

Impact of VOC exposition and solar radiation on skin

Mickael le Behec¹, Bulteau Anne-Laure², Sylvianne Schnebert³, Carine Nizard³, Sylvie Lacombe¹

¹ IPREM UMR CNRS 5254 (Pau – France)

² Institut de Génomique Fonctionnelle de Lyon ENS de Lyon - CNRS UMR 5242 (Lyon – France)

³ LVMH Recherche (Saint Jean de Braye – France).



Mickael LE BECHEC
UMR CNRS 5254 IPREM

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IPREM
Institut des sciences analytiques
et de physico-chimie
pour l'environnement et les matériaux

Objectives

Exposure of keratinocytes and skin biopsies to:

1. Mix of Volatils Organic compounds (VOC) representative of indoor air pollution:

- Acetaldehyde
- Formaldehyde
- Acetone
- Hexane
- Toluene

Concentrations adjusted to the survival of the biological model

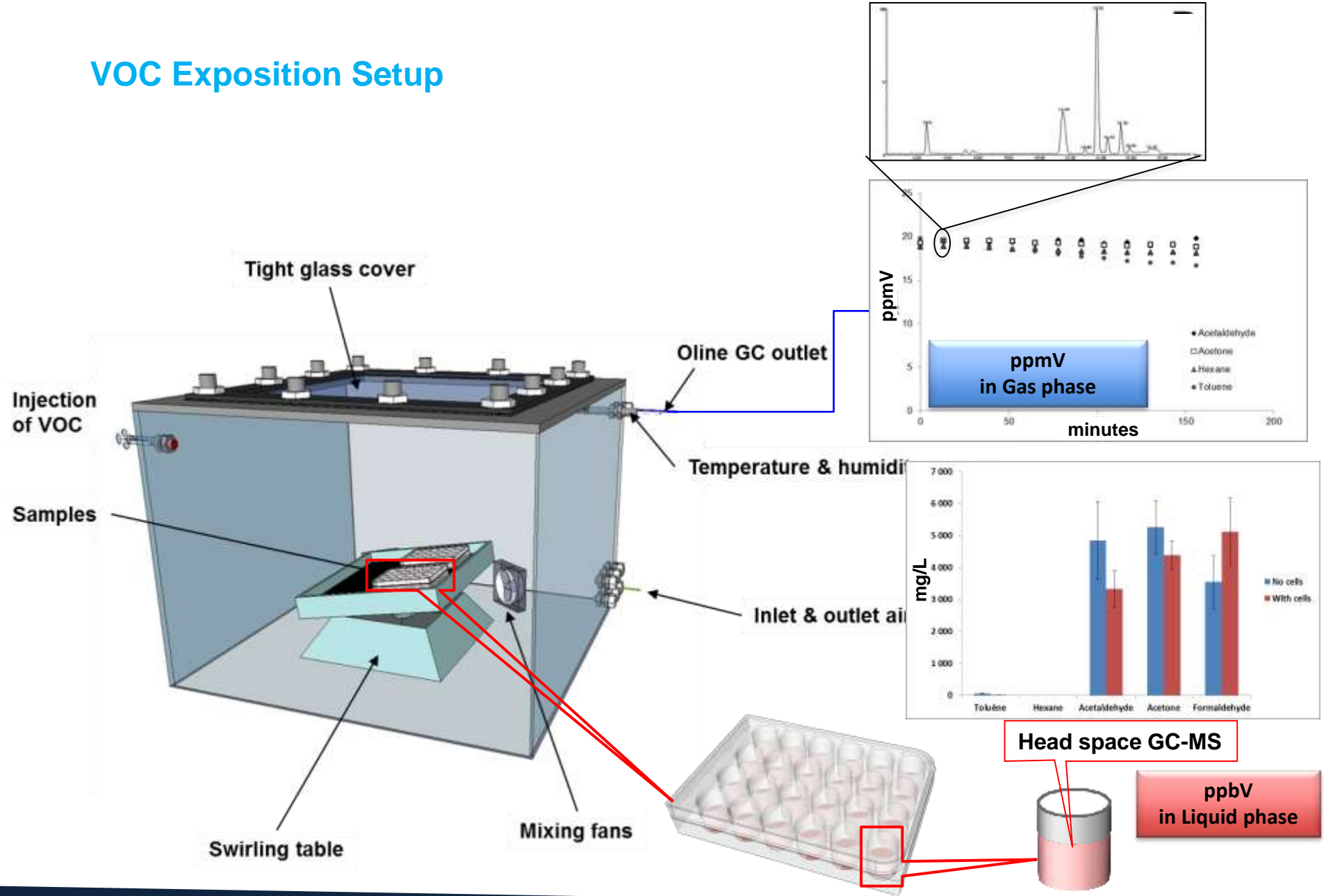
2. Solar radiations:

- UVA ($\sim 3 \text{mW cm}^{-2}$)
- UVA/UVB (1/22)

Measurement of the biological response

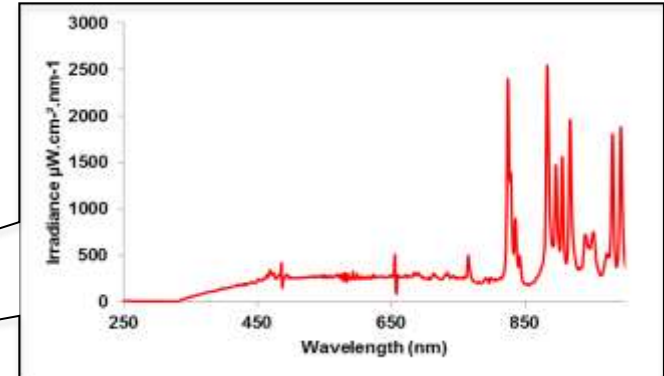
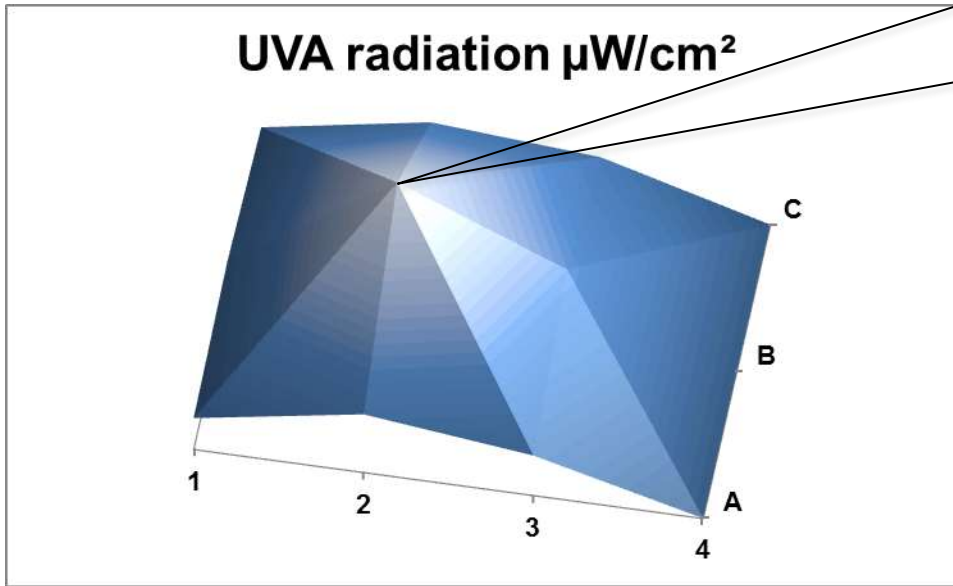
Test of cosmetic formulations

VOC Exposition Setup



Solar UV Exposition Setup

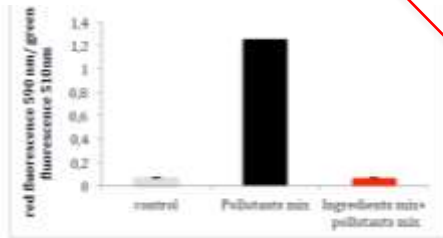
- ❑ 300 W Xenon Lamp with dichroic mirror and UV filters
- ❑ Irradiance cartography
- ❑ UVA $\sim 3 \text{ mW cm}^{-1}$ UVA/UVB = 1/22



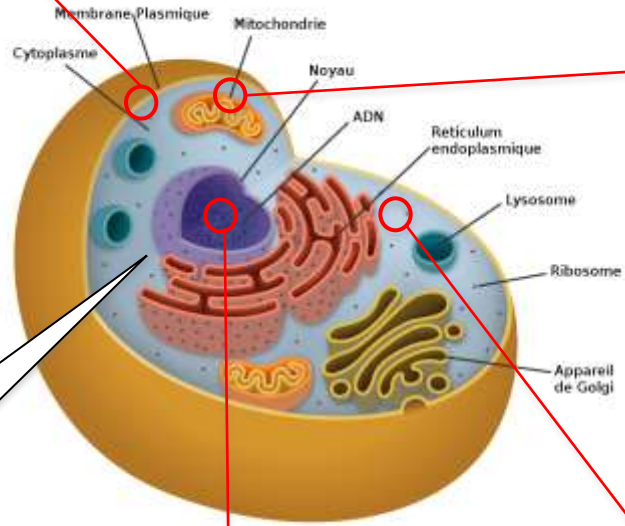
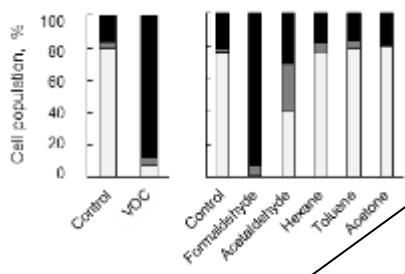
	$\mu\text{W}/\text{cm}^2$
UV C (200 - 280 nm)	2758.97
UV B (281 - 315 nm)	142.89
UV A (315 - 380 nm)	3078.13
Visible (380 - 780 nm)	99494.53
Total (200 - 1100 nm)	264020.09

Biological Measurements on Cells and Biopsies (see Anne Laure BULTEAU)

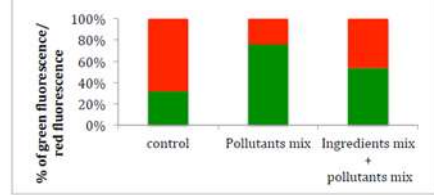
Lipid peroxidation



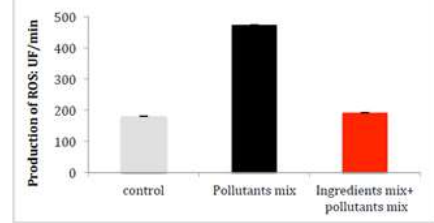
Cell Survival



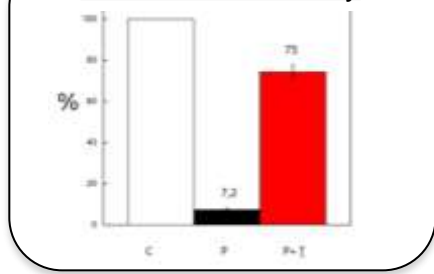
Mitochondrial membrane potential



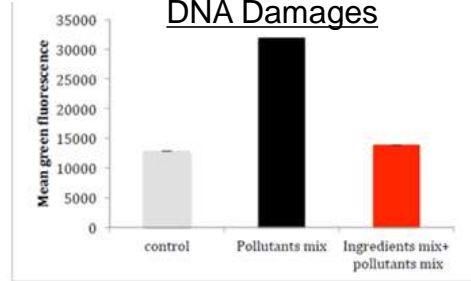
ROS



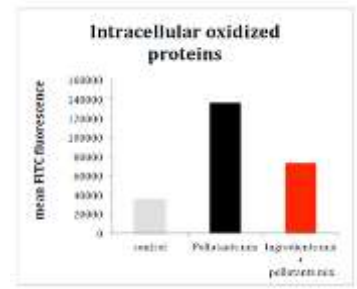
Proteasome Activity



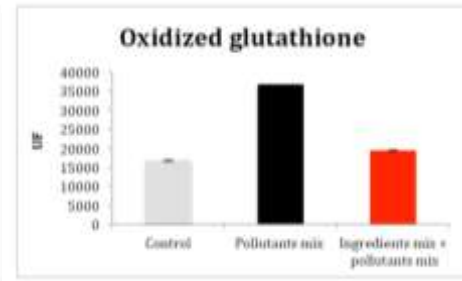
DNA Damages



Oxidative Stress



Oxidized glutathione



Thanks for your attention

CONTACT

Mickael LE BECHEC
CNRS Engineer, PhD

UMR CNRS 5254 IPREM

mickael.lebechec @univ-pau.fr



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