

Seeds of Innovation

Plant biotechnology for the future of Agriculture

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Book of Abstracts

Faculdade de Ciências da Universidade do Porto



Fundação "la Caixa"



Fundação para a Ciência e a Tecnologia



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Introduction

The “*Seeds of Innovation: Plant Biotechnology for the Future of Agriculture*” symposium, held on 20th May at the Faculty of Sciences of the University of Porto, brings together researchers and professionals in the field to explore the contribution of plant biotechnology to addressing some of the most pressing challenges facing modern agriculture. Climate change, resource scarcity, and the need for more sustainable food production systems require innovative and multidisciplinary approaches, in which plant biotechnology plays a central role.

This symposium provides a platform for knowledge exchange across different areas of plant biology, including plant breeding, molecular biology, epigenetics, agricultural production, and the transfer of knowledge into practical applications. By promoting connections between academia, industry, and other stakeholders, the event aims to stimulate dialogue and foster collaborations that accelerate innovation in the agricultural sector.

The programme reflects a diversity of perspectives, ranging from advances in New Genomic Techniques (NGTs) to their application in specific agricultural systems, such as rice production in Portugal. In parallel, the poster session highlights emerging research and encourages the participation of early-career researchers, reinforcing the importance of knowledge sharing within the scientific community. This Book of Abstracts compiles the contributions presented at the symposium in poster format.



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**[P10] Diversity of Portuguese Common Bean Germplasm Across Regional
Origins**

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Portuguese common bean (*Phaseolus vulgaris* L.) landraces reflect long-term adaptation to diverse regional environments in Portugal, yet their use is limited to a reduced number of commercial types. This study evaluates a collection of 257 Portuguese common bean accessions to assess diversity patterns associated with regional origin (North, Centre and South) to support the identification of germplasm with potential for future valorisation. Regional origin significantly influenced seed morphology, mineral composition and bioactive compounds. Centre accessions exhibited greater seed width (6.5 ± 0.7 mm) and seed height (8.3 ± 0.8 mm, $p < 0.05$), with magnesium contributing ($>20\%$) to regional distribution. Northern accessions produced more seeds per pod (5.8 ± 1.0 seeds/pod) and had the highest protein ($22.4 \pm 2.9\%$), calcium (4.5 ± 1.1 mg/g), potassium (16.1 ± 1.8 mg/g, $p < 0.05$) and phosphorus (4.8 ± 0.9 mg/g) content, suggesting superior nutritional yield per seed. In Southern accessions, hotter and drier conditions stimulated significantly higher saponins concentration (43 ± 7.3 mg DE/g DW) but lower phytic acid, starch, protein and mineral content. Overall, regional origin primarily shaped morphology and nutritional diversity, supporting the identification, conservation, and promotion of valuable Portuguese common bean landraces with underexplored regional diversity for breeding and sustainable food systems.