

Partner 1 (Coordinator): *Technical University of Cluj Napoca (UTCN)*

Role in the project:

- to prepare and characterize the composites;
- to perform the barrier properties and aging tests for the active packages;
- to perform the mathematical modeling of the results for food stored in active packages, in order to establish the maximum amount of food that can be packed in the active package to obtain the maximum preservation efficiency for a certain storage range
- to recover the used packages;
- to perform the market study
- to prepare the documentation for beginning the procedure for obtaining the Romanian and international patent;
- to organize the training, dissemination and management activities.

Team qualification in the field of proposal:

The research team includes: 4 researchers (Anca Peter, Camelia Nicula, Anca Mihaly Cozmuta, Leonard Mihaly Cozmuta), 2 PhD students (Aglaia Deac, Calin Cadar) and 4 master students (Marius Metenti, Robert Apjok, Alexandra Ciocian, Paula Dunca). The field of expertise of Anca Peter, Cadar Calin and Aglaia Deac is preparation and characterization of the composites. Anca Mihaly Cozmuta and Camelia Nicula are specialists in testing the barrier properties, biodegradability, aging of the active packages and performing the mathematical modeling of the results for food stored in active packages, in order to establish the maximum amount of food that can be packed in the active package to obtain the maximum preservation efficiency for a certain storage range. Leonard Mihaly Cozmuta is focused on statistical processing of the results. The role of the master students will be to help the researchers in their activities.

The experience of the research team in the field of the proposal was disseminated in 30 articles published in ISI ranked journals and ISI proceedings, 2 patents (national and international), members in 14 research grants, 15 articles published in International Date Base Journals (BDI), participation to the international scientific events, citation in ISI ranked journals of the ISI published articles.

CV's of Key Persons involved in the activities of the project

The CV will present the main expertise in the field related to the scope of the project

1st Key Person

First Name:	Anca	Surname:	Peter
Title:	Dr.	E-mail¹:	peteranca@yahoo.com
Phone²:	0040744790308	Fax:	0040262275368
Organisational web page of key person³:	http://chimie-biologie.ubm.ro/staff.html		
Personal web page⁴:	http://chimie-biologie.ubm.ro/staff.html		

A. Relevant activities:

Relevant activities in the field of thematic area:

- preparation and structural and photo-characterization of composites based on TiO₂
- testing the food preservation activity of packages based on paper and polypropylene modified with different types of composites based on titania (modified with noble metals, other oxides, graphenes, zeolite, etc...)
- testing the preservative role of different hydroxiacids, spices over different types of food and beverages

Relevant activities in the field of the project:

- preparation of the composites graphene oxide modified with Ag/TiO₂
- characterization of the composites in terms of: photocatalytic activity (*high photoactivity of the composites means efficient preservation activity*), structure developed by FTIR spectrometry, light activation and band gap energy developed by UV-Vis reflectance spectrometry;

¹ Organisational e-mail ...@<partner1>

² International format

³ Official web page of key person in the organisation

⁴ Personal web page, if applicable

- preparation of the tests for the market study
- preparation of documents needed to start the procedure to obtain the Romanian and European patents
- organizing the training and management activities
- supervision of all the project activities for the best collaboration between the project partners
- establish the connection between the project management structures and the National Agency of Funding.

B. Scientific activities:

Relevant publications in the field of thematic area (maximum 5):

Publications 1), 2) and 3) are focused on establish the efficient preservation activity of the composites based on titania during storage of different food and beverages and publications 4) and 5) are focused on preparation and characterization of composites based on titania and were inserted as support publications, in order to demonstrate the expertise of the research team in the field of preparation and characterization of the composites.

- 1) Anca Peter, Leonard Mihaly-Cozmuta, Anca Mihaly-Cozmuta, Camelia Nicula, Wanda Ziemkowska, Dariusz Basiak, Virginia Danciu, Adriana Vulpoi, Lucian Baia, Anca Falup, Grigore Craciun, Alexandru Ciric, Mihaela Begea, Claudia Kiss, Daniela Vatuiu, Changes in the microbiological and chemical characteristics of white bread during storage in paper packages modified with Ag/TiO₂-SiO₂, Ag/N-TiO₂ or Au/TiO₂, *Food Chemistry* 197 (2016) 790–798.**
- 2) A. Peter, L. Mihaly Cozmuta, A. Mihaly Cozmuta, C. Nicula, E. Indrea, L. Barbu - Tudoran, Testing the preserving activity of Ag-TiO₂-Fe and TiO₂ composites included in the polyethylene during the orange juice storage, *Journal of Food Process Engineering*, 37(6), 596-608 (2014).**
- 3) A. Peter, C. Nicula, A. Mihaly-Cozmuta, L. Mihaly-Cozmuta, E. Indrea, Chemical and sensory changes of different dairy products during storage in packages containing nanocrystallised TiO₂, *International Journal of Food Science and Technology*, 47(7), 1448-1456 (2012).**
- 4) A. Peter, L. Mihaly-Cozmuta, A. Mihaly-Cozmuta, C. Nicula, C. Cadar, A. Jastrzębska, P. Kurtycz, A. Olszyna, A. Vulpoi, V. Danciu, T. Radu, L. Baia, Silver functionalized titania-silica xerogels: Preparation, morphostructural and photocatalytic properties, kinetic modeling, *Journal of Alloys and Compounds* 648 (2015) 890-902.**
- 5) A. Peter, L. Mihaly-Cozmuta, A. Mihaly-Cozmuta, C. Nicula, A. Jastrzębska, P. Kurtycz, A. Olszyna, Morphology, structure, and photoactivity of two types of graphene oxide-TiO₂ composites, *Chemical Papers* 69 (6) 839–855 (2015).**

Relevant projects in the field of thematic area (maximum 5):

1) Title: Smart functions of packages containing nano-structured materials in food preservation – SMARTPACK

Registration no.: 7-065 / 26.09.2012;

Web page: <http://chimie-biologie.ubm.ro/smartpack/index.html>

Role in the project: consortium coordonator

Period: 2012-2015

Programme: MNT-ERANET Micro-Nano-Technologies (2011)

Partners: ICA R&D Romania, Babes-Bolyai University Romania, L&G Consulting Romania, Warsaw University of Technology – Poland

Budget: 530 000 euro

2) Title: Advanced nanostructured materials of aerogel type with applications to environment depollution by heterogeneous photocatalysis

Registration no.: code 44, theme 15/2005.

Role in the project: coordonator

Period: 2005-2007

Programme: TD by the Romanian call financed by Romanian Ministry of Education and Research

Budget: 36 000 lei

3) Title: Developing of a biophysical system based on zeolites microorganisms-vegetal species for eco-remediation of tailing ponds coming from gold-silver preparation industry - ZEMIP

Role in the project: member of the research team

Duration: 2009-2011

Funding source: Romanian Agency of Funding by the programme: Bilateral cooperation

Partners: North University of Baia Mare, University of Witswatersrand, Johhanesburg South Africa

4) Title: Bioaccumulation of heavy metals in the chain soil-vegetables-human - BIOMEG

Role in the project: member of the research team

Period: 2008-2011

Funding source: Romanian Agency of Funding by the programme PNCD 2.

Partners: North University of Baia Mare, University of Oradea, Statiunea de Cercetari Agricole Livada Satu Mare, University of Transilvania Brasov

Budget: 1.900.000 lei

5) Title: Innovative photocatalytic materials applied to chemical and microbiological decontamination of air from inner spaces, MATDECON

Registration no.: PN II 71-099/2007

Role: member in the research team

Period: 2007-2010

Budget: 840.400 lei

Funding source: Romanian Ministry of Education and Research by programme PN II.

