

**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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## 1° Trends in grain-based foods

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# Schedule

# 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

# **Oral Session**

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<b>OC-07: Yeast protein extract as an alternative protein in the formulation of mayonnaise</b>	
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<b>OC-12: <i>Psyllium</i>: a natural bakery improver</b>	
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<b>OC-15: Optimisation of hydrocolloids doses in gluten-free bread made of flaxseed and red lentils flour blend</b>	
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<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>	
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## HYDROETHANOLIC EXTRACT OF *OCIMUM BASILICUM* 'CINNAMON' AS A NATURAL PRESERVATIVE FOR THE FOOD INDUSTRY

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*Ocimum basilicum* 'Cinnamon' is an aromatic and medicinal herb belonging to the *Lamiaceae* family [1]. Cinnamon basil, as it is popularly known, has aroused the interest of the scientific community for presenting significant concentrations of phenolic compounds [2]. Due to the increasing concern that consumers have towards artificial additives, an intensification in the demand for safer and natural preservatives has been observed [3]. In this sense, the present work aimed to identify the phenolic profile of *O. basilicum* 'Cinnamon' hydroethanolic extract (80:20, v/v) (EOBC) and to study its bioactive properties. The phenolic composition of the extract was evaluated by a chromatographic method: HPLC-DAD-ESI/MS. Seven distinct compounds were identified, including three phenolic acids (hydroxycinnamic acids) and four flavonoids that corresponded to quercetin derivatives. Regarding the bioactive properties, the antioxidant activity was tested by three *in vitro* assays: oxidative hemolysis inhibition (OxHLIA), reducing power, and free radical scavenging capacity (DPPH); the cytotoxicity was assessed in human tumor cells (MCF-7, breast carcinoma; NCI-H460, lung cancer; and AGS, gastric carcinoma) and in non-tumor cells (PLP2 and Vero) by the sulforhodamine B method; the antimicrobial activity was evaluated against a panel of twelve food pathogens by the microdilution method, where the maximum bactericidal (MBC) and fungicidal (MFC) concentration values were determined. The results showed a great antioxidant activity, with EC<sub>50</sub> values of 0.054 ± 0.002 mg/mL (DPPH), 0.079 ± 0.001 mg/mL (reducing power), and 21.4 ± 0.6 µg/mL (OxHLIA). A remarkable activity against AGS carcinoma (GI<sub>50</sub> = 48 ± 3 µg/mL) was also observed. The absence of toxicity of the extract was confirmed up to the maximum concentration studied (>400 µg/mL). In biological terms, EOBC extract showed antimicrobial performance in the ranges of 2-4 mg/mL (CMB) and 1-2 mg/mL (CMF) against all tested strains. In conclusion, it can be observed that *O. basilicum* 'Cinnamon' represents a valuable natural antioxidant and can also be considered a functional ingredient to be introduced into products of the bakery and pastry sector.

### References

- [1] E. M. Kwee, E. D. Niemeyer, *Food Chemistry*, v. 128, n. 4 (2011) 1044 -1050.  
[2] E. M. Bajomo, M. S. Aing, L. S. Ford & E. D. Niemeyer, *NFS Journal* (2022) 1-9.  
[3] M. A. Shah & S. A. Mir, *Plant Extracts: Applications in the Food Industry* (2022), 127-141.

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