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QUAFETY: A EU-FUNDED PROJECT ON QUALITY & SAFETY OF FRESH-CUT PRODUCE

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- INTRODUCTION
 - PROJECT **QUAFETY**
 - STATE OF THE ART
 - DISSEMINATION
 - CONCLUSIONS



INTRODUCTION

READY-TO-EAT
FRESH FRUIT
& VEGETABLES
MIGHT BE
DESCRIBED AS
“*FRESH F&V
THAT ARE
WASHED,
PEELED, CUT
IN PORTIONS,
AND PACKED
IN BAGS OR
TRAYS*”

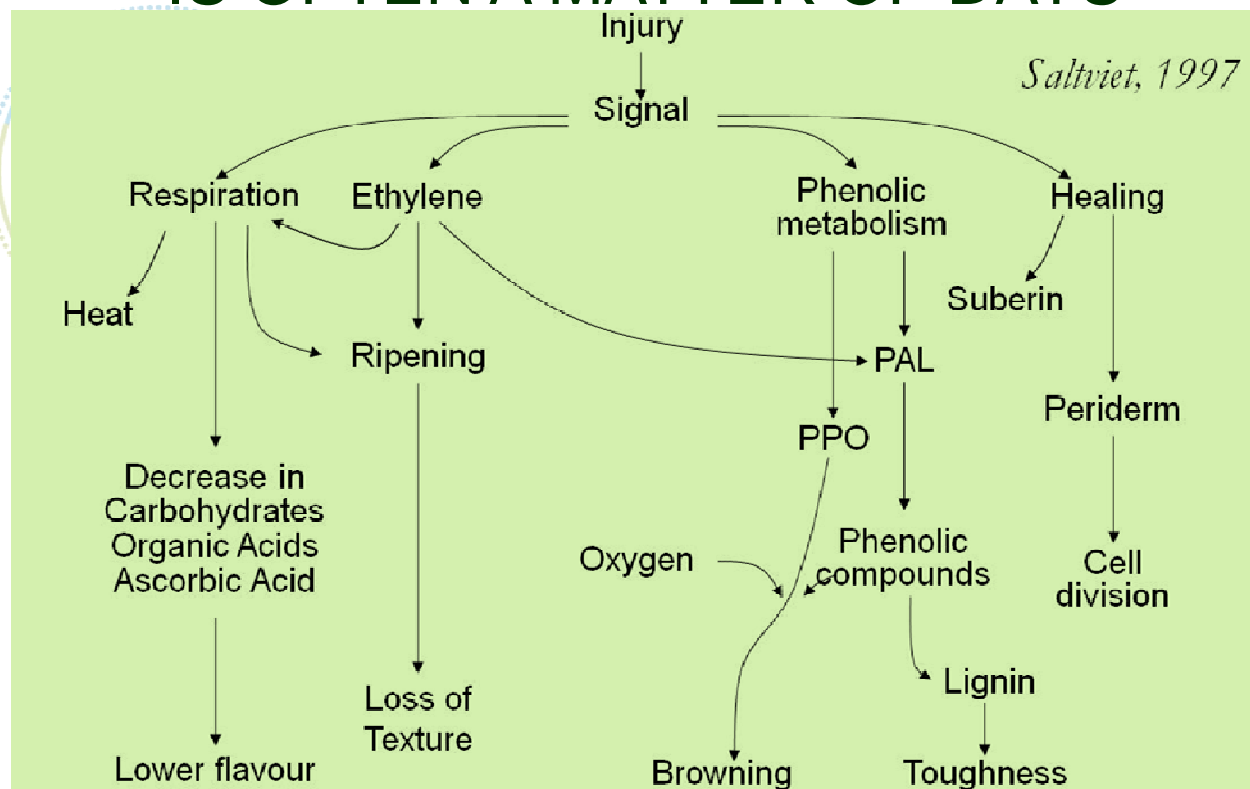


Preparation of RTE fresh produce **does not** include a **killing step**, or a *treatment which determines a negligible final microbial count*

