

**Book of Abstracts**

# **Trend in grain-based foods**

# **Transcolab Summit**

**March 23-25th  
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**Title**

Trends in grain-based foods

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# Trends in grain-based foods

SUSTAINABLE INGREDIENTS, PROCESSES AND PRODUCTS

## MARCH 24TH, MORNING

- > 9:00-9:30 OPENING SESSION  
LILLIAN BARROS - SUMMIT CHAIR  
NUNO RIBEIRO - DIRECTOR OF ESTIG  
LUÍS PAIS - VICE-PRESIDENT OF IPB  
ISABEL FERREIRA - STATE SECRETARY OF INLAND IMPROVEMENT
- > 9:30-13:00 SECTION 1: PAST AS KEY TO THE FUTURE  
**CHAIRS:** SANDRINA HELENO AND MÁRCIO CAROCHO
- > 09:30-10:00 PLENARY SESSION 1: ALESSANDRA MARTÍ
- > 10:00-11:00 ORAL SESSION 1
  - 10:00-10:10 RITA BELTRÃO MARTINS  
"ACORN FLOUR: AN INGREDIENT FROM THE PAST READY FOR THE FUTURE"
  - 10:10-10:20 KATERINA ATHINAIU  
"TECHNOLOGICAL AND NUTRITIONAL CHARACTERIZATION OF WHEAT FROM ANCIENT CROPS"
  - 10:20-10:30 VANÉZIA ROCHA  
"BROADENING FOOD SECURITY THROUGH GRAIN-BASED SOLUTIONS: AFRICAN MILLETS AND THEIR CABO VERDE AN WILD RELATIVE"
  - 10:30-10:40 CARLA BRITES  
"RICE AUTHENTICITY & TRACEABILITY, ELEMENTS OF SUSTAINABILITY AND QUALITY DIFFERENTIATION"
  - 10:40-10:50 MANUEL AYUSO  
"COMPARATIVE ANALYSIS OF THE CHEMICAL COMPOSITION OF DIFFERENT PORTUGUESE BREAD"
  - 10:50-11:00 MARIA OTILIA CARVALHO  
"THE IMPACT OF TRIBOLIUM CASTANEUM INFESTATIONS ON QUALITY OF WHEAT FLOUR FOR BREAD-MAKING"
- > 11:00-11:30 COFFEE BREAK AND POSTER SESSION
- > 11:30-12:30 ORAL SESSION 2  
**CHAIRS:** ELIANA PEREIRA AND ANGELA FERNANDES
  - 11:30-11:40 ANA CATARINA RIBEIRO  
"YEAST PROTEIN EXTRACT AS AN ALTERNATIVE PROTEIN IN THE FORMULATION OF MAYONNAISE"
  - 11:40-12:00 STEFAN LUNDGREN (PERKINELMER)  
"MEASURING INGREDIENT PERFORMANCE, CHARACTERIZING PROCESSING EFFECTS, AND DODGING BULLETS IN THE PLANT PROTEIN WILD WEST"
  - 12:00-12:15 ISABEL REINAS  
"INNOVATION IN BAKERY AND PÂTISSERIE INDUSTRY - THE CASE OF TECPAN"
  - 12:15-12:30 JUAN CARBAJO AGUIRRE  
"COLLABORATE TO MOVE FORWARD"
- > 12:30-13:00 PLENARY SESSION 2: CARLO GIUSEPPE RIZZELLO

# Trends in grain-based foods

SUSTAINABLE INGREDIENTS, PROCESSES AND PRODUCTS

## MARCH 24TH, AFTERNOON

15:00-18:30 SECTION 2: NEW INGREDIENTS IN GRAIN-BASED PRODUCTS

**CHAIRS:** MANUEL AYUSO AND FILIPA REIS

15:00-15:30 PLENARY SESSION 3: CLAUDIA M. HAROS

15:30-16:30 ORAL SESSION 3

15:30-15:40 MARIA INÊS DIAS

"NON-CONVENTIONAL SEEDS FOR THE DEVELOPMENT OF NEW BAKERY PRODUCTS: A NEW TREND OR MYTH?"