Relevant applied activities (for companies, e.g. product, processes etc.):

The consortium coordinator is principal inventor of 2 Romanian patents and 1 European patent:

- The Romanian patent entitled: *Procedee de obtinere a unor ambalaje alimentare inteligente*, registration no. a2015 00256 from 8.04.2015 to OSIM Romania (National Patent Office);

- The European patent entitled: *Processes for obtaining active food packages*, application no. 15464006.4-1358 /28.08.15, priority: RO/08.04.15/ROA 201500256

The subjects of this patent are three products such:

1) polypropylene flask modified with Ag/TiO₂-SiO₂ composite

2) polypropylene flask modified with Au/TiO₂ composite

3) paper sheet modified with Ag/N-TiO₂ composite

designed for food packaging applications with efficient preservation activity and low or non-toxicity.

2nd Key Person

First Name:	Anca	Surname:	Mihaly Cozmuta
Title:	Dr.	E-mail⁵:	ancamihalycozmuta@gmail.com
Phone⁶:	00741949669	Fax:	
Organisational web page of key person⁷:	http://chimie-biologie.ubm.ro/		
Personal web page⁸:	-		

A. Relevant activities:

Relevant activities in the field of thematic area: food packaging; food shelf-life; food quality and safety;

Relevant activities in the field of the project: preparation and physical-chemical-optical characterization of active food packaging; testing the suitability of active packages for different food types;

B. Scientific activities:

B.1. Relevant publications in the field of thematic area (maximum 5):

B.1.1. Anca Peter, Leonard Mihaly-Cozmuta, **Anca Mihaly-Cozmuta**, Camelia Nicula, Wanda Ziemkowska, Dariusz Basiak, Virginia Danciu, Adriana Vulpoi, Lucian Baia, Anca Falup, Grigore Craciun, Alexandru Ciric, Mihaela Begea, Claudia Kiss, Daniela Vatuiu (2016). Changes in the microbiological and chemical characteristics of white bread during storage in paper packages modified with Ag/TiO₂-SiO₂, Ag/N-TiO₂ or Au/TiO₂. *Food Chemistry*, 197(A), 790-798. IF = 4.052.

B.1.2. [Anca Mihaly Cozmuta](#), [Alin Turila](#), [Robert Apjok](#), [Alexandra Ciocian](#), [Leonard Mihaly Cozmuta](#), [Anca Peter](#), [Camelia Nicula](#), [Nives Galić](#), [Tomislav Benković](#) (2015). Preparation and characterization of improved gelatin films incorporating hemp and sage oils. *Food Hydrocolloids*, 49, 144-155. IF = 3.858. **B.1.3.** **Anca Mihaly Cozmuta**, Anca Peter, Leonard Mihaly Cozmuta, Camelia Nicula, Liliana Crisan, Lucian Baia, Alin Turila (2015). Active Packaging

⁵ Organisational e-mail ...@<partner1>

⁶ International format

⁷ Official web page of key person in the organisation

⁸ Personal web page, if applicable

System Based on Ag/TiO₂ Nanocomposite Used for Extending the Shelf Life of Bread. *Chemical and Microbiological Investigations. Packaging Technology and Science*, 28(4), 271-284. IF = 1.292. <http://onlinelibrary.wiley.com/doi/10.1002/pts.2103/abstract>; doi: 10.1002/pts.2103.

B.1.4. Apan Rodica, **Anca Mihaly Cozmuta**, Anca Peter, Camelia Nicula, Leonard Mihaly Cozmuta (2014). Nano- food packaging: from efficiency in the conservation of food to legal consumer protection. *Amfitreatu Economic*, XVI(36), 483-500. IF = 0.564. http://www.amfiteatruconomic.ro/temp/Article_1286.pdf.

B.1.5. Anca Peter, Leonard Mihaly-Cozmuta, **Anca Mihaly-Cozmuta**, Camelia Nicula, Emil Indrea, Lucian Barbu-Tudoran (2014). Testing the preservation activity of Ag-TiO₂-Fe and TiO₂ composites included in the polyethylene during orange juice storage. *Journal of Food Process Engineering*, 37(6), 596-608. IF = 0.745. <http://onlinelibrary.wiley.com/doi/10.1111/jfpe.12116/abstract>; doi: 10.1111/jfpe.12116.

B.2. Relevant projects in the field of thematic area (*maximum 5*):

B.2.1. Title: Smart functions of packages containing nano-structured materials in food preservation – SMARTPACK

Coordinator: Associate professor dr. Anca Peter, UTC-N CUNBM-Romania

Main members: Anca Mihaly Cozmuta, Leonard Mihaly Cozmuta, Camelia Nicula

Time range: 2012-2015

Funding source: MNT-ERANET Program

Partners: ICA-Bucuresti-Romania, Universitatea Babes Bolyai Cluj Napoca-Romania, SC Somes Dej-Romania, Warsaw University – Poland

B.3. Relevant applied activities (for companies, e.g. product, processes etc.): Active packages (paper and plastics) based on nanomaterials for food products.

Testing the barrier properties, hydrophobicity of fresh and aged active packages; mathematical modeling of packages efficiency.

Partner 2: Cephart Romania (CEPRO)

Role in the project:

- preparation and characterization of the active paper based packages;
- to perform the market study,
- to prepare the documentation for beginning the procedure for obtaining the Romanian and international patent;
- to organize the training, dissemination and management activities.
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Team qualification in the field of proposal:

The research team includes: 7 researchers (Talaşman Cătălina Mihaela, Radu Argentina, Constantin Constantin, Burlacu Maricica, Bratu Gabriela, Dumitraşcu Ionuţ, Drăgan Mihai) specialized in pulp and paper technology and industrial ecology. Constantin Constantin and Talaşman Cătălina Mihaela are focused on paper technology, Maricica Burlacu and Radu Argentina are focused on paper special treatments, Dumitraşcu Ionuţ and Bratu Gabriela are focused on paper analyses and Drăgan Mihai is specialist in chemical analysis.

CV's of Key Persons involved in the activities of the project

The CV will present the main expertise in the field related to the scope of the project

1st Key Person

First Name:	TALASMAN		Surname:	CATALINA MIHAELA
Title:	Research scientist III	E-mail⁹:	catalina.talasan@cephart.ro	
Phone¹⁰:	0040 755788983		Fax:	004 0239680280
Organisational web page of key person¹¹:	http: www.cephart.ro			
Personal web page¹²:	http: -			

A. Relevant activities:

⁹ Organisational e-mail ...@<partner1>

¹⁰ International format

¹¹ Official web page of key person in the organisation

¹² Personal web page, if applicable

Relevant activities in the field of thematic area: coordinator of the Research Department of SC CEPROHART SA and of the „Pulp manufacturing and bleaching” Laboratory; - participation at the implementation of projects financed by the research national programs, in the field of: pulp, paper, specialty paper and board manufacturing technologies; cellulose nanofibrils obtaining, fabrication of composites based on cellulosic fibres; - participation within the COST European RD program within the field of pulp, paper and environment protection (E9 - Life cycle assessment of forestry and forests products ; E14 – Towards zero effluent in paper making; E17 - Microbiology in paper making).