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BEING CONSTITUTED BY LIVING CELL
TISSUE, RAPIDLY METABOLIZING,
ESPECIALLY WHEN PEELED AND CUT
IN PORTIONS FOR HIGHER
CONVENIENCE, QUALITY TRAITS
DEGRADE VERY FAST AND SHELF LIFE
IS OFTEN A MATTER OF DAYS



FOR ALL THESE
REASONS
FRESH-CUT F&V
REPRESENT
A VERY
INTERESTING
SYSTEM
WHERE THE
NEED OF
IMPROVEMENTS
IN TERMS OF
SAFETY &
QUALITY IS OF
PARAMOUNT
IMPORTANCE



PROJECT QUAFETY



SEVENTH FRAMEWORK PROGRAMME
THEME 2: Food, Agriculture and Fisheries, and Biotechnology
Collaborative Projects KBBE.2011.2.4-01



COMPREHENSIVE APPROACH TO ENHANCE *QUALITY & SAFETY* OF READY-TO-EAT FRESH PRODUCTS

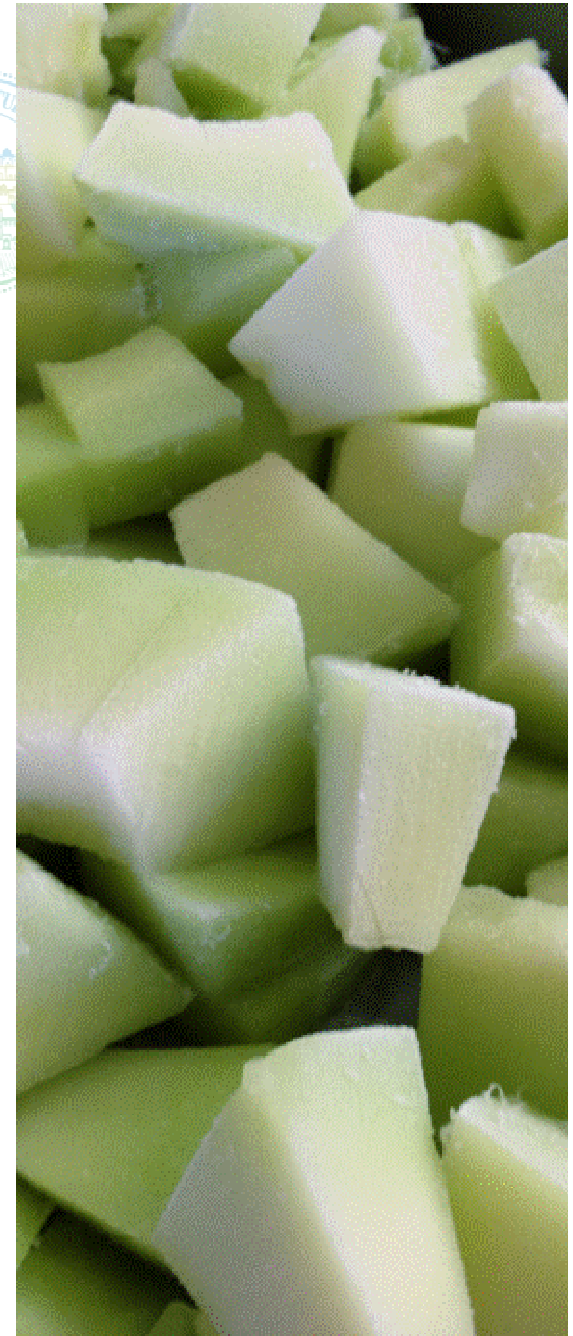


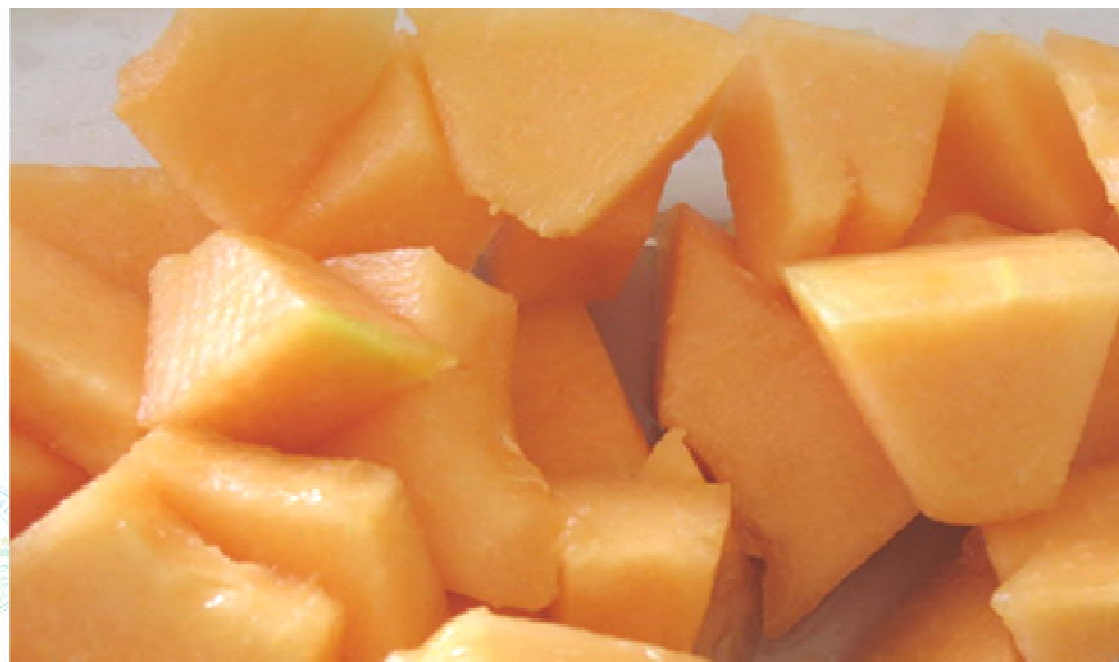
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QUAFETY aims to improve
SAFETY & QUALITY of fresh-cut
F&V throughout the whole chain

- *by developing new predictive and probabilistic models and decision-making tools*
- *by exploring rapid and non-destructive methods for quality evaluation and prediction,*
- *by applying novel technologies to quantify and manage spoilage and pathogenic microorganisms, minimizing risks to consumers and preserving quality*





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WP1

DIAGNOSTIC KITS

Fast and reliable tools in order to trace *L. monocytogenes* and *E. coli* O157:H7

Identification of molecular markers to evaluate quality

Identification of molecular markers to identify microbial contaminant

Prevalence of *L. monocytogenes* and *E. coli* O157:H7

WP2

PROCESS CONTROL

Predicting nutritional and organoleptic quality based on external attributes degradation kinetics

Evaluation of SPME VOC collection for non-destructive analysis of post-harvest quality

Nutritional and functional audit to the process of fresh-cut fruits and vegetables and other lightly processed convenience food

Identification of markers for nutritional and functional quality

WP3

DECISION SUPPORT

Ideal melon for preparing RTE products: model and application

Development of models to predict the barrier properties of polymeric films intended for packaging application

Determination of single cell lag phase duration of pathogens in various environmental conditions

Model-driven control of spoilage and off-flavour in RTE fresh-cut fruit

Providing an ad-hoc model for an ex-ante appraisal of investments in technology & packaging of RTE fresh products

Developing physiology-based models to assess the benefits of MAP on fresh-cut fruit and vegetables

WP4

INNOVATIVE PROCESSES

Effect of hot water treatments on nutritive and sensory quality and on safety of fresh-cut vegetables