15:40-15:50 CARLOS SHIRAISHI

"FIG (FICUS CARICA L.) BIORESIDUES AS SOURCES OF BIOACTIVE COMPOUNDS AND NATURAL PIGMENTS FOR THE FOOD INDUSTRY"

15:50-16:00 MARTA MESIAS

"RISK/BENEFITS OF NEW INGREDIENTS ADDED TO NOVEL CEREAL-BASED FORMULATIONS"

16:00-16:10 ANABELA RAYMUNDO

"MICROALGAE AS A VALUABLE INGREDIENT FOR BREAD ENRICHMENT: INFLUENCE ON THE DOUGH RHEOLOGY AND BREAD MAKING PERFORMANCE"

16:10-16:20 MARÍA FRANCO

"PSYLLIUM: A NATURAL BAKERY IMPROVER"

16:20-16:30 YAMINA ABSI

"MINERAL AND PROXIMATE COMPOSITION OF COMMERCIAL PLANT-BASED FLOURS"

16:30-17:00 COFFEE BREAK AND POSTER SESSION

17:00-18:00 ORAL SESSION 4

**CHAIRS:** BRUNO MELGAR AND MIGUEL PRIETO

17:00-17:10 JESÚS MARÍN SÁEZ

"CEREALS AND PSEUDOCEREALS CONTAMINATED WITH TROPANE ALKALOIDS: ANALYTICAL TOOLS TO ASSURE FOOD SAFETY"

17:10-17:20 BEATRIZ NUNES SILVA

"OPTIMISATION OF HYDROCOLLOIDS DOSES IN GLUTEN-FREE BREAD MADE OF FLAXSEED AND RED LENTILS FLOUR BLEND"

17:20-17:30 FERNANDA FERREIRA

"A BREAKTHROUGH ON BREAD FORMULATION: NATURAL MINERAL WATER AS A NOVEL FUNCTIONAL INGREDIENT"

17:30-17:40 ELEOMAR PIRES

"HYDROETHANOLIC EXTRACT OF OCIMUM BASILICUM 'CINNAMON' AS A NATURAL PRESERVATIVE FOR THE FOOD INDUSTRY"

17:40-17:50 VANESSA VIEIRA

"THE POTENTIAL OF AROMATIC EXTRACTS TO ENHANCE THE SENSORY PERCEPTION OF BREAD"

17:50-18:00 ISABEL SOUSA

"DAIRY GLUTEN-FREE BREAD: TECHNOLOGICAL, NUTRITIONAL, AND FUNCTIONAL ENHANCEMENT BY CURD CHEESE SUPPLEMENTATION"

18:00-18:30 PLENARY SESSION 4: LAURA ROMÁN

20:30 DINNER

# 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

# Trends in grain-based foods

SUSTAINABLE INGREDIENTS, PROCESSES AND PRODUCTS

## MARCH 25TH, MORNING/AFTERNOON

- 11:30-12:50 SECTION 4: SUSTAINABILITY AND CIRCULAR ECONOMY  
**CHAIRS:** CRISTINA CALEJA AND JOSÉ PINELA
- 11:30-12:00 PLENARY SESSION 6: MANUELA PINTADO
  - 12:00-12:10 ISABEL MARIA FERREIRA  
"FLOURS MADE FROM FRUIT BY-PRODUCTS AS SUSTAINABLE INNOVATIVE INGREDIENTS: ARE THEIR MINERALS BIOACCESSIBLE?"
  - 12:10-12:20 ROSSANA CARDOSO  
"CEREAL MILLING BY-PRODUCTS AS SOURCES OF NUTRIENTS AND ANTIOXIDANT PHENOLIC COMPOUNDS"
  - 12:20-12:30 HANINE HACHED  
"RESPONSE SURFACE METHODOLOGY APPLIED TO ESSENTIAL OIL EXTRACTION OF EUCALYPTUS LEAVES"
  - 12:30-12:40 TERESA SIGÜENZA-ANDRÉS  
"DEVELOPMENT OF A FERMENTED PLANT-BASED BEVERAGE FROM DISCARDED BREAD FLOUR"
  - 12:40-12:50 FILIPA MANDIM  
"STUDY OF THE PHENOLIC PROFILE AND BIOACTIVE POTENTIAL OF CARDOON BRACTS AS A PROMISING FUNCTIONAL INGREDIENT"
- 13:00-14:30 LUNCH TIME
- 14:30-16:00 DISCUSSION PANEL: "MYTHS AND TRUTHS ABOUT CEREAL CONSUMPTION"  
**CHAIR:**  
SILVIA BRANDÃO  
**SPEAKERS:**  
ELISABETE FERREIRA  
MARIA FRANCO  
JORGE PASTOR MORENO  
MANUEL GOMES PALLARES  
EDUARDO VILLAR ROMO  
GEMMA DEL CAÑO  
EDUARDO TALLON
- 16:00-16:30 CLOSING SESSION AND CLOSURE OF THE TRANSCOLAB PROJECT (LANGUAGE: SPANISH & PORTUGUESE)
- 16:30 PORTUGUESE WINE