Relevant activities in the field of the project:

Project responsible in the national PNCDI II program; research field: „Methodologies for archives decontamination using Gamma radiations”, “Special packaging materials of cellulosic fibres - a viable alternative for food protection and safety”; Co-author of: patent A 2009 01058/18.12.2009 - "Process for obtaining a paper insulating", patent application A2009 01014/03.12.2009 – ”Security papers and the process of obtaining it using as security elements the composition, the manufacturing facility print and the specific colour”, patent application A2011 01198/22.11.2011 – ”Paper with barrier properties for food packaging and the process for obtaining it”, patent application A 00798 / 06.11.2015 - ” Paper for security printing with magnetic properties”; member of the COST ACTION FP1405 – Active and intelligent fibre – based packaging innovation and market introduction (ActInPak) - <http://www.actinpak.eu/>.

B. Scientific activities:

Relevant publications in the field of thematic area (maximum 5):

1. I.V.Moise, M.Virgolici, C.D.Negut, M.Manea, M.Alexandru, L.Trandafir, F.L.Zorila, C.M. Talasman, D.Manea, S.Nisipeanu, M.Haiducu, Z.Balan - Establishing the irradiation dose for paper decontamination, Radiation Physics and Chemistry, vol. 81, Issue 8, 2012, p.1045-1050
2. “Gamma Radiations use in order to preserve the papers deteriorated by the biological attack”- “Technical Informative Bulletin” no. 6/2011
3. “ Special packaging materials from cellulosic fibres – a viable alternative for foodstuff protection and safety”, 17th International Symposium in the field of pulp, paper, packaging materials and printings, 21 – 24 June 2011, Zlatibor, Serbia;
4. “Aspects regarding compliance of improved barrier papers with food safety and environment requirements, The 6th International Symposium „Advanced technologies for the pulp and paper industry”, 6 – 9 September, 2011, Braila, Romania;

Relevant projects in the field of thematic area (maximum 5):

„ Bio-composites from renewable resources - biodegradable nutritive support for containerized seedling manufacturing”, PNCDI 2 Program; “Polymeric bio-composites from renewable sources for high level applications” - Program BICOP – CEEEX P – CD 61/2005; „Special packaging materials from cellulosic fibers – a viable alternative for foodstuffs protection and safety”, PNCDI 2 Program

Relevant applied activities (for companies e.g. product, processes, etc.): new technologies and technological processes and product approval, e.g.: (I) manufacturing technology of filter plates for food liquids; (II) technology for the production of neutral-alkaline sizing printing paper; (III) manufacturing technology for paper resistant to oil, grease and water designated to food packaging; (IV) security paper for valuable documents; (V) technology and equipment for obtaining of biodegradable nutritive support for containerized seedling manufacturing; (VI) manufacturing technology of an electro insulation papers.

2nd Key Person

First Name:	CONSTANTIN		Surname:	CONSTANTIN
Title:	CHEMICAL ENGINEER	E-mail¹³:	constantin.constantin@ceprohart.ro	
Phone¹⁴:	040 744983997		Fax:	004 0239680280
Organizational web page of key person¹⁵:	http: www.ceprohart.ro			

¹³ Organisational e-mail ...@<partner1>

¹⁴ International format

¹⁵ Official web page of key person in the organisation

Personal web page¹⁶:	http: -
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A. Relevant activities:

Relevant activities in the field of thematic area: Coordinator of industrial scale experiments in the field of conventional raw materials for pulp manufacturing, special papers from cellulosic fibres with industrial applications; - coordinator of the „ Laboratory for stock preparation and chemical additive dosages” ; - participation at the implementation of projects financed by the research national programs, in the field of: pulp, paper, specialty paper, fabrication of the composites based on cellulosic fibres (MENER, ECOLINKS, PNCDI I, PNCDI II); Member of the COST ACTION FP1405 – Active and intelligent fibre – based packaging innovation and market introduction (ActInPak) - <http://www.actinpak.eu/>.

Relevant activities in the field of the project: Project responsible of the “Security paper with magnetic nanoparticles” PN – II – PT-PCCA-2013-4-0560, coordinator of the Kamyr digester – industrial scale softwood sulphate cellulose pulp manufacturing: cooking, screening pulp, bleaching and electrolysis plant modernization; Implementation of new technologies for bleached pulp. Co-author of patent application A 00798 / 06.11.2015 -” Paper for security printing with magnetic properties”.

B. Scientific activities:

Relevant publications in the field of thematic area (maximum 5):

“Researches and implementation of a new security system within the paper for valuable documents printing using nanoparticles as security elements” PhD. eng. Buteica Dan, **eng. Constantin Constantin** – CEPROHART , PhD. Alina Taculescu, PhD. Vlad Socoliuc – ROMANIAN ACADEMY, TIMISOARA BRANCH, 11th Conference on colloid and surface chemistry, Iasi, Romania, may 9 – 11, 2013. Member of the Romanian Technical Association for the Pulp and Paper Industry.

Relevant projects in the field of thematic area (maximum 5):

"Modernization of manufacturing technology and facilities for ECF celluloses bleached without chlorine type, with high quality features and low environmental impact", PNCDI – MENER; „Special packaging materials from cellulosic fibres – a viable alternative for foodstuffs protection and safety”, PNCDI 2 Program; "Reducing the discharge of wastewater containing organic substances from dissolved fibers" for CELHART Donaris Braila, Romania - Ecolinks Program - USAID Program;

Relevant applied activities (for companies e.g. product, processes, etc.):

new technologies and technological processes and product approval, e.g.: (I) manufacturing technology of filter plates for food liquids; (II) technology for the production of neutral-alkaline sizing printing paper; (III) manufacturing technology for paper resistant to oil, grease and water designated to food packaging;

Partner 3: University of Camerino Italy (UNICAM)

Role in the project:

Selection and characterization of probiotic strains. Sensorial, physico-chemical and microbiological analysis on different types of food deposited in new and reused paper packages containing unmodified or modified graphene. Perform the market study, prepare documentation for beginning the procedure for obtaining the Romanian and international patent; organize the training, dissemination and management activities

Team qualification in the field of proposal:

The research team includes: 3 researchers and 2 postDoc positions. The expertise of all of the team goes through several fields: probiotics selection and characterization, sensorial and microbiological analysis of several food and food matrix, identification of chemical markers for evaluating the shelf life of food, analysis of food by using analytical techniques as HPLC-DAD/MS, application of sample preparation techniques and GC-MS analysis.

CV's of Key Persons involved in the activities of the project

The CV will present the main expertise in the field related to the scope of the project

1st Key Person

¹⁶ Personal web page, if applicable

First Name:	STEFANIA		Surname:	SILVI
Title:	Researcher	E-mail¹⁷:	stefania.silvi@unicam.it	
Phone¹⁸:	+39(0)737402707		Fax:	+39(0)737402418
Organisational web page of key person¹⁹:	http://www.unicam.it http://docenti.unicam.it/pdett.aspx?ids=N&tv=d&UteId=377&ru=RU			
Personal web page²⁰:	http://orcid.org/0000-0002-4755-6239 https://www.researchgate.net/profile/Stefania_Silvi			

A. Relevant activities:

Relevant activities in the field of thematic area:

During the last 15 years she was researcher on General Microbiology at Camerino University.

Relevant activities in the field of the project:

She was dedicated to *in vivo* and *in vitro* studies of relations within dietary factors and intestinal microbiota, in relation with the consumption of simple and complex carbohydrates, fibres and polyphenols and the correlation with colon cancer; study of biodegradability of xenobiotic compounds. Her current field of research is on microbial biotechnologies applied to the valorisation of food resources and functional foods for human and animal health, of the latest, in particularly those integrated in the human food chain. She has expertise both in microbiology and nutrition, and the probiotics field is in the overlap between these two disciplines.

B. Scientific activities:

Relevant publications in the field of thematic area (maximum 5):

1. Verdenelli MC, Cecchini C, Coman MM, **Silvi S**, Orpianesi C, Coata G, Cresci A, Di Renzo GC. (2016). Impact of Probiotic SYN BIO® Administered by Vaginal Suppositories in Promoting Vaginal Health of Apparently Healthy Women. *Curr Microbiol.* 73(4):483-90. **2.** Coman MM, Verdenelli MC, Cecchini C, Silvi S, et al. (2015) In vitro evaluation on HeLa cells of protective mechanisms of probiotic lactobacilli against *Candida* clinical isolates. *J Appl Microbiol.*, 2015 Sep 3. doi: 10.1111/jam.12947. **3.** Silvi S, M.C. Verdenelli, C. Cecchini, M.M. Coman, et al. (2014). [Probiotic-enriched foods and dietary supplement containing SYN BIO positively affects bowel habits in healthy adults: an assessment using standard statistical analysis and Support Vector Machines.](#) *INTERNATIONAL JOURNAL OF FOOD SCIENCES AND NUTRITION* 65(8):994-1002. **4.** Coman MM, M.C. Verdenelli, C. Cecchini, S. Silvi, C. Orpianesi, N. Boyko, A. Cresci (2014). [In vitro evaluation of antimicrobial activity of Lactobacillus rhamnosus IMC 501®, Lactobacillus paracasei IMC 502® and SYN BIO® against pathogens.](#) *JOURNAL OF APPLIED MICROBIOLOGY*, 117:518-527. **5.** Verdenelli MC, M.M. Coman, C. Cecchini, S. Silvi, C. Orpianesi, A. Cresci. (2014). [Evaluation of antipathogenic activity and adherence properties of human Lactobacillus strains for vaginal formulations.](#) *JOURNAL OF APPLIED MICROBIOLOGY*, 116:1297-1307.

Relevant projects in the field of thematic area (maximum 5): **1.** 2001-2004 "QLK1- 2000-00067 - CROWNALIFE: Functional food, Gut Microflora and Healthy Ageing". **2.** 2010- 2013 Italian National Project granted by M.I.S.E.- ICE-CRUI. Innovative process for the formulation of probiotic dietary supplement to promote the wellbeing and the growth of fish species in aquaculture.

Relevant applied activities (for companies e.g. product, processes, etc.):

Patents: **1.** Cresci, A., Orpianesi, C., **Silvi, S** and Verdenelli, M.C. (2004) Ceppi batterici LAB con proprietà probiotiche e composizioni che contengono gli stessi. Italian Patent RM2004A000166. **2.** Cresci, A., Orpianesi, C., **Silvi, S** and Verdenelli, M.C. (2005) Lactic acid bacteria strains exhibiting probiotic properties and compositions comprising the same. European Patent EP 1743042.

2nd Key Person

First Name:	GIANNI		Surname:	SAGRATINI
Title:	Associate	E-mail²¹:	gianni.sagrattini@unicam.it	

¹⁷ Organisational e-mail ...@<partner1>

¹⁸ International format

¹⁹ Official web page of key person in the organisation

²⁰ Personal web page, if applicable

²¹ Organisational e-mail ...@<partner1>

	Professor		
Phone²²:	+39 0737 402238	Fax:	+39 0737 637345
Organizational web page of key person²³:	http: www.unicam.it, http://docenti.unicam.it/pdett.aspx?ids=N&tv=d&UteId=478&ru=PA		
Personal web page²⁴:	http: ORCID ID 0000-0001-6231-8709, ResearcherID: A-2264-2015, https://www.researchgate.net/profile/Gianni_Sagrati		

A. Relevant activities:

Relevant activities in the field of thematic area: the analysis of chemical markers of food for evaluating the shelf life by using sample preparation techniques as LLE, SLE, SPE, SPME and by using analytical techniques as HPLC-DAD, HPLC-MS/MS, GC-MS

Relevant activities in the field of the project: the study of shelf life of food as meat and cheese stored in used PLA packages through the analysis of chemical markers as biogenic amines, hexanal, volatile molecules components of flavour. Other parameters of food as pH and colour are detected too.

B. Scientific activities:

Relevant publications in the field of thematic area (maximum 5):

1. G. Sagratini, V. Sirocchi, G. Caprioli, C. Cecchini, M.M. Coman, A. Cresci, F. Maggi, F. Papa, M. Ricciutelli, S. Vittori (2013) Biogenic Amines as freshness index of meat wrapped in an innovative Active Packaging system formulated with essential oils of *Rosmarinus officinalis*. *International Journal of Food Sciences and Nutrition*, Early Online, 1-8. **2.** Veronica Sirocchi, Giovanni Caprioli, Massimo Ricciutelli, Sauro Vittori, **Gianni Sagratini**, Simultaneous determination of ten underivatized biogenic amines in meat by liquid chromatography-tandem mass spectrometry (HPLC-MS/MS), *Journal of Mass Spectrometry*, 2014, 49, 819-825. **3. G. Sagratini**, M. Fernández-Franzón, F. De Berardinis, G. Font, S. Vittori, J. Mañes, (2012). Simultaneous determination of eight underivatized biogenic amines in fish by solid phase extraction and liquid chromatography-tandem mass spectrometry, *Food Chemistry*, 132 (1), 537-543.

Relevant projects in the field of thematic area (maximum 5):

1. Study of new systems of food packaging, funded by Esseoquattro s.p.a. private industry (Italy), 65.000 euro, 2014 year. **2.** Study of a new system of active packaging formulation with natural extracts that allows you to keep food, health and respect the environment (activebrill), funded by ERFD 2007-2013 (European Regional Development Fund) Veneto Region, 150.000 euro, 2011-13 years.

Relevant applied activities (for companies e.g. product, processes, etc.): **1. Patent.** Holder: ESSEOQUATTRO s.p.a. Inventors: Ortolani Roberta, Sagratini Gianni, Sirocchi Veronica, Vittori Sauro. Title: "Material for packaging fresh food of animal origin inhibiting the development of biogenic amines", WO 2013/084175, PCT/IB2012/057011. **2.** Awards for creation of spin-off industries: Competition of University of Camerino "Research Ideas for Business" 2008. 1° prize. Project title: Food Active Packaging.

Partner 4: SYNBIOTEC Italy (SYN)

Role in the project:

Selection, characterization and production of the probiotic strains. Preparation of coating and testing the stability and viability of probiotics in the packaging. Perform the market study, prepare documentation for beginning the procedure for obtaining the Romanian and international patent; organize the training, dissemination and management activities

Team qualification in the field of proposal:

The research team includes: 1 coordinator of researches, 1 responsible of research and development, 2 researchers, 1 senior technician, 1 filing data consulting.

CV's of Key Persons involved in the activities of the project

The CV will present the main expertise in the field related to the scope of the project

²² International format

²³ Official web page of key person in the organisation

²⁴ Personal web page, if applicable

1st Key Person

First Name:	ALBERTO	Surname:	CRESCI
Title:	President	E-mail²⁵:	alberto.cresci@unicam.it
Phone²⁶:	+39 0737 402476	Fax:	+39(0)737402480
Organisational web page of key person²⁷:	http: www.synbiotec.com		
Personal web page²⁸:	https://www.researchgate.net/profile/Alberto_Cresci		

A. Relevant activities:

Relevant activities in the field of thematic area: He has been Associate Professor of "General Microbiology" at the University of Camerino from 1982 to 2013. He was one of the Founding Member and then President of Synbiotec Srl since 2004 up to now.

Relevant activities in the field of the project: Study of role of probiotic bacteria present in human and animal gut, isolation and characterization and screening of probiotic properties. Understanding the effect of intestinal bacteria on human health and diseases and it has allowed to develop new therapies and novel functional foods. He has been the proposer of a project for research activity, funded by the Italian Ministry of University and Research, from which on 2004 Synbiotec S.r.l. was born as University spin-off company.

B. Scientific activities:

Relevant publications in the field of thematic area (maximum 5): **1.** [Cecchi T, M. Savini, S. Silvi, M.C. Verdenelli, A. Cresci](#) (2015). Optimisation of the Measurement of the Antioxidant Activity of Probiotics and Pathogens: a Crucial Step Towards Evidence-Based Assessment of Health Claims and Production of Effective Functional Foods. [FOOD ANALYTICAL METHODS](#), **8** (2): 312-320. **2.** Coman MM, M.C. Verdenelli, C. Cecchini, S. Silvi, A. Vasile, G. Bahrim, C. Orpianesi, **A. Cresci** (2013) Effect of oat bran and buckwheat flour on growth and cell viability of the probiotic strains *Lactobacillus rhamnosus* IMC 501®, *Lactobacillus paracasei* IMC 502® and their combination SYN BIO®, in synbiotic fermented milk. *International Journal of Food Microbiology*, **167**, 261-268. **3.** Coman M.M., Cecchini C., Verdenelli M.C., Silvi S., Orpianesi C., **Cresci A.** (2012). Functional foods as carriers for SYN BIO®, a probiotic bacteria combination. *International Journal of Food Microbiology*, **157**: 346-352. **4.** Verdenelli M.C., Silvi S., Cecchini C., Orpianesi C, **Cresci A** (2011). Influence of a combination of two potential probiotic strains, *Lactobacillus rhamnosus* IMC 501® and *Lactobacillus paracasei* IMC 502® on bowel habits of healthy adults. *Letters in Applied Microbiology*, **52**, 596 – 602. **5.** Ogbonna C.C., Cecchini C., Silvi S., Verdenelli M.C., Coman M.M., Orpianesi C., **Cresci A** (2011). Enhancing Italian traditional foods through the enrichment of functional ingredients. *Agro Food Industry Hi-Tech*, **22**, 34 – 37.

Relevant projects in the field of thematic area (maximum 5): **1.** 2001-2004 "QLK1- 2000-00067 - CROWNALIFE: Functional food, Gut Microflora and Healthy Ageing". **2.** 2010 "Development of a soft-gel containing probiotics for application in food and fish sector." FESR (Fondo Europeo Sviluppo Regionale) 2007-2013, Marche Region; **3.** 2014 "Study, design and production of a functional food bag of "Made in Italy" probiotic foods and distribution formats for the exploitation in national and international markets" FESR (Fondo Europeo Sviluppo Regionale) 2007-2013, Marche Region.

Relevant applied activities (for companies e.g. product, processes, etc.): Patents. **1.** **Cresci, A., Orpianesi, C., Silvi, S and Verdenelli, M.C.** (2004) Ceppi batterici LAB con proprietà probiotiche e composizioni che contengono gli stessi. Italian Patent RM2004A000166. **2.** **Cresci, A., Orpianesi, C., Silvi, S. and Verdenelli, M.C.** (2005) Lactic acid bacteria strains exhibiting probiotic properties and compositions comprising the same. European Patent EP 1743042.

2nd Key Person

First Name:	CARLA	Surname:	ORPIANESI
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²⁵ Organisational e-mail ...@<partner1>

²⁶ International format

²⁷ Official web page of key person in the organisation

²⁸ Personal web page, if applicable

Title:	Research and development responsible	E-mail²⁹:	carla.orpianesi@unicam.it	
Phone³⁰:	+39 0737 402479	Fax:	+39(0)737402480	
Organizational web page of key person³¹:	http: www.synbiotec.com			
Personal web page³²:	http: not applicable			

A. Relevant activities:

Relevant activities in the field of thematic area: She has been researcher on "General Microbiology" at the University of Camerino from 1980 to 2012. She was one of the Founding Member and currently in charge for the Research and Development Section of Synbiotec S.r.l. since 2004 up to now. She is also one of the members of Administration Council of the company.

Relevant activities in the field of the project: Her competences focus on the effect of intestinal bacteria on human health and diseases, the determination of the role of probiotic bacteria present in human and animal gut, the isolation and characterization and screening of prebiotic properties. All of that has allowed her to contribute developing new dietary supplement and novel functional foods.

C. Scientific activities:

Relevant publications in the field of thematic area (maximum 5): **1.** Coman MM, M.C. Verdenelli, C. Cecchini, S. Silvi, A. Vasile, G. Bahrim, **C. Orpianesi**, A. Cresci (2013) Effect of oat bran and buckwheat flour on growth and cell viability of the probiotic strains *Lactobacillus rhamnosus* IMC 501®, *Lactobacillus paracasei* IMC 502® and their combination SYN BIO®, in synbiotic fermented milk. *International Journal of Food Microbiology*, 167, 261-268. **2.** Coman M.M., Cecchini C., Verdenelli M.C., Silvi S., **Orpianesi C.**, Cresci A. (2012). Functional foods as carriers for SYN BIO®, a probiotic bacteria combination. *International Journal of Food Microbiology*, 157: 346-352. **3.** Verdenelli M.C., Silvi S., Cecchini C., **Orpianesi C.**, Cresci A (2011). Influence of a combination of two potential probiotic strains, *Lactobacillus rhamnosus* IMC 501® and *Lactobacillus paracasei* IMC 502® on bowel habits of healthy adults. *Letters in Applied Microbiology*, 52, 596 – 602. **4.** Ogbonna C.C., Cecchini C., Silvi S., Verdenelli M.C., Coman M.M., **Orpianesi C.**, Cresci A (2011). Enhancing Italian traditional foods through the enrichment of functional ingredients. *Agro Food Industry Hi-Tech*, 22, 34 – 37.

Relevant projects in the field of thematic area (maximum 5): **1.** 2001-2004 "QLK1- 2000-00067 - CROWNALIFE: Functional food, Gut Microflora and Healthy Ageing". **2.** 2010 "Development of a soft-gel containing probiotics for application in food and fish sector." FESR (Fondo Europeo Sviluppo Regionale) 2007-2013, Marche Region; **3.** 2014 "Study, design and production of a functional food bag of "Made in Italy" probiotic foods and distribution formats for the exploitation in national and international markets" FESR (Fondo Europeo Sviluppo Regionale) 2007-2013, Marche Region.

Relevant applied activities (for companies e.g. product, processes, etc.): Patents. **1.** Cresci, A., **Orpianesi, C.**, Silvi, S and Verdenelli, M.C. (2004) Ceppi batterici LAB con proprietà probiotiche e composizioni che contengono gli stessi. Italian Patent RM2004A000166. **2.** Cresci, A., **Orpianesi, C.**, Silvi, S. and Verdenelli, M.C. (2005) Lactic acid bacteria strains exhibiting probiotic properties and compositions comprising the same. European Patent EP 1743042. Development of dietary supplements with Synbiotec brand.

Partner 5: National Institute of Chemistry, Slovenia (NIC)

Role in the project: To perform morpho-structural characteristics of the composites and of the active packages; perform the market study, prepare documentation for beginning the procedure for obtaining the Romanian and international patent; organize the training, dissemination and management activities.

Team qualification in the field of proposal: The project team includes three researchers (dr. Goran Drazic, dr. Elena Chernyshova and dr. Marjan Bele) and two PhD students. Dr. Goran Drazic is a senior scientist with 30 years of

²⁹ Organisational e-mail ...@<partner1>

³⁰ International format

³¹ Official web page of key person in the organisation

³² Personal web page, if applicable

experience in materials synthesis and characterisation. His expertise is in the development and implementation of electron microscopy and microanalytical techniques for the study of modern nanomaterials. Dr. Elena Tchernychova, is researcher with specialisation in transmission electron microscopy and electron energy loss spectroscopy. Dr. Marjan Bele is senior scientist with long time experience in synthesis and characterisation of various materials including graphene and other carbon related compounds.

CV's of Key Persons involved in the activities of the project

The CV will present the main expertise in the field related to the scope of the project

1st Key Person

First Name:	Goran		Surname:	Drazic
Title:	Assist. prof. dr.	E-mail³³:	goran.drazic@ki.si	
Phone³⁴:	+3861476514		Fax:	+386 1 4760300
Organisational web page of key person³⁵:	http: www.ki.si			
Personal web page³⁶:	http: http://www.ki.si/en/display-pages/searching-employees/?no_cache=1&tx_ukki_pi1[uid]=649&tx_ukki_pi1[CMD]=employeeSingle			

A. Relevant activities:

Relevant activities in the field of thematic area: synthesis, characterisation, transmission electron microscopy and microanalysis

Relevant activities in the field of the project: nanomaterial synthesis and characterisation

B. Scientific activities:

Relevant publications in the field of thematic area (maximum 5):

1. GYERGYEK, Sašo, MAKOVEC, Darko, JAGODIČ, Marko, DROFENIK, Mihael, SCHENK, Kurt, JORDAN, Olivier, KOVAČ, Janez, DRAŽIČ, Goran, HOFMANN, Heinrich. Hydrothermal growth of iron oxide NPs with a uniform size distribution for magnetically induced hyperthermia : structural, colloidal and magnetic properties. Journal of alloys and compounds, ISSN 0925-8388. [Print ed.], 2017, vol. 694, str. 261-271, doi: 10.1016/j.jallcom.2016.09.238.
2. ROSAL, Blanca del, PÉREZ-DELGADO, Alberto, CARRASCO, Elisa, JOVANOVIĆ, Dragana J., DRAMIĆANIN, Miroslav D., DRAŽIČ, Goran, FUENTE, Ángeles Juarranz de la, SANZ-RODRIGUEZ, Francisco, JAQUE, Daniel. Neodymium-based stoichiometric ultrasmall nanoparticles for multifunctional deep-tissue photothermal therapy. Advanced optical materials, ISSN 2195-1071, May 2016, vol. 4, iss. 5, str. 782-789, doi/10.1002/adom.201500726/epdf
3. KAPLAN, Renata, ERJAVEC, Boštjan, DRAŽIČ, Goran, GRDADOLNIK, Jože, PINTAR, Albin. Simple synthesis of anatase/rutile/brookite TiO [sub] 2 nanocomposite with superior mineralization potential for photocatalytic degradation of water pollutants. Applied catalysis. B, Environmental, ISSN 0926-3373. [Print ed.], Feb. 2016, vol. 181, str. 465-474, doi: 10.1016/j.apcatb.2015.08.027
4. BOHINC, Klemen, DRAŽIČ, Goran, ABRAM, Anže, JEVŠNIK, Mojca, JERŠEK, Barbara, NIPIČ, Damijan, KURINČIČ, Marija, RASPOR, Peter. Metal surface characteristics dictate bacterial adhesion capacity. International journal of adhesion and adhesives, ISSN 0143-7496. [Print ed.], July 2016, vol. 68, str. 39-46, ilustr. doi: 10.1016/j.ijadhadh.2016.01.008
5. VIŽINTIN, Alen, LOZINŠEK, Matic, KUMAR CHELLAPPAN, Rajesh, FOIX, Dominique, KRAJNC, Andraž, MALI, Gregor, DRAŽIČ, Goran, GENORIO, Boštjan, DEDRYVÈRE, Rémi, DOMINKO, Robert. Fluorinated reduced graphene oxide as an interlayer in Li-S batteries. Chemistry of materials, ISSN 0897-4756. [Print ed.], Oct. 2015, vol. 27, no. 20, str. 7070-7081, doi: 10.1021/acs.chemmater.5b02906

Relevant projects in the field of thematic area (maximum 5):

Project co-chair in EURATOM FP6 project “Development of advanced materials: Novel processing of SiC/SiC by slip in filtration of SiC fibre preforms with SiC under vacuum” (2004–2008). • Project leader in SICOAT – EURATOM FP6 project “Development of advanced materials: Gas impermeable coatings for SiCf/SiC” (2004–2008). • Project leader in EURATOM FP6 project “Property

³³ Organisational e-mail ...@<partner1>

³⁴ International format

³⁵ Official web page of key person in the organisation

³⁶ Personal web page, if applicable

requirements for SiC/SiC composites as structural materials”, (2009–2012). ●Project leader of 3 national basic projects related with nanomaterial synthesis and characterisation with transmission electron microscopy and microanalyses.

Relevant applied activities (for companies e.g. product, processes, etc.): several applied projects with Slovenian industry (Cinkarna Celje, Exoterm Kranj, Steklarna Hrastnik, Impol Slovenska Bistrica).

2nd Key Person

First Name:	Marjan	Surname:	Bele
Title:	Dr.	E-mail³⁷:	Marjan.Bele@ki.si
Phone³⁸:	+386 1 4760322	Fax:	+386 1 4760300
Organizational web page of key person³⁹:	http: www.ki.si		
Personal web page⁴⁰:	http://www.ki.si/en/display-pages/searching-employees/?no_cache=1&tx_ukki_pi1[CMD]=employeeSingle&tx_ukki_pi1[uid]=57		

A. Relevant activities:

Relevant activities in the field of thematic area: synthesis and characterisation of carbon based materials

Relevant activities in the field of the project: synthesis and characterisation of graphene oxide based composite materials

B. Scientific activities:

Relevant publications in the field of thematic area (maximum 5):

- GATALO, Matija, JOVANOVIČ, Primož, POLYMEROS, George, GROTE, Jan-Phillip, PAVLIŠIČ, Andraž, RUIZ-ZEPEDA, Francisco, ŠELIH, Vid Simon, ŠALA, Martin, HOČEVAR, Samo B., BELE, Marjan, MAYRHOFER, Karl, HODNIK, Nejc, GABERŠČEK, Miran. Positive effect of surface doping with Au on the stability of Pt-based electrocatalysts. ACS catalysis, ISSN 2155-5435, Feb. 2016, vol. 6, iss. 3, str. 1630-1634, doi: 10.1021/acscatal.5b02883
- JOVANOVIČ, Primož, ŠELIH, Vid Simon, ŠALA, Martin, HOČEVAR, Samo B., RUIZ-ZEPEDA, Francisco, HODNIK, Nejc, BELE, Marjan, GABERŠČEK, Miran. Potentiodynamic dissolution study of PtRu/C electrocatalyst in the presence of methanol. Electrochimica Acta, [Print ed.], Sep. 2016, vol. 211, str. 851-856, doi: 10.1016/j.electacta.2016.06.109.
- OTA, Ajda, ŠENTJURC, Marjeta, BELE, Marjan, AHLIN GRABNAR, Pegi, POKLAR ULRIH, Nataša. Impact of carrier systems on the interactions of coenzyme Q10 with model lipid membranes. Food biophysics, ISSN 1557-1858, 2016, vol. 11, str. 60-70, ilustr., doi: 10.1007/s11483-015-9417-0.
- JOVANOVIČ, Primož, ŠELIH, Vid Simon, ŠALA, Martin, HOČEVAR, Samo B., PAVLIŠIČ, Andraž, GATALO, Matija, BELE, Marjan, RUIZ-ZEPEDA, Francisco, ČEKADA, Miha, HODNIK, Nejc, GABERŠČEK, Miran. Electrochemical in-situ dissolution study of structurally ordered, disordered and gold doped PtCu [sub] 3 nanoparticles on carbon composites. Journal of power sources, Sep. 2016, vol. 327, str. 675-680, doi: 10.1016/j.jpowsour.2016.07.112
- BELE, Marjan, JOVANOVIČ, Primož, PAVLIŠIČ, Andraž, JOZINOVIČ, Barbara, ZORKO, Milena, REČNIK, Aleksander, TCHERNYCHOVA, Elena, HOČEVAR, Stanko, HODNIK, Nejc, GABERŠČEK, Miran. A highly active PtCu [sub] 3 intermetallic core-shell, multilayered Pt-skin, carbon embedded electrocatalyst produced by a scale-up sol-gel synthesis. Chemical communications, ISSN 1359-7345, Nov. 2014, vol. 50, iss. 86, str. 13124-13126, doi: 10.1039/C4CC05637J

Relevant projects in the field of thematic area (maximum 5): leader of 4 national projects related to synthesis of nanomaterials

J2-4316, "Novel functionalized nanomaterials for applications as nano- or biosensors/actuators/bioresponsive(carrier) systems", 2011—2014

L2-3232, "Interactions between the components of a paint system and their influence on paint application", 2001—2004

³⁷ Organisational e-mail ...@<partner1>

³⁸ International format

³⁹ Official web page of key person in the organisation

⁴⁰ Personal web page, if applicable

J1-6356, "Use of inorganic particles for particle design and their potential application in systems with modified release", 2004—2007
L2-6005, "Time and position-controlled release of drug substances coated onto superparamagnetic nanoparticles", 2004—2007

Relevant applied activities (for companies e.g. product, processes, etc.):

5 international patents:

1. BELE Marjan, DOMINKO Robert, PIVKO Maja, GABERŠČEK Miran. A two-step synthesis method for the preparation of composites of insertion active compounds for lithium-ion batteries : patent : EP2619137 (B1), 2016-07-20. Hague: European Patent Office, 2016.
2. BELE Marjan, DOMINKO Robert, VIDAL-ABARCA GARRIDO Candela, PIVKO Maja, GABERŠČEK Miran. Cathode materials for lithium ion accumulators based on lithiated vanadium oxide compounds : patent : EP 2478579 (B1), 2015-06-03. München: World Intellectual Property Organization, International Bureau, 2015.
3. BELE Marjan, GABERŠČEK Miran, KAPUN, Gregor, HODNIK, Nejc, HOČEVAR, Stanko. Electrocatalytic composite(s), associated composition(s), and associated process(es) : patent : US 9147885 (B2), 2015-09-29. Alexandria: United States Patent and Trademark Office, 2015.
4. BELE Marjan, BESENHARD Jürgen Otto, PEJOVNIK Stane, MEYER Heinrich. Solution for pretreatment of electrically non-conductive surfaces, and method of coating the surfaces with solid material particles : US 6235182 (B1), 2001-05-22. Alexandria: United States Patent and Trademark Office, 2001.
5. BELE Marjan, BESENHARD Jürgen Otto, PEJOVNIK Stane, MEYER Heinrich. Verfahren und Vorrichtung zur analytischen Überwachung eines Bades zur galvanotechnischen Behandlung von Substratoberflächen : FR 2765894 (B1), 2000-10-13. Paris: Institut National de la Propriété Industrielle, 2000.

And 7 national (Slovenian) patents:

1. UKMAR GODEC Tina, GODEC Aljaž, MAVER Uroš, GENORIO Boštjan, BELE Marjan, PLANINŠEK Odon, GABERŠČEK Miran, JAMNIK Janko. Steričnostabiliziran adispermija hibridnega anorgansko-organskega materiala v okolju kot pripravek za zaščito pred UV žarkom ter postopek priprave : patent : SI 22859 (A), 2010-03-31. Ljubljana: Urad RS za intelektualno lastnino, 2010.
2. KÜZMA Mirjana, DOMINKO Robert, BELE Marjan, GABERŠČEK Miran, JAMNIK Janko. Titanatiprehodnih kovin kot materializacija katode v litijevih akumulatorjih : SI 22771 (A), 2009-10-30. Ljubljana: Urad Republike Slovenije za intelektualno lastnino, 2009.
3. ŽUPERL Kristina, SFILIGOJ-SMOLE Majda, STANA-KLEINSCHKEK Karin, LOBNIK Aleksandra, BELE Marjan, JAMNIK Janko. Metodazamodifikacij raznovrstnih vlaken z nanonanosi : SI 22094 (A), 2007-02-28. Ljubljana: Urad Republike Slovenije za intelektualno lastnino, 2007.
4. BELE Marjan, DOMINKO Robert, GABERŠČEK Miran, JAMNIK Janko. Postopek priprave katode negamateriala v litijevih akumulatorjih, material katode in katoda : SI 21529, 2004-12-31. Ljubljana: Urad Republike Slovenije za intelektualno lastnino, 2004.
5. BELE Marjan, GABERŠČEK Miran, DOMINKO Robert, DROFENIK Jernej, PEJOVNIK Stane. Postopek priprave katode za litijevske akumulatorje : SI 20777 (A), 2002-06-30. Ljubljana: Urad Republike Slovenije za intelektualno lastnino, 2002.
6. GABERŠČEK Miran, BELE Marjan, PEJOVNIK Stane, DROFENIK Jernej, DOMINKO Robert. Postopek priprave ogljikove anode za litijevske akumulatorje : SI 20397 (A), 2001-04-30. Ljubljana: Urad Republike Slovenije za intelektualno lastnino, 2001.

PEJOVNIK Stane, BELE Marjan. Postopek za pripravo superprevodnih spojin v sistemu Y-Ba-Cu-O po sol-gel metodi : SI 9300578 (A), 1995-06-30. Ljubljana: Urad Republike Slovenije za intelektualno lastnino, 1995.

Partner 6: Andaltec Spain (ANDA)

Role in the project: prepare and characterize the PLA films and composites films; design and validation of the prototype product, LCC and LCA analysis for the product, recover the used packages, perform the market study, perform the migration tests needed to obtain the certificate of homologation at European level for the PLA film based active packages, to prepare documentation for beginning the procedure for obtaining the Romanian and European patent; organize the training, dissemination and management activities.

Team qualification in the field of proposal: The research team includes: 6 researchers (Julián Parra Barranco, Antonio Peñas San Juan, Francisco Navas San Juan Martos, Manuela Cano Galey, María Angeles Pancorbo y Daniel Aguilera

Puerto) specialized in development of new polymer composite in the field of food packaging. Julián Parra Barranco are focused in management of European Projects and development of polymer composites. Antonio Peñas San Juan and Francisco Navas San Juan are focused of development and validation of food packaging prototypes. Manuel Cano Galey is focused in the design and simulation of food packaging prototypes. María Angeles Pancorbo and Daniel Aguilera Puerto are focused and quality management and LCA analysis.

CV's of Key Persons involved in the activities of the project

The CV will present the main expertise in the field related to the scope of the project

1st Key Person

First Name:	Julián		Surname:	Parra Barranco
Title:	Dr	E-mail⁴¹:	julian.parra@andaltec.org	
Phone⁴²:	+34 677126029		Fax:	
Organisational web page of key person⁴³:	http://www.andaltec.org/en/h2020-3/			
Personal web page⁴⁴:	http://www.linkedin.com/in/juli%C3%A1n-parra-barranco-401a3bb1?trk=nav_responsive_tab_profile			

A. Relevant activities:

Relevant activities in the field of thematic area: Coordinator of the European Project Department of Andaltec. Participation at the redaction and implementation of R&D Projects financed by the national and international programs, in the field of food packaging, advanced materials, advanced manufacturing. Internal cooperation within the COST European RD programme Multi-Functional Nano-Carbon Composite Materials Network (MultiComp) CA-15107 in development of polymer composites reinforced with carbon fibers. Responsible Andaltec researcher of development of new polymer composites based on carbon nanomaterials.

Relevant activities in the field of the project: Project responsible of the “Europa Centros 2015” national project. Implementaiton of new technologies of the extruder system for fabrication of polymer composite reinforced with carbon nanomaterials.

B. Scientific activities:

Relevant publications in the field of thematic area (maximum 5):

1. Pedro Navarrete, J. Parra-Barranco. G. Morales-Cid, A. Peñas

Novel self-healing multilayer microcapsules with improved temperature and mechanical resistance: advances towards hot-melt thermoplastic processing. EUSCHEMS, Seville (Spain) 2016

2. Development of novel Nanocarbon composites based on functionalised MWCNT and Poly Lactic Acid for Fused Deposition Modeling applications.

J. Parra-Barranco, M.D. Ramírez-Rodríguez, Sharali Malik Gabriel.Morales. COST ACTION ,Creta (Grece) 2016.

3. STSM exchange Report within the COST European RD program Multi-Functional Nano-Carbon Composite Materials Network (MultiComp) CA-15107.

Relevant projects in the field of thematic area (maximum 5):

1) Title: International Europe Centre 2014

Registration no.: ECT- 2015- 177

Role: member in the research team and coordinator

Period: 20015-2016

Budget: 193.275,36 €

Funding source: Spanish Ministry of Economic and Competitiveness

⁴¹ Organisational e-mail ...@<partner1>

⁴² International format

⁴³ Official web page of key person in the organisation

⁴⁴ Personal web page, if applicable

2) Title: Fabrication of food packaging based in XPS and PET composites for enhance properties by thermoforming process.

Registration no.: ITC 20151005

Role: member in the research team

Period: 2016-2018

Budget: 606.400,40 €

Funding source: Spanish Ministry of Economic and Competitiveness

3) Title: Multi-Functional Nano-Carbon Composite Materials Network (MultiComp) CA-15107

Registration no.: CA-15107

Role: member in the research team

Period: 20014-2017

Funding source: European Commission H2020

4) Title: Integrated management of multilayer PVC/PE packaging waste

Registration no. LIFE ENV/ES/00231

Role: Member in the research team and coordinator of Andaltec

Period: 2016-2019

Budget: 118.973,00 €

Relevant applied activities (for companies e.g. product, processes, etc.): new technologies and new system for extrusion filament polymer composites. Cooperation with national and international companies for optimization of polymer composites reinforced with carbon nanomaterials.

2nd Key Person

First Name:	Antonio	Surname:	Peñas-Sanjuán
Title:	Dr.	E-mail⁴⁵:	antonio.penas@andaltec.org
Phone⁴⁶:		Fax:	
Organizational web page of key person⁴⁷:	www.andaltec.org		
Personal web page⁴⁸:	https://www.linkedin.com/in/antonio-pe%C3%B1as-sanju%C3%A1n-6b6a714a?trk=nav_responsive_tab_profile_pic		

A. Relevant activities:

Relevant activities in the field of thematic area: R&D responsible and Coordinator of R&D Material Area of Andaltec. Person in charge of developing new advanced functional material in the field of Food Packaging, polymeric nanocomposites, self-healing materials, etc

Relevant activities in the field of the project: Production of active and intelligent food packagings. Development of advanced polymeric composites based on nanomaterials, processing optimization and analysis of functionality.

B. Scientific activities:

Relevant publications in the field of thematic area (maximum 5):

1. Francisco Morales-Lara, María Domingo-García, Rafael López-Garzón, María Luz Godino-Salido, Antonio Peñas-Sanjuán, F. Javier López-Garzón, Manuel Pérez-Mendoza, Manuel Melguizo.

Grafting the surface of carbon nanotubes and carbon black with the chemical properties of hyperbranched polyamines. Science and Technology of advanced Materials, **2016**, 17, 541

2. Capilla Mata-Pérez, Beatriz Sánchez-Calvo, María N. Padilla, Juan C. Begara-Morales, Francisco Luque, Manuel Melguizo, Jaime Jiménez-Ruiz, Jesús Fierro-Risco, Antonio Peñas-Sanjuán, Raquel Valderrama, Francisco J. Corpas, Juan B. Barroso

Nitro-Fatty Acids in Plant Signaling: Nitro-Linolenic Acid Induces the Molecular Chaperone Network in Arabidopsis, Plant Physiology, **2016**, 170, 686

3. Antonio Peñas Sanjuán, Azahara Gutiérrez Mellado

⁴⁵ Organisational e-mail ...@<partner1>

⁴⁶ International format

⁴⁷ Official web page of key person in the organisation

⁴⁸ Personal web page, if applicable

New developments in monolayer films for Food Packaging, Revista de plásticos modernos: Ciencia y tecnología de polímeros, **ISSN 0034-8708, 2016, 111**, N°. 710

4. Pedro Navarrete, J. Parra-Barranco, G. Morales-Cid, A. Peñas

Novel self-healing multilayer microcapsules with improved temperature and mechanical resistance: advances towards hot-melt thermoplastic processing. EUSCHEMS, Seville (Spain) **2016**

5. M.D. Gutiérrez-Valero, P. Arranz-Mascarós, A. Peñas-Sanjuán, M.L. Godino-Salido, R. López-Garzón, A. Santiago-Medina, M. Melguizo-Guijarro, M. Pérez-Mendoza, F.J. López-Garzón, M. Domingo-García

Transferring the properties of molecular receptors to the carbon surface in hybrid materials: The crucial role of porous texture, Materials Chemistry and Physics, **2012, 134**, 608

Relevant projects in the field of thematic area (maximum 5):

1) Title: Integrated management of multilayer PVC/PE packaging waste

Registration no. LIFE ENV/ES/00231

Role: Member in the research team and coordinator of Andaltec

Period: 2016-2019

Budget: 118.973,00 €

2) Title: Research and development of novel healthy food and advanced food packaging

Registration no. Spanish Ministry of Economic and Competitiveness

Role: Member in the research team

Period: 2015-2018

Budget: 200.000,00 €

3) Title: Smart and Sustainable Food Packaging Utilizing Flexible Printed Intelligence and Materials Technologies

Registration no.: Grant agreement no: 289829. Seventh Framework Programme

Role: Member in the research team

Period: 2012-2014

Budget: 190.360,00 €

4) Title: Carbonanobridge

Registration no. ERC-227135, Seventh Framework Programme

Role: Member in the research team

Period: 2009-2015

Budget: 2.500.000,00 €

5) Title: Metallic nanoparticles on Carbon Nanotubes and Carbon-Blacks. Nanostructure arrangements by using hyperbranched organic polymers

Registration no. MAT2009-14185-C02-02, Spanish Ministry of Economic and Competitiveness

Role: Member in the research team

Period: 2010-2013

Budget: 84.700,00 €

Relevant applied activities (for companies e.g. product, processes, etc.):

new technologies and new system for food packaging. Leader of internal private R&D project with national food packaging companies.