CERNAS

Research Centre
for Natural Resources,
Environment and Society

CERNAS25

Abstract Book

Santarém Polytechnic University, School of Agriculture

17th–18th June 2025

Politécnico de Coimbra

Politécnico Castelo Branco
Polytechnic University

Politécnico de Viseu

POLITÉCNICO DE SANTARÉM

CERNAS
Research Centre
for Natural Resources,
Environment and Society

Research Groups

Food Science and Engineering

Apply knowledge of food science and engineering to the local food production industry.

- Traditional products and processes.
- Sustainable engineering
- Innovative food processing
- Human nutrition and health

Agriculture Science

Improve food and other natural resource production through sustainable resource use.

- Promoting good agricultural practices
- Biodiversity conservation
- smart agriculture
- Increasing productivity while maintaining the productive capacity of ecosystems.

Environment and Society

Explore sustainable solutions to environmental and social problems..

- Ecosystem conservation and socio-ecological system resilience
- Rural and urban development
- Resource valuation
- Sustainability and social responsibility

BIBLIOGRAPHIC INFORMATION

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This publication contains the abstracts of the presentations from CERNAS25, held in Santarém Agricultural School, on 17th–18th June 2025. It also includes the event's scientific programme.

The views expressed in each abstract are the sole responsibility of its respective author.

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OPENING REMARKS

Scientific Coordinator of CERNAS

Professor Rui Costa

CERNAS was founded in 2002 by researchers from the Polytechnic of Coimbra and the Polytechnic of Castelo Branco. Since then, it has grown steadily, incorporating researchers from the Polytechnic of Viseu in 2018. In 2024, CERNAS underwent a significant expansion, increasing from 49 to 99 researchers with the addition of a new hub from the Polytechnic of Santarém, as well as more researchers from the Polytechnics of Coimbra and Viseu.

This growth has introduced new organizational challenges, particularly in fostering a cohesive team and presenting a unified strategy to external stakeholders. However, it has also unlocked tremendous potential for multidisciplinary collaboration, which we are committed to exploit.

This event, hosted at the College of Agriculture of the Polytechnic of Santarém, marks a milestone in strengthening interdisciplinary and inter-hub collaboration.

Since 2024, we have actively promoted joint efforts in preparing Horizon Europe proposals—an initiative we are continuing at this meeting and will sustain annually. Internationalization is a cornerstone of our strategy, vital for enhancing our global impact, recognition among peers, and ability to conduct high-quality, competitive research.

A key focus of this year's event is training in AI applications for research, equipping our teams with cutting-edge tools. Additionally, we will review the recent FCT evaluation report, discussing actionable steps to address the panel's observations and improve our research performance.

Above all, this gathering aims to deepen collaboration by showcasing researchers' expertise and ongoing work, exploring funding opportunities, and facilitating face-to-face networking—an essential foundation for future partnerships.

The program was designed to maximize efficiency, incorporating activities that will jumpstart new collaborations immediately.

The Executive Committee firmly believes that CERNAS is on the right path to achieving its goals—collectively and ambitiously.

PROGRAM

June 17th

9:00-9:30	**REGISTRATION**
	Chairperson – Rui Costa
9:30-10:00	**Opening Remarks** President of the Santarém Polytechnic University, João Miguel Moutão President of the Polytechnic University of Coimbra, Jorge Conde President of the Polytechnic University of Castelo Branco, António Fernandes Pro-President for Research and innovation of the Polytechnic University of Viseu, Paula Correia Director of the School of Agriculture of Santarém, Margarida Oliveira CERNAS Coordinator, Rui Costa
10:00-10:45	Horizon@CERNAS: step into 2025 – Opportunities in Natural Resources, Agrifood and Environment Agência Nacional de Inovação Ana Sutcliffe
10:45-11:15	**COFFEE BREAK**
11:15-11:45	Oportunidades de Financiamento pela CCDRC Coordenador de Ciência, na Autoridade de Gestão do Centro 2030 Pedro Vieira
11:45-12:15	Programas Operacionais Direção Geral de Agricultura e Desenvolvimento Rural Custódia Correia
12:15-12:35	Oportunidades de Colaboração com os Pólos de Inovação Cernas Coimbra Rosa Guilherme
12:35-14:00	**LUNCH**
	Chairperson – Luís Pinto de Andrade
14:00-14:10	Microplastics in the urban environment: A case study of Coimbra municipality Inês Amorim Leitão
14:10-14:20	The impact of climate change on submediterranean oak forests – an ongoing work overview Isabel Passos
14:20-14:30	Effects of a biocontrol agent on the seed legacy of an invasive plant in coastal dunes Liliana N. Duarte
14:30-14:40	The effects of different farming systems on sustainable rural development in mountain areas Sandra Moreira Coelho