Section 1: Past as key to the future (ancient grains, wholemeal products, and sourdoughs)

<b>OC-01: Acorn flour: an ingredient from the past ready for the future</b>	
Rita Beltrão Martins	35
<b>OC-02: Technological and nutritional characterization of wheat from ancient crops</b>	
Katerina Athinaïou	36
<b>OC-03: Broadening food security through grain-based solutions: african millets and their cabo verde an wild relative</b>	
Vanézia Rocha	37
<b>OC-04: Rice authenticity traceability, elements of sustainability and quality differentiation</b>	
Carla Brites	38
<b>OC-05: Comparative analysis of the chemical composition of different portuguese bread</b>	
Manuel Ayuso	39
<b>OC-06: The impact of <i>Tribolium castaneum</i> infestations on quality of wheat flour for bread-making</b>	
Maria Otilia Carvalho	40
<b>OC-07: Yeast protein extract as an alternative protein in the formulation of mayonnaise</b>	
Ana Catarina Ribeiro	41

Section 2: New Ingredients in grain-based products (Pseudocereals, pulses, and new flour sources)

<b>OC-08: Non-conventional seeds for the development of new bakery products: a new trend or myth?</b>	
Maria Inês Dias	43
<b>OC-09: Fig (<i>Ficus carica</i> L.) bioresidues as sources of bioactive compounds and natural pigments for the food industry</b>	
Carlos S. H. Shiraishi	44
<b>OC-10: Risk/benefits of new ingredients added to novel cereal-based formulations</b>	
Marta Mesias	45
<b>OC-11: Microalgae as a valuable ingredient for bread enrichment: influence on the dough rheology and bread making performance</b>	
Anabela Raymundo	46
<b>OC-12: <i>Psyllium</i>: a natural bakery improver</b>	
María Franco	47
<b>OC-13: Mineral and proximate composition of commercial plant-based flours.</b>	
Yamina Absi	48
<b>OC-14: Cereals and pseudocereals contaminated with tropane alkaloids: analytical tools to assure food safety</b>	
Jesús Marín Sáez	49

<b>OC-15: Optimisation of hydrocolloids doses in gluten-free bread made of flaxseed and red lentils flour blend</b>	
Beatriz Nunes Silva	50
<b>OC-16: A breakthrough on Bread Formulation: Natural mineral Water as a Novel Functional Ingredient</b>	
Fernanda Ferreira	51
<b>OC-17: Hydroethanolic extract of <i>Ocimum basilicum</i> 'cinnamon' as a natural preservative for the food industry</b>	
Eleomar Pires Jr.	52
<b>OC-18: The potential of aromatic extracts to enhance the sensory perception of bread</b>	
Vanessa Vieira	53
<b>OC-19: Dairy gluten-free bread: technological, nutritional, and functional enhancement by curd cheese supplementation</b>	
Isabel Sousa	54
Plenary session 3: Novel technologies, processes, and products	
<b>OC-20: Electric fields - A promising technology towards sustainable processing of grain-based foods</b>	
Ricardo N. Pereira	56
<b>OC-21: Extruded formulations based on rice and chickpea: dietary fiber and oligosaccharides</b>	
Erika N. Vega	57
<b>OC-22: Bread freezing as a new alternative to consumption</b>	
Liege Pascoalino	58
<b>OC-23: Study of the turbo-technology potential in the production of gluten-free ingredients and potato-based pasta</b>	
Carola Cappa	59
<b>OC-24: Application of short-time high hydrostatic pressure treatments to whole buckwheat grains to modulate the functional properties of the resulting flours</b>	
Ángel L. Gutiérrez	60
<b>OC-25: Physical modification of rice flour via ultrasonication. Influence of treatment time and temperature</b>	
Antonio J. Vela	61
<b>OC-26: Improving the nutritional value of cold-pressed oilseed cakes through extrusion cooking</b>	
Natalia P. Vidal	62
<b>OC-27: Enrichment of fresh egg pasta with antioxidant extracts obtained from wild Italian <i>Plantago coronopus</i> L. and <i>Chicorium intybus</i> L. and quality characterisation of the fresh end product</b>	
Costanza Ceccanti	63
<b>OC-28: New ingredients in the preparation of cookies to mitigate acrylamide content</b>	
Rosalía Lopez-Ruiz	64
<b>OC-29: Applicability of near infrared spectroscopy on wheat flour supplemented with lentil flour</b>	
Miriam Hernandez-Jimenez	65

