



BOOK OF ABSTRACTS

6th International Workshop

ZERO POLLUTION - SUSTAINABLE DEVELOPMENT

23 September 2026

Polytechnic University of Viseu

September, 2026

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Brief description of the Program

The School of Technology and Management of Viseu (ESTGV) of the Polytechnic University of Viseu (UPV) will host, on September 23, the 6th International Workshop “Towards Zero Pollution”, bringing together researchers and experts to discuss innovative approaches to pollution reduction and environmental protection.

The workshop is part of the initiatives promoted by the Polytechnic University of Viseu within the framework of the European Sustainable Development Week 2026 (ESDW). It aims to foster dialogue among researchers from different scientific fields and to encourage the sharing of research outcomes, experiences, and technological solutions that contribute to preventing and reducing pollution.

Throughout the event, participants will present their projects and ongoing work, addressing topics such as environmental quality, sustainable resource management, technological innovation, and policy strategies for a lower-impact future.

By promoting interaction between researchers, students, and other participants, the workshop also seeks to strengthen collaboration and stimulate new ideas capable of addressing current environmental challenges.

Through this initiative, UPV reaffirms its commitment to scientific research and to the role of knowledge and innovation in advancing more sustainable societies.

Everyone has the power to contribute to a positive change!



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Program

09h30 – RECEPTION

10h00 – OPENING SESSION

- **Eduardo Gouveia** | President of the School of Technology and Management of Viseu
- **Isabel Brás** | Head of the Environmental Department
- **José Abrantes** | Coordinator of the Digital Services Research Center
- **José Pereira** | Coordinator of the Research Center for Natural Resources, Environment and Society

10h30 – ORAL PRESENTATIONS – SESSION 1

12h00 – POSTER PRESENTATIONS – SESSION 1

13h00 – LUNCH

14h30 – KEYNOTE LECTURE

Climate and Sustainability: Challenges and Opportunities

Professor Filipe Duarte Santos | President of the National Council for the Environment and Sustainable Development

Moderator:

Elisabete Silva | Vice-President of the School of Technology and Management of Viseu

15h15 – ORAL PRESENTATIONS – SESSION 2

16h30 – COFFEE BREAK / POSTER PRESENTATIONS – SESSION 2

Musical Interlude | **Cristina Aguiar**

17h00 – ORAL PRESENTATIONS – SESSION 3

19h00 – CLOSING SESSION



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Isabel Brás

Maria Elisabete Silva

Nuno Miguel Rodrigues

Sandra Santos

Sérgio Lopes

Partners



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DOS ENGENHEIROS
REGIÃO CENTRO
VISEU





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Exploring an Alternative Potassium Source for Sustainable Lettuce Production: A Preliminary Study

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Abstract

The increasing demand for food production has intensified the use of chemical fertilizers, raising concerns regarding resource depletion and environmental sustainability. In this context, the valorisation of organic residues as alternative nutrient sources may contribute to more circular and sustainable agricultural practices. Potassium (K) is an essential nutrient for plant growth, and reducing dependence on conventional mineral fertilizers remains a relevant challenge. This preliminary study aimed to evaluate the potential of an organic fertilizer (OF), derived from bakery industry residues, as an alternative potassium source for hydroponic lettuce (*Lactuca sativa* L.) cultivation. Different concentrations of FO were tested, and Its effectiveness was compared with a commercial potassium fertilizer (KNO₃) — control solution, assessing plant growth and potassium uptake.

Three experimental conditions were evaluated: potassium omission, full substitution of the conventional K source by OF, and partial substitution using 50% OF and compared to the control solution — (KNO₃). Results showed that plants grown without potassium supplementation presented a significant reduction in leaf potassium concentration, confirming the importance of K availability for plant development. In contrast, plants supplemented with 100% OF achieved potassium concentrations slightly higher than the control treatment, indicating that potassium from the organic source was available for plant uptake. Moreover, the 50% OF treatment maintained plant potassium levels close to the control, suggesting that a reduced application rate may be sufficient without compromising plant performance.

Overall, these findings highlight the potential of organic residues as alternative potassium sources and support further investigation towards the development of more sustainable fertilizers for horticultural production.

Keywords

lettuce; potassium; organic fertilizer; circular economy; sustainable agriculture