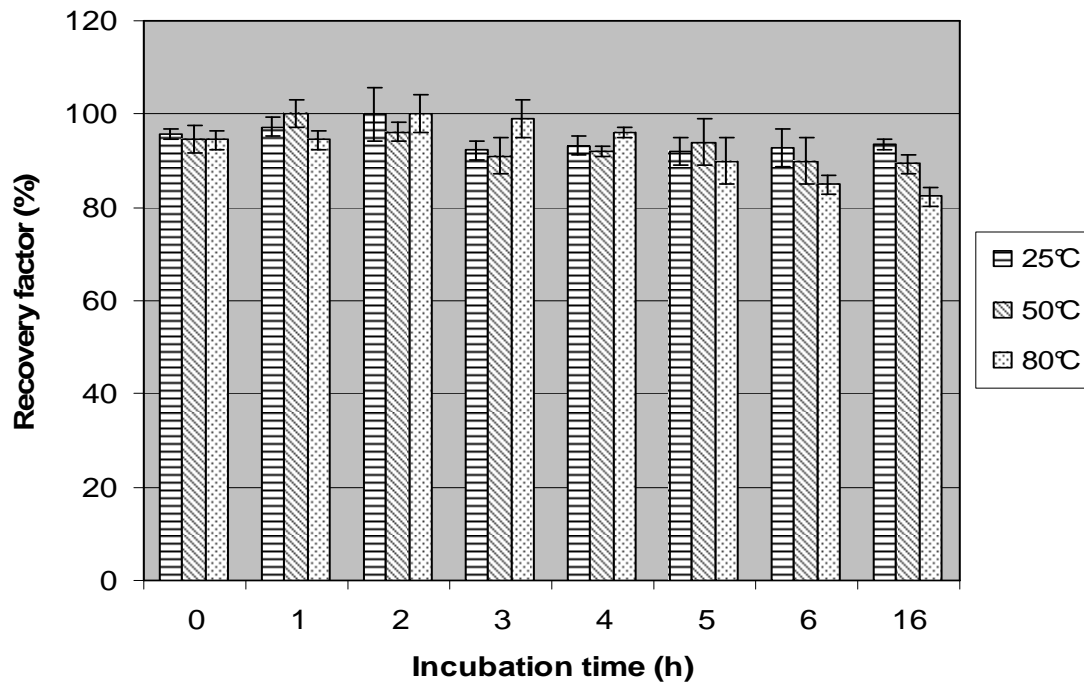
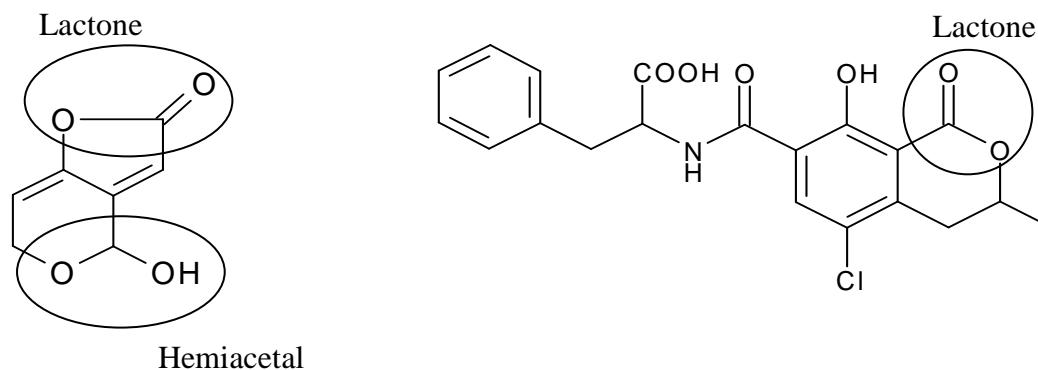


glyoxylic acid



Collin *et al.*, J. Inst. Brew.,
114 (2008) 67-171

Detoxication of OTA at high temperature if pH > 8.
 No effect of 50 ppm sulfites.



pH = 6
 50 ppm SO₂

ANALYTICAL POTENTIAL

- **SENSORIAL PLATFORM :**

- GC-Olfactometry
- GC-mass spectrometry
- 9 GC including static HS, Purge and Trap, SPME, on column&split/splitless AND FID, NPD, PFPD, Sievers)
- 6 HPLC including absorption UV, diode array, fluorescence, refractometer AND HPLC/MSⁿ : ESI & APCI
- Semi-preparative HPLC
- Antioxidant assays (AAPH, ..)
- Sensorial analysis (10 pers.)

- **BREWING TECHNOLOGY PLATFORM :**

- Fermentors/propagators : 300 & 30 L
- Beer production : 50L micro-brewery, 200l mash filter, continuous centrifugation
- **Yeast library**
- -80°C revco, microscopes, PCR, ultracentrifugators , ..