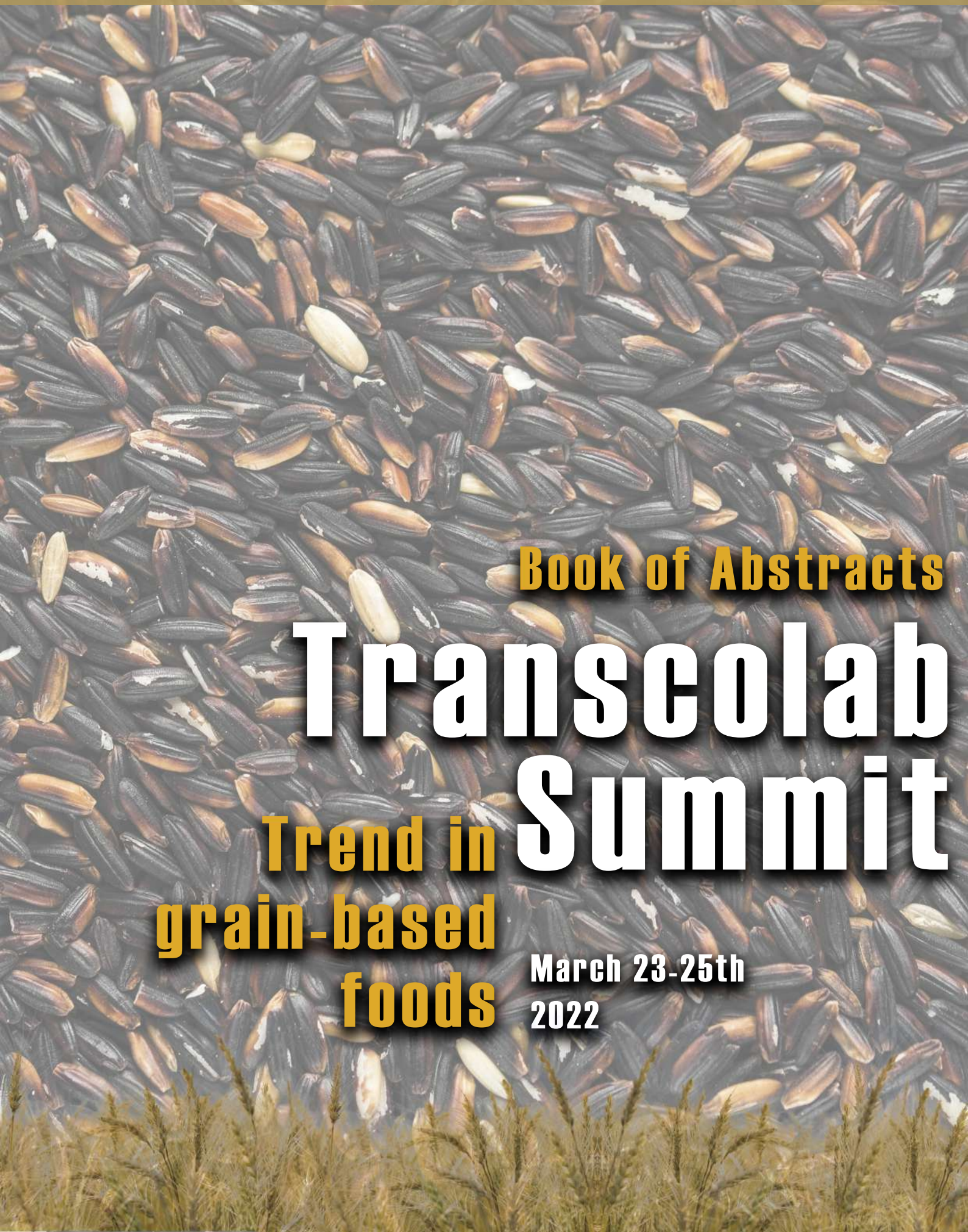

Book of Abstracts

Transcolab Summit

Trend in grain-based foods

March 23-25th 2022

Title

Trends in grain-based foods

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1° 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.

Index

Oral Session

Oral session

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

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

Plenary session 4: Sustainability and Circular economy

COMPARATIVE ANALYSIS OF THE CHEMICAL COMPOSITION OF DIFFERENT PORTUGUESE BREAD

Liege Aguiar Pascoalino[1,2], Manuel Ayuso[1], Eliana Pereira[1], Elisabete Ferreira[3], Isabel C.F.R. Ferreira[1], Lillian Barros[1*](lillian@ipb.pt)

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Bakery products are one of the most widely consumed foods in the world. Among them, bread is daily consumed by all social classes due to its macro (carbohydrates, protein, and fat) and micronutrients (minerals and vitamins). However, the refined wheat used in traditional baking diminishes its nutritional quality by reducing its dietary fibre, vitamins, minerals, and phytochemicals[1]. In addition, studies have been showing some health-related problems associated with obesity and diabetes. Compared with others made with different cereals or whole grains, traditional bread tends to be less satiating and increase the postprandial glycaemic index[2]. Thus, the great challenge of the cereal industry today is to innovate and reinvent a large part of its products, mainly by changing the traditional composition of food products, since it seems to be an effective method to improve the diet. Alternatives such as whole grains, other cereals or the incorporation of protein-rich flours such as legumes may help improve the nutritional quality of bread and have a favourable impact on consumers' health[3]. Thus, in this study, a comparative analysis, and chemical parameters among two traditional wheat bread (smoked sausage and cheese, SSCB; and wine, WB) and five non-conventional bread supplemented with different cereals (rye, RB; legumes and cereals, LCB; biological seed, BSeB; biological spelt, BSpB; and chickpea and sprouted seeds, CSSB) was performed. The bread centesimal composition was evaluated by AOAC official procedures; free sugars using HPLC-RI, and fatty acids by GC-FID. Regarding the chemical characterisation of traditional bread, SSCB showed a high protein concentration (9.95±0.02 g $100g^{-1}$ FW). However, it was also the bread with the highest amount of fat and a high percentage of saturated fatty acids (6.1±0.1 g $100g^{-1}$ FW and 67.1±0.4 %, respectively). WB revealed the highest concentration of free sugars (37.6±1.8 g $100g^{-1}$ FW). In general, the non-conventional bread presented lower energy and higher polyunsaturated fatty acids than the traditional. Additionally, RB, BSpB, and CSSB presented the lowest fat concentration, with CSSB showing the highest concentration of dietary fibre (7.2±0.4 g $100g^{-1}$ FW). This study demonstrates that incorporating alternative flours produces bread of higher nutritional quality. In general, non-conventional bread is lower in calories, fat and have a higher percentage of polyunsaturated fatty acids and dietary fibre.

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