## Plenary session 4: Sustainability and Circular economy

<b>OC-30: Flours made from fruit by-products as sustainable innovative ingredients: are their minerals bioaccessible?</b>	
Isabel Maria Ferreira	67
<b>OC-31: Cereal milling by-products as sources of nutrients and antioxidant phenolic compounds</b>	
Rossana Cardoso	68
<b>OC-32: Response surface methodology applied to essential oil extraction of eucalyptus leaves</b>	
Hanine Hached	69
<b>OC-33: Development of a fermented plant-based beverage from discarded bread flour</b>	
Teresa Sigüenza-Andrés	70
<b>OC-34: Study of the phenolic profile and bioactive potential of cardoon bracts as a promising functional ingredient</b>	
Filipa Mandim	71

## NON-CONVENTIONAL SEEDS FOR THE DEVELOPMENT OF NEW BAKERY PRODUCTS: A NEW TREND OR MYTH?

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Of the numerous ways that the food industry has revolutionized itself in the last century, it is possible to point out the use of unconventional food plants (UFP) as one of them. These plants, in addition to their abundance, organoleptic, nutritional, and bioactive characteristics, do not compete directly with other plant matrices used for human consumption [1,2]. All of these facts led us to the following question: the use of non-conventional seeds for the development of new bakery products can be a new trend or is just a myth? To answer this question, the flour of three PANC seeds, *Guizotia abyssinica* (Lf, niger) Cass., *Panicum miliaceum* L. (millet) and *Phalaris canariensis* L. (birdseed) were chosen for the development of new bread products. Physical parameters (granulometry and water absorption index - WAI) were studied, followed by the nutritional value (AOAC methods), free sugars (HPLC-RI), fatty acids (GC-FID), organic acids (UPLC-DAD), tocopherols (HPLC -fluorescence) and phenolic compounds (HPLC-DAD/ESI/MS<sup>n</sup>). The antioxidant, hepatotoxic, and antimicrobial potential of the hydroethanolic extracts was also determined. The breads were prepared with partial replacement of the wheat flour (20% of the UFP's flour), having been studied several physical-chemical characteristics of the products, supported by the centroid simplex statistical method to understand the real effect of the application of the UFP flours. The use of the three flours should be complemented with other flours for bakery application, since all presented high granulometry and a high WAI. The seed that stood out the most was niger seed, with high total fat, PUFA, sugars, tocopherols, and phenolic compounds contents; as also low IC<sub>50</sub> and MIC values (hydroethanolic extracts) for inhibition of lipid peroxidation and antimicrobial activity, respectively. Niger and millet presented outstanding results as antifungal, with MIC values lower than the positive controls used (E211 and E224). None of the samples presented hepatotoxicity. Finally, the most similar breads in terms of texture, specific volume, and color to the control bread (100% wheat) were the ones prepared with partial replacement with millet and birdseed. Considering their nutritional, chemical, and bioactive profile, the use of these seeds is highly advisable in the context of a fortified diet, with beneficial health effects for the consumer. In addition, all proved to have a great potential to be a new trend in the bakery industry.

### References

- [1]. Kinupp, V. F., & Barros, I. B. I. *Horticultura brasileira* v. 22(2004), 17–25.  
 [2]. Leal, M. L. (2015). Repositório Institucional UFSC. <https://repositorio.ufsc.br/handle/123456789/174789>

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