14:40-14:50	Bibliometric analysis of ecosystem services: research trends in carbon sequestration. Natália Roque
14:50-15:00	Ambient air contamination: European assessment of pesticide residues in ambient air using passive sampling Adelcia Veiga
15:00-15:10	Volatile Off-Flavour Profiling in Wine Distillate Tails Diogo Duarte Nunes Lopes
15:10-15:20	Comparative Phytochemical Profiling of Flowers and Pods in Acacia Species Soraia Inês Pedro
15:20-15:30	Influence of storage conditions on the physicochemical, sensory and microbiological characteristics of hazelnuts: preliminary results Ana Ferrão
15:30-15:40	Multi-Year Life Cycle Assessment of Wine Production: Identifying Carbon Footprint Hotspots and Reduction Strategies Artur Saraiva, Joana Portugal Pereira, José Melo e Abreu and Margarida Oliveira
15:40-16:10	**COFFEE BREAK**
	Chairperson – Carla Varanda
16:10-16:25	Nanotechnology: a transformative tool for agriculture, environment, and food systems Sónia Pinho
16:25-16:40	Future climatic water balance perspectives under climate change scenarios – a Portuguese case study Teresa Albuquerque
16:40-16:55	Structure and function of running waters Manuela Abelho
16:55-17:10	From Waste to Resource: Exploring the Potential of Sheep and Goat Whey as a Sustainable Product Ana Ferraz
17:10-17:25	Impact on soil pH, available phosphorus and calcium of a set of biochar throughout an incubation experiment Cláudia Vitória
17:25-17:40	Strawberry tree culture, an endogenous resource Maria Filomena Figueiredo Nazaré Gomes
17:40-17:55	Rockrose, a tangible genetic resource Maria Margarida Ribeiro
17:55-18:10	Seaweeds consumption in preventing non-communicable diseases Ana Valado
18:10-18:25	Prunus Network – a longtime research collaboration Maria Paula Simões
18:25-20:30	**GET-TOGETHER PARTY**

June 18th

	Chairperson – Margarida Oliveira
9:30-10:00	Text Mining Applications for Environmental and Social Research Instituto Politécnico de Coimbra Ricardo F. Ramos
10:00-11:00	Using AI in the scientific research process INESC TEC - Instituto de Engenharia de Sistemas e Computadores, Tecnologia e Ciência Henrique Mamede e Arnaldo Santos
11:00-11:30	**COFFEE BREAK**
11:30-13:00	Overview of research groups/collaboration proposals
13:00-14:15	**LUNCH**
14:15-15:15	Presentation of the CERNAS evaluation results by FCT, followed by a discussion of future activities.
15:15-16:45	"World Cafe" of Research Projects
	CLOSING SECTION

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Influence of storage conditions on the physicochemical, sensory and microbiological characteristics of hazelnuts: preliminary results

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This work contains the preliminary results of a study which intends to analyse the effect of storage and roasting conditions on some physicochemical, sensory and microbiological characteristics of three hazelnut cultivars, Grada de Viseu, Tonda di Giffoni and Butler, cultivated in an orchard situated in the Central region of Portugal. Hazelnuts were submitted to different storage conditions, varying temperature (a medium temperature of 18 °C, 25 °C and 4 °C), relative humidity (without relative humidity control, 65% and 75%) and packaging (without packaging, vacuum and industrial package), and also to different binomial temperature/time roasting conditions (with temperatures varying from 125 to 200 °C). Subsequently, several physicochemical analyses using different internationally recognized analytical techniques were performed. The results showed differences between cultivars according to the year of harvest (2021, 2022, and 2023). Regardless the treatment that was applied, all the cultivars contained valuable amounts of protein, fibre and fat, manly oleic acid, being this the major fatty acid presented in hazelnuts. Storage conditions (temperature and relative humidity) and packaging influenced different hazelnuts' characteristics, such as for example moisture, water activity and fat. Generally, regardless of the temperature used, a relative humidity of 75% at 12 months of storage, resulted in moisture values above 6%. For all types of packaging, after 3 months of storage, water activity was higher than 0.70, being the samples with no packaging the ones with higher values when compared to the other packaging materials. After roasting, in most of Grada de Viseu fruits it was not possible to remove the skin which can be an inconvenience, since one of the objectives of this process is to remove hazelnuts' skin. Roasting originated higher changes on hazelnuts' colour and also the specific extinction coefficients. The roasting condition of 165 °C/15 min was the one that presented the most desirable hazelnuts' characteristics. The treatment of the rest of the results is ongoing.

Keywords: Hazelnuts; Roasting; Microbiological safety; Physicochemical characteristics; Storage conditions.

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