Automatic line for hands-off fresh-cut melon processing based on machine vision

UV treatments for improving quality and safety of fresh-cut produce

Passive refrigeration system (PRS) to ensure farm-to-fork cold chain

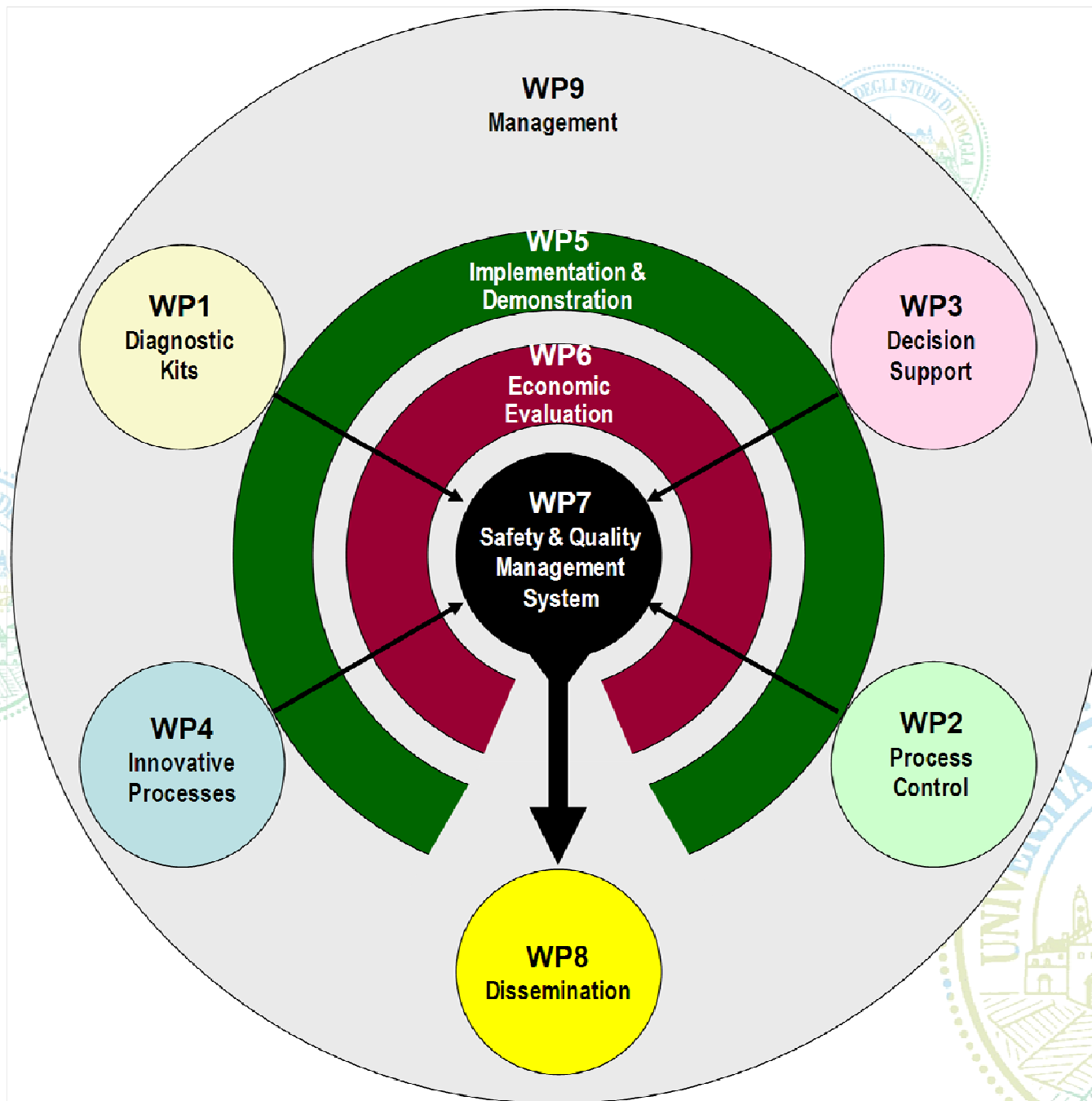
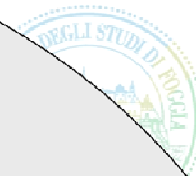
Inhibition of biofilm formation by *L. monocytogenes*

Active intelligent packaging

Improving produce quality and safety through soilless cultivation systems

Innovative chlorine-alternative method for water and product disinfection

Novel sustainable physical method for melon surface decontamination

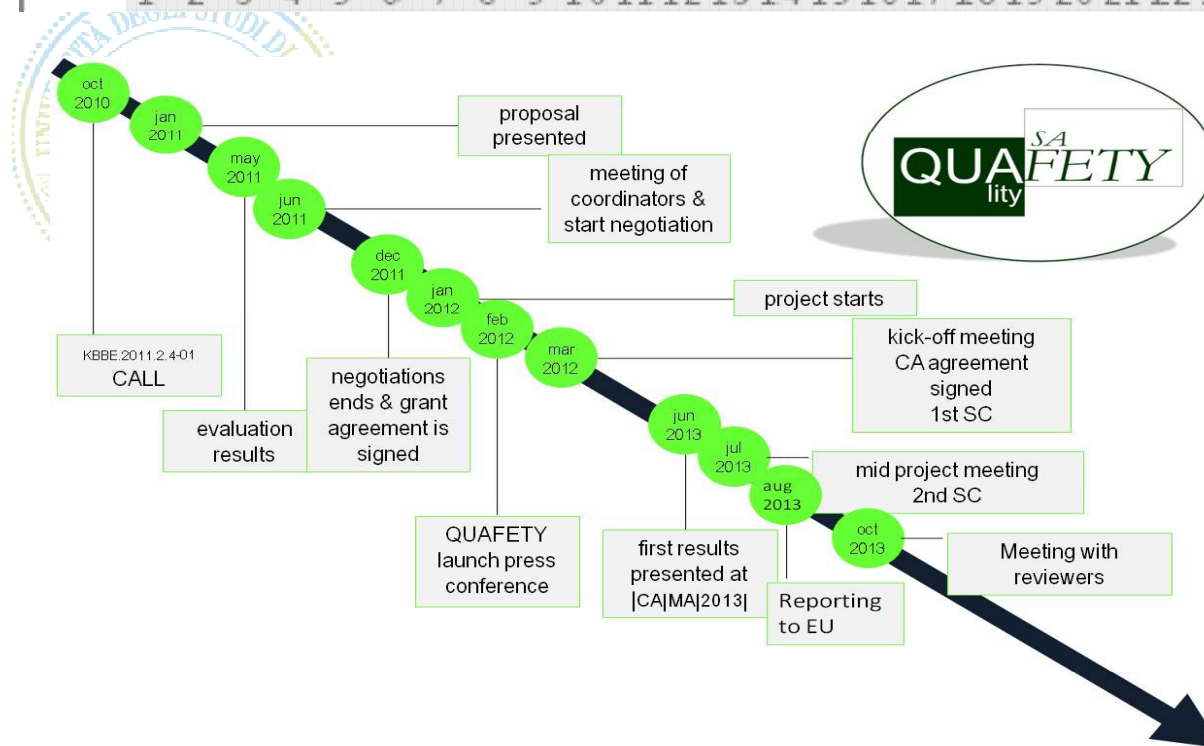
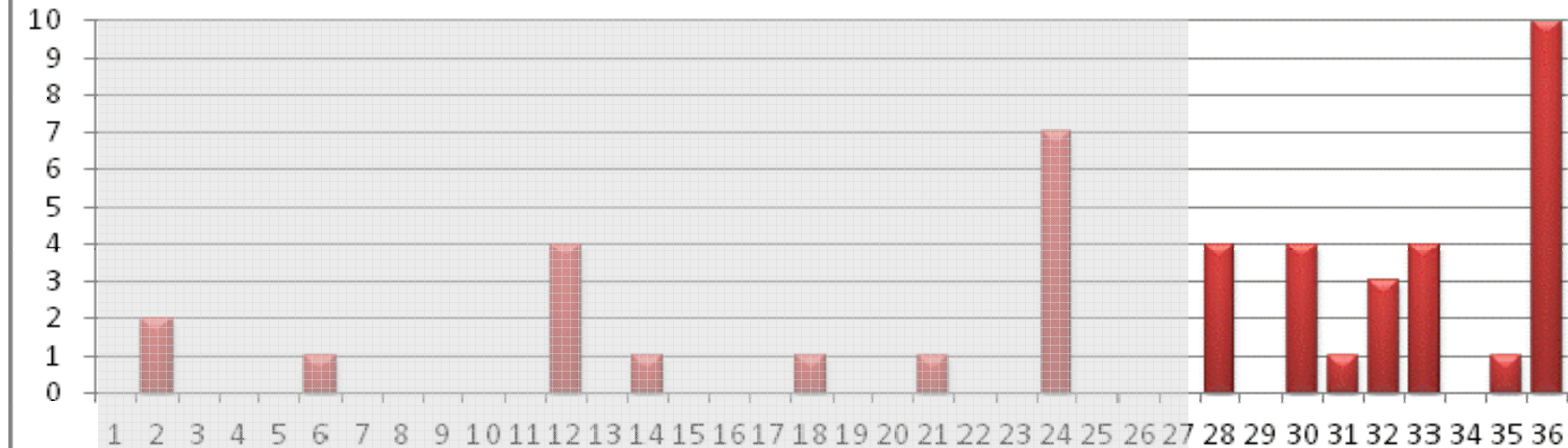




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No. of Deliverables vs. Project month





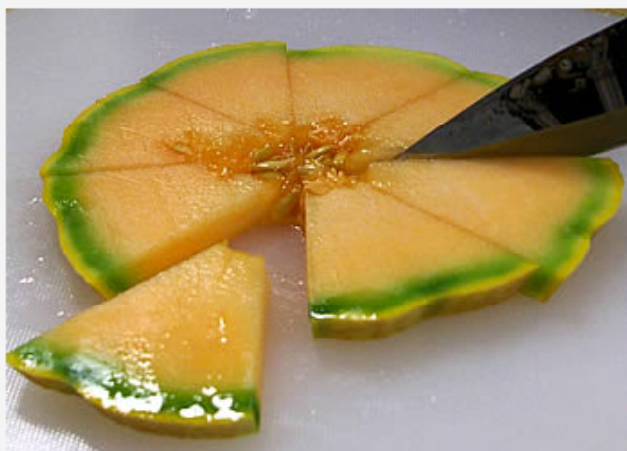
DISSEMINATION



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QUAFETY



Project Updates

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Press: QUAFETY results presented at [CA]MA[2013]

A short communication regarding dissemination activity of QUAFETY partners at [CA]MA[2013] (XI International Controlled and Modified Research Conference, 3-7 June 2013, Trani Italy), has been published on the Italian journal *Frutticoltura*... [more](#)

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QUAFETY at the Technical Mission Europe - MAC Frut 2013

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MicrosoftInternetExplorer4 ... [more](#)

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Dissemination of QUAFETY results during the Workshop "Sicurezza"



Desktop

IT

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Verduras	Patatas, Cebollas & Ajos	Cítricos	Valor agregado	Salud y Seguridad alimentaria	Frutas	Bananos	Gerencia y Empresariales	Agenda	Quafety
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Notizie	Cerca	Ricerca di personale	Video	Foto	Registrazione								
Verdura	Banane	Patate & Cipolle	Ingresso	Diversi	Innovazioni	Cultura d'impresa	Frutta	Agrumi	Salute & Sicurezza alimentare	Agenda	Quafety		

Fresh-cut Management

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Layer-by-Layer electrostatic deposition of edible coating on fresh-cut melon model:

anticipated and unexpected effects of alginate-chitosan combination

Poverenov, E., Danino, S., Horev, B., Granit, R., Vinokur, Y., and Rodov, V.

ARO – The Volcani Center, Bet Dagan, Israel



UMIL PARTNER OF QUAFETY PROJECT: Comprehensive Approach To Enhance Quality & Safety Of Ready-to-eat Fresh Products

Isolation of molecular markers for the quality evaluation of rocket

Marina Cavaiuolo, Giacomo Cocetta, Anna Spinardi, Antonio Ferrante
Dept. Agricultural and Environmental Sciences, University of Milano

DIPARTIMENTO SCIENZE AGRARIE E AMBIENTALI
PRODUZIONE, TERRITORIO, AGROENERGIA (DISAA)



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CATÓLICA PORTO
BIOTECNOLOGIA

Respiration rate and functional quality of rocket leaves as affected by passive modified atmosphere packaging

Ana Amaro

Machado, I., Carvalho, S., Poças, M. F., Vasconcelos, M. & Pintado, M.

CAMA Conference, Trani, Italy, June 2013



International Controlled & Modified
Atmosphere Research Conference
|CA|MA|2013|
www.cama2013.org



MODELING SENSORIAL AND NUTRITIONAL CHANGES TO BETTER DEFINE QUALITY AND SHELF-LIFE OF FRESH-CUT PRODUCE



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Modelling sensorial and nutritional changes to better define quality and shelf life of fresh-cut melons

Maria Luisa Amodio, Antonio Derossi, Giancarlo Colelli

Department of Science of Agriculture, Food and Environment, University of Foggia, Italy

Food Bioprocess Technol
DOI 10.1007/s11947-013-1134-4

ORIGINAL PAPER

Layer-by-Layer Electrostatic Deposition of Edible Coating on Fresh Cut Melon Model: Anticipated and Unexpected Effects of Alginate–Chitosan Combination

Elena Poverenov • Shani Danino • Batia Horev • Rina Granit •
Yakov Vinokur • Victor Rodov

Analytical
Methods

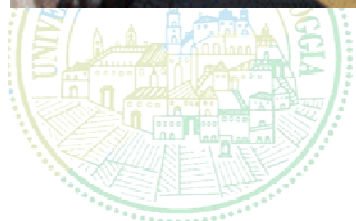
RSC Publishing

PAPER

Cite this: *Anal. Methods*, 2013, 5, 4622

Development and optimization of an ELISA based method to detect *Listeria monocytogenes* and *Escherichia coli* O157 in fresh vegetables

Marina Cavaiuolo,^{*a} Spiros Paramithiotis,^b Eleftherios H. Drosinos^b and Antonio Ferrante^a



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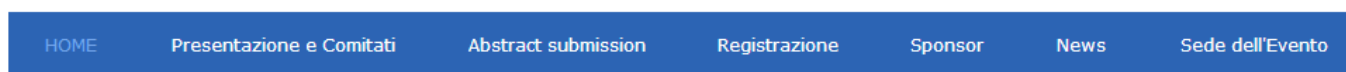


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<http://www.postraccolta2014.org>



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3 Feb 2014

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11 Mar 2014

Scarica il 2° Annuncio di POSTRACCOLTA2014 "Reducing Postharvest Losses to Better Feed the World"...

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CONCLUSIONS

- MARKET OF READY-TO-USE FRESH FRUITS & VEGETABLES IS BOOMING IN MANY COUNTRIES
- INCREASING DEMAND FOR INNOVATION IN ORDER TO GUARANTEE QUALITY & SAFETY
- IMPORTANT ROLE OF DISSEMINATION OF R&D ACHIEVEMENTS TO THE INDUSTRY



- PROJECT **QUAFETY** IS A POSSIBLE MODEL OF COOPERATION AMONG INDUSTRY & ACADEMIA IN ORDER TO DEVELOP & TRANSFER INNOVATION & INCREASE COMPETITIVITY

CREDITS

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