

Interview

An Interview with Dr. José Pinela

Recent Progress in Science and Engineering Editorial Office

LIDSEN Publishing Inc., 2000 Auburn Drive, One Chagrin Highlands, Suite 200, Beachwood, OH, USA;
E-Mail: rpse@lidsen.com

Recent Prog Sci Eng
2025, volume 1, issue 2
doi:10.21926/rpse.2502010

Received: June 22, 2025

Accepted: June 22, 2025

Published: June 23, 2025



Dr. José Pinela



© 2025 by the author. This is an open access article distributed under the conditions of the [Creative Commons by Attribution License](https://creativecommons.org/licenses/by/4.0/), which permits unrestricted use, distribution, and reproduction in any medium or format, provided the original work is correctly cited.

José Pinela is an Assistant Researcher at the National Institute for Agricultural and Veterinary Research (INIAV), Vairão - Vila do Conde, and a collaborating researcher at the Mountain Research Centre (CIMO), La SusTEC, Polytechnic Institute of Bragança (IPB), Portugal. His research focuses on the chemistry and bioactivity of natural products, the valorization of agri-food by-products into bio-based ingredients, and food safety assessment. Pinela has authored 10 book chapters and over 110 ISI/Scopus-indexed articles, as well as editorials and conference proceedings. He serves as an Associate Editor for *Frontiers in Nutrition* and is a member of the editorial boards of *Molecules* (Food Chemistry section), *Recent Progress in Science and Engineering* (Food Science and Engineering Section), and *Exploration of Foods and Foodomics*. He has edited two books and served as guest editor for 20 special issues. From 2019 to 2024, he taught Food Science, Food Quality and Safety, Chemistry, and Biochemistry at the higher education level. He has presented his research at several scientific events through oral and poster communications. His work has been recognized with scientific and academic awards and distinctions. Pinela is involved in several R&D projects and is the co-inventor of a national patent (117256). He is also actively engaged in science dissemination and outreach activities.

1. Could You Please Tell Us Your Scientific Background?

My scientific journey began with a degree in Phytopharmacy and Medicinal and Aromatic Plants from the School of Agriculture of the Polytechnic Institute of Bragança, which provided me with a strong foundation in plant production techniques, plant biology and biotechnology, and natural product chemistry. This interdisciplinary background allowed me to understand the potential applications of natural products across different industries.

After completing a Master's degree in Biotechnology, I pursued a Ph.D. in Sustainable Chemistry at the University of Porto, through a collaborative program with NOVA University Lisbon and the University of Aveiro. This doctoral research enabled me to assess the nutritional and chemical composition of wild edible plants, identify bioactive compounds associated with the traditional uses of medicinal plants in folk medicine, develop innovative extraction methods for sustainable recovery of valuable compounds, and assess the impact of non-thermal processing technologies.

My academic path was further enriched by international experiences, including an ERASMUS exchange at the University of Ljubljana (Slovenia), where I gained new perspectives on natural products biotechnology, and a research internship at the Faculty of Pharmacy, Complutense University of Madrid (Spain), focusing on advanced analytical techniques. These diverse experiences - from plant science to sustainable chemistry - have shaped the interdisciplinary approach I currently apply to food science and the valorization of natural products.

2. What Is Your Main Research Area? What Got You Interested in this Research in the First Place?

My research focuses on two critical and interconnected challenges in agricultural and food science: ensuring food safety and developing sustainable solutions for agri-food by-products. The food safety aspect of my work addresses the growing complexity of pesticide residue monitoring in the food supply chain. Currently, more than 1,000 pesticide molecules are in use worldwide, and analytical methods are struggling to keep pace with new formulations, making this a significant challenge in food safety. Developing multi-residue extraction and analysis methods for these contaminants has thus become both a scientific necessity and a public health priority.

At the same time, I became deeply interested in the potential to transform agricultural by-products - often considered waste - into valuable ingredients for food and other consumer goods. The possibility of extracting natural antioxidants, antimicrobials, and colorants from these underutilized resources represents an exciting convergence of sustainability and innovation. Moreover, these bio-based ingredients can help expand the current range of natural food additives available on the market.

What ultimately drew me to this field was the opportunity to address both food safety concerns and environmental sustainability. By implementing strategies that ensure consumer protection from food contaminants while minimizing waste and supporting circular economy principles in the food industry, I believe my research contributes meaningfully to both public health and environmental sustainability.

3. Could You Please Briefly Share Your Career Development Story with Us? And What Impressed You Most in Your Research Life?

After completing my Ph.D., I worked as a Junior Researcher at CIMO, La SusTEC, at the Polytechnic Institute of Bragança (2018-2024). During this period, I had the opportunity to teach various subjects, including Food Science, Food Quality and Safety, Biochemistry, and Chemistry. Although I initially expected to continue my academic career at this institution, an exciting opportunity arose in 2024 to join the National Institute for Agricultural and Veterinary Research (INIAV I.P.) as an Assistant Researcher. This transition allowed me to focus my work on food safety research, with a particular emphasis on implementing analytical methods for detecting food contaminants, as my current institution also serves as the National Reference Laboratory (NRL) in several areas of Food Safety.

What has impressed me most throughout my research journey is realizing how collaborative science can generate tangible impacts. Some of my most rewarding experiences have come from industry-academia partnerships, where we were able to transform theoretical knowledge into practical solutions. These collaborations not only generate new scientific insights but also contribute to business competitiveness by developing innovative, market-ready applications. Seeing our work move from the lab to real-world implementation has been particularly inspiring and fuels my motivation to continue focusing on applied research.

4. Considering the Progress in Your Research Area, Could You Please Share with Us Some Hot Topics or Cutting-Edge Technologies in Your Research Field? And What Challenges and/or Developments that May Be Encountered in the Coming Years?

The fields of food safety and agri-food by-product valorization are currently undergoing significant transformations, driven by both technological advancements and pressing sustainability and One Health needs. One of the most prominent research frontiers involves the development of analytical methods for monitoring emerging food contaminants. Advanced techniques, combined with artificial intelligence for data processing, are pushing the boundaries of detection sensitivity and specificity. These tools are becoming indispensable for identifying not only known contaminants like pesticide residues, plant toxins, and mycotoxins, but also their transformation products and previously unrecognized metabolites.

Simultaneously, the sustainable recovery of functional compounds from agri-food by-products through multi-product cascade biorefineries has emerged as a key strategy for achieving circular economy goals in the food sector. Modern green extraction and biotransformation technologies are enabling more efficient and environmentally responsible recovery of valuable compounds such as polyphenols, organic acids, sweeteners, dietary fibers, and peptides. These approaches allow for the sequential fractionation of different components from the same biomass, maximizing resource use efficiency and minimizing waste generation.

However, several critical challenges must be overcome to enable the practical and large-scale application of these innovations. One major hurdle is the scaling of laboratory-developed technologies to industrial levels while maintaining cost-effectiveness, particularly for small and medium-sized enterprises that may lack the infrastructure for advanced processing. Additionally, the safety of upcycled ingredients remains a paramount concern, as agricultural by-products may contain natural toxins and carry higher contaminant loads than conventional raw materials. Ensuring the safety of these novel ingredients requires robust analytical validation and the development of standardized risk assessment protocols.

Regulatory frameworks also present a significant bottleneck, as current policies often struggle to keep pace with rapid technological advancements. There is an urgent need for updated, science-based regulations that can accommodate innovative processes while safeguarding public health. Furthermore, the successful integration of by-product valorization into circular food systems depends on establishing new supply chains and business models capable of handling variable feedstock compositions and seasonal availability.

Addressing these challenges will require close collaboration across various disciplines, including chemistry, engineering, toxicology, nutrition, and policy science. By fostering such interdisciplinary partnerships, the scientific community can develop holistic solutions that not only advance food safety and sustainability but also support the transition toward more resilient and resource-efficient food systems. The coming years will undoubtedly bring continued innovation in these areas, with a growing emphasis on technologies that balance analytical precision, environmental sustainability, and economic viability.

5. Is There a Book You've Read that You'd Recommend Universally (i.e., to Everyone You Meet)?

I would recommend *"The Second Brain"* by Dr. Michael D. Gershon. It explores the fascinating science of the gut-brain connection and shows how the digestive system functions almost like an independent brain. The book is both informative and accessible, offering valuable insights into how gut health influences mood, behavior, and overall well-being.

6. What Valuable Suggestions or Experiences Would You Like to Share with Young Scholars Regarding How to Be a Professional Researcher?

For young researchers embarking on a research career, I would like to highlight a few key principles that have guided my own professional journey:

- First, cultivate intellectual curiosity, the driving force behind meaningful scientific discoveries. Ask bold questions and don't fear venturing into unexplored territories. Some of the most impactful research emerges at the intersection of disciplines, so keep an open mind to unexpected findings.

- Second, develop resilience. Research is inherently iterative, with setbacks being an inevitable part of the process. Learn to view challenges as opportunities for growth rather than failures. The ability to adapt and persist through difficulties is often what distinguishes successful researchers.
- Third, practice humility in science. Recognize the limits of your knowledge and be open to learning from others, including colleagues from different fields and more experienced researchers.

I strongly recommend seeking interdisciplinary collaborations early on. Many of today's most pressing scientific challenges require integrated approaches that transcend traditional academic boundaries. Working with experts from complementary fields can spark innovative solutions and open new research directions. International exposure is equally valuable. Whether through collaborative projects, conferences, or research exchanges, engaging with the global scientific community broadens your perspective, exposes you to diverse methodologies, and often leads to unexpected breakthroughs.

Finally, remember that impactful research balances academic rigor with real-world relevance. While publications are important, consider how your work might translate into practical applications that benefit society. Research requires dedication, but by combining curiosity with collaboration, resilience with humility, and academic excellence with practical vision, you can build a rewarding career that makes meaningful contributions to science and society.

7. What Is Your Long-Term Research Goal?

My long-term scientific ambition is to lead transformative approaches that tackle critical challenges in strengthening food safety and promoting more sustainable food systems. At the core of this vision is the development of analytical methodologies for the detection of emerging contaminants, ranging from pesticide residues to naturally occurring toxins, as well as the assessment of the impact of innovative processing technologies on the stability of these contaminants and overall food quality. In parallel, I aim to contribute to the valorization of agri-food by-products as a source of valuable food-grade compounds. This involves exploring novel extraction, separation, and stabilization technologies, along with circular strategies that enