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### ► To cite this version:

Barbara Gouble, Thibault Cagnon, Patrice Reling, Carole Guillaume. Tailorpack: active tailor made and eco-friendly packaging for fresh fruit and vegetable preservation. 1st Euro-Mediterranean Symposium on Fruit and Vegetable Processing, Apr 2011, Avignon, France. 2011. hal-02811096

**HAL Id: hal-02811096**

**<https://hal.inrae.fr/hal-02811096v1>**

Submitted on 6 Jun 2020

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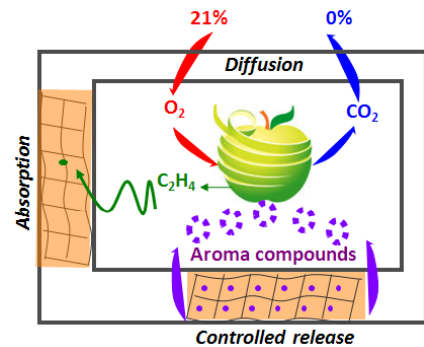
# Tailorpack : Active tailor made and eco-friendly packaging for fresh fruit and vegetable preservation

**Barbara Gouble<sup>1\*</sup>, Thibaut Cagnon<sup>2</sup>, Patrice Reling<sup>1</sup>, Carole Guillaume<sup>2</sup>**

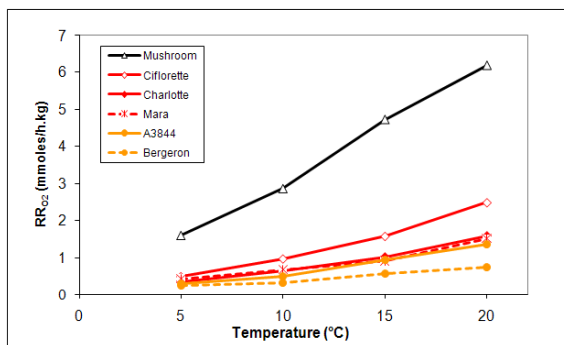
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Through a global and trans-disciplinary approach based on modelling tools, the Tailorpack project aims to design and dimension multilayered composite materials at a nanometric scale constituted by a fibres based support, protein and nanoparticles based layers for controlling mass transfer: gas, water vapour and active compounds. We present here the results concerning  $O_2$  and  $CO_2$ .



## Product knowledge



Temperature influence on Respiration Rates of mushroom, strawberry (3 cv.) and apricot (2 cv.)

- Availability of physiological parameters for virtual MAP building:  $RR_{O_2}$ ,  $RR_{CO_2}$ , Respiratory Quotient and  $Q_{10}$  (multiplying coefficient for a 10 $^{\circ}C$  increase).

- Availability of optimal storage atmospheres.

- Apparent  $K_m$  for respiration is under validation for strawberry and apricot with new respirometers.

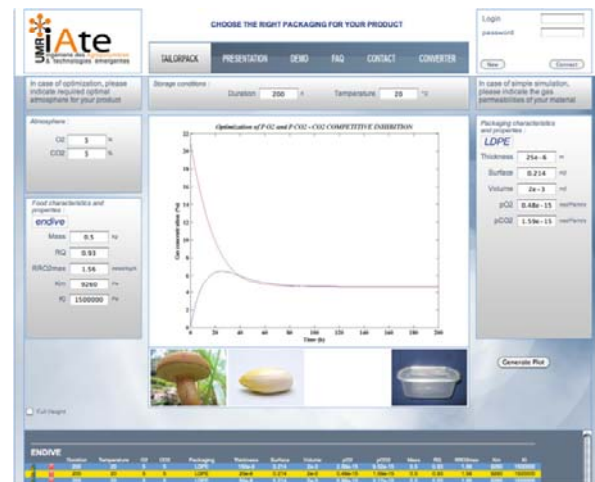
	Storage days					
	0	1	2	3	4	5
<b>Mushroom</b>	2.51					
<b>Ciflorette</b>		<b>2.89</b>	2.42			
<b>Charlotte</b>	2.62	2.78	<b>3.40</b>			
<b>Mara</b>	2.24	2.53	<b>2.64</b>			
<b>A3844</b>	2.48	3.13	2.79	<b>3.33</b>	3.29	
<b>Bergeron</b>	2.34	2.16	<b>2.89</b>	2.39	2.48	2.25

$Q_{10}$  evolution of mushroom, strawberry (3 cv.) and apricot (2 cv.)

## Modelisation

- Availability of packaging requirements according to virtual MAP
- Identification of  $O_2$  and  $CO_2$  permeability windows by using physiological parameters and optimal atmosphere

<http://www.tailorpack.com>



## Validation

- At laboratory and pre-industrial levels, some packaging material have been elaborated and tested for their permeability characteristics.

- Transfer to industrial scale is under going and validation with F&V trials is planned in few weeks.

During 3 years, the Tailorpack project had led to collect a lot of data, to develop an internet website and to elaborate gluten/paper packaging.

Studies continue on layers by layers deposit, ethylene absorption and aroma compounds effects, with validations this year.

Tailorpack partners:

