

Book of Abstracts

Trend in grain-based foods

Transcolab Summit

**March 23-25th
2022**

Title

Trends in grain-based foods

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1° Trends in grain-based foods

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Trends in grain-based foods

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About

TRANSCOLAB is a European project that brings together universities, research centres, foundations, and companies from Castilla y León and Northern Portugal. This project intends to strengthen the connection between research institutions and companies, identifying the challenges and needs of the cereal industry and the existing scientific-technological capacities of the participating entities. It also aims to generate novel products, promote knowledge and innovation transfer, and develop a series of actions to promote innovative products and processes in the cereal sector, particularly in bakery and pastry.

Therefore, and because the project is coming to an end, the TRANSCOLAB partners organised an international congress, bringing together researchers and professionals to share innovative ideas in this field. The congress is divided into four different topics:

1. Past as key to the future (ancient grains, wholemeal products, and sourdoughs)
2. New Ingredients in grain-based products (Pseudocereals, pulses, and new flour sources)
3. Novel technologies, processes, and products
4. Sustainability and Circular economy.

The TRANSCOLAB SUMMIT team would like to thank you for your application to the congress, contributing to its success, with more than 170 registrations. The submitted works were received, processed, divided into two main categories (Oral Communications and Posters), and later distributed according to the aforementioned topics. In total, 34 Oral and 42 Panel Communications will be presented, joined by three Technical Communications and six plenary lectures. Moreover, the TRANSCOLAB SUMMIT will start with a Traditional and Innovative Bakery workshop, with 45 participants. On the SUMMIT's last day, we will have a discussion panel regarding "Myths and truths regarding cereal consumption". Once again, we would like to thank you all for attending our congress, and we hope to see you again at future research events.

The TRANSCOLAB SUMMIT team.

Trends in grain-based foods

SUSTAINABLE INGREDIENTS, PROCESSES AND PRODUCTS

MARCH 25TH, MORNING

9:00-12:30 SECTION 3: NOVEL TECHNOLOGIES, PROCESSES, AND PRODUCTS
CHAIRS: MARIA INÊS DIAS AND CARLA PEREIRA

09:00-9:30 PLENARY SESSION 5: MARIO MARTÍNEZ

9:30-11:10 ORAL SESSION 5

9:30-9:40 RICARDO N. PEREIRA

"ELECTRIC FIELDS - A PROMISING TECHNOLOGY TOWARDS SUSTAINABLE PROCESSING OF GRAIN-BASED FOODS"

9:40-9:50 ERIKA N. VEGA

"EXTRUDED FORMULATIONS BASED ON RICE AND CHICKPEA: DIETARY FIBER AND OLIGOSACCHARIDES"

9:50-10:00 LIEGE PASCOALINO

"BREAD FREEZING AS A NEW ALTERNATIVE TO CONSUMPTION"

10:00-10:10 CAROLA CAPPÀ

"STUDY OF THE TURBO-TECHNOLOGY POTENTIAL IN THE PRODUCTION OF GLUTEN-FREE INGREDIENTS AND POTATO-BASED PASTA"

10:10-10:20 ÁNGEL L. GUTIÉRREZ

"APPLICATION OF SHORT-TIME HIGH HYDROSTATIC PRESSURE TREATMENTS TO WHOLE BUCKWHEAT GRAINS TO MODULATE THE FUNCTIONAL PROPERTIES OF THE RESULTING FLOURS"

10:20-10:30 ANTONIO J. VELA

"PHYSICAL MODIFICATION OF RICE FLOUR VIA ULTRASONICATION. INFLUENCE OF TREATMENT TIME AND TEMPERATURE"

10:30-10:40 NATALIA P. VIDAL

"IMPROVING THE NUTRITIONAL VALUE OF COLD-PRESSED OILSEED CAKES THROUGH EXTRUSION COOKING"

10:40-10:50 COSTANZA CECCANTI

"ENRICHMENT OF FRESH EGG PASTA WITH ANTIOXIDANT EXTRACTS OBTAINED FROM WILD ITALIAN PLANTAGO CORONOPUS L. AND CHICORIUM INTYBUS L. AND QUALITY CHARACTERISATION OF THE FRESH END PRODUCT"

10:50-11:00 ROSALIA LOPEZ-RUIZ

"NEW INGREDIENTS IN THE PREPARATION OF COOKIES TO MITIGATE ACRYLAMIDE CONTENT"

11:00-11:10 MIRIAM HERNANDEZ-JIMENEZ

"APPLICABILITY OF NEAR INFRARED SPECTROSCOPY ON WHEAT FLOUR SUPPLEMENTED WITH LENTIL FLOUR"

11:10-11:30 COFFEE BREAK AND POSTER SESSION

| | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
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| OC-16: A breakthrough on Bread Formulation: Natural mineral Water as a Novel Functional Ingredient | |
| Fernanda Ferreira | 51 |
| OC-17: Hydroethanolic extract of <i>Ocimum basilicum</i> 'cinnamon' as a natural preservative for the food industry | |
| Eleomar Pires Jr. | 52 |
| OC-18: The potential of aromatic extracts to enhance the sensory perception of bread | |
| Vanessa Vieira | 53 |
| OC-19: Dairy gluten-free bread: technological, nutritional, and functional enhancement by curd cheese supplementation | |
| Isabel Sousa | 54 |
| Plenary session 3: Novel technologies, processes, and products | |
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| Ricardo N. Pereira | 56 |
| OC-21: Extruded formulations based on rice and chickpea: dietary fiber and oligosaccharides | |
| Erika N. Vega | 57 |
| OC-22: Bread freezing as a new alternative to consumption | |
| Liege Pascoalino | 58 |
| OC-23: Study of the turbo-technology potential in the production of gluten-free ingredients and potato-based pasta | |
| Carola Cappa | 59 |
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Enrichment of fresh egg pasta with antioxidant extracts obtained from wild Italian *Plantago coronopus* L. and *Chicorium intybus* L. and quality characterisation of the fresh end product

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Consumers are increasingly aware of the strong relationship between diet and health status and, for this reason, they have changed food preferences and have increasingly oriented towards functional foods. Indeed, functional foods represent new "enhanced" foods with healing-pharmaceutical characteristics. These plants leaves are used salad ingredients in France and Italy and are well known for being rich in phenolic compounds with antioxidant properties (Saybel, Rendyuk, Dargaeva, et al., 2020). The great interest in phenolics as food ingredients is that they are used as anti-diabetic, antioxidant, antibacterial, anti inflammatory, diuretic, digestive, and protector of other different diseases (Pereira, Custódio, Rodrigues, et al., 2017). Therefore, this work aimed to apply a functional ingredient obtained from wild edible plants in pasta food product. Bioactive compounds and nutraceutical qualities (radical scavenging activity, inhibition of lipid peroxidation and antihaemolytic activity) were evaluated. A pasta-making procedure was performed using different *P. coronopus* and *C. intybus* extract concentrations and different drying times to research the pasta-making procedure's optimisation. The phenolic compounds were identified and quantified by LC DAD-ESI/MSⁿ, with results expressed in mg/g extract. According to the obtained results, twenty-six phenolic compounds were identified. Cichoric acid (36 ± 2 mg/g) was the most abundant in *C. intybus*, followed by 5-*O*-caffeoylquinic acid (14.1 ± 0.1 mg/g), while in *P. coronopus*, verbascoside (151 ± 6 mg/g) was the most abundant compound. Flavonoid rearranged with different glycosidic molecules were found in the enriched pasta, i.e., apigenin-*O*-glucuronide, kaempferol-*O*-malonyl-hexoside, and kaempferol-*O* glucuronide. A strong interaction between the plant extract concentration and the drying time was demonstrated. These results indicated that plant extracts could be used as a functional food ingredient due to the significant antioxidant capacity and phenolic profile preserved after the incorporation process in typical pasta. Relevant factors have already been established, given that implementation of an experimental design provides more expansive knowledge.

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Reference

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