



HAL
open science

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

Barbara Gouble, Thibault Cagnon, Patrice Reling, Carole Guillaume

► 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

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

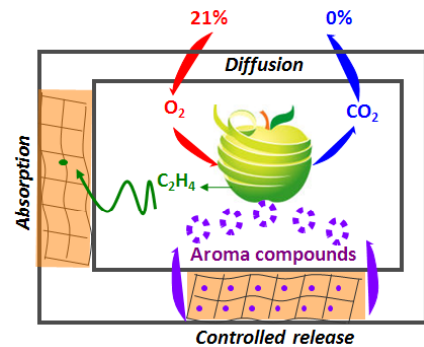
Tailorpack : Active tailor made and eco-friendly packaging for fresh fruit and vegetable preservation

Barbara Gouble^{1*}, Thibaut Cagnon², Patrice Reling¹, Carole Guillaume²

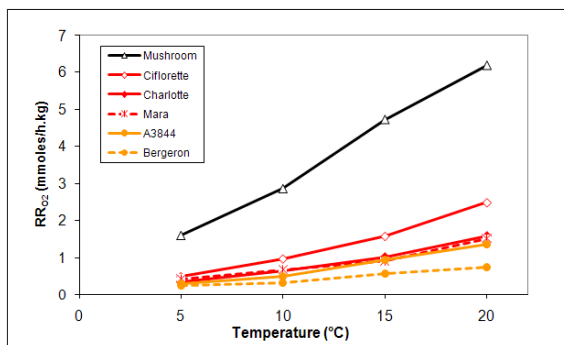
¹INRA, Université d'Avignon, UMR408 Sécurité et Qualité des Produits d'Origine Végétale, 84000 Avignon, France

²Université Montpellier2, INRA, Montpellier SupAgro, CIRAD, UMR1208 IATE « Agropolymers Engineering & Emerging Technologies, F-34000 Montpellier

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
Mushroom	2.51					
Ciflorette		2.89	2.42			
Charlotte	2.62	2.78	3.40			
Mara	2.24	2.53	2.64			
A3844	2.48	3.13	2.79	3.33	3.29	
Bergeron	2.34	2.16	2.89	2.39	2.48	2.25

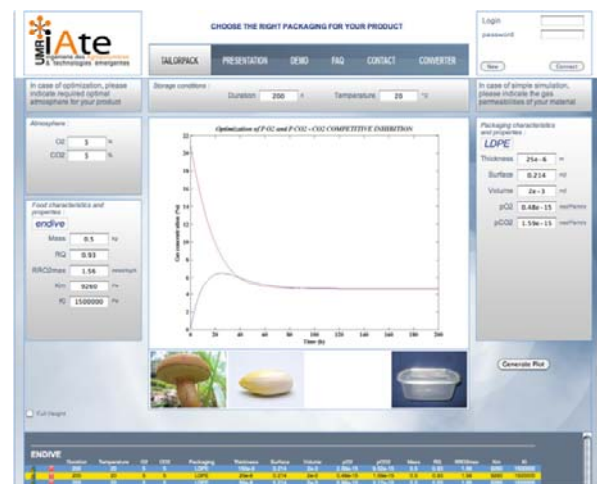
Q_{10} evolution of mushroom, strawberry (3 cv.) and apricot (2 cv.)

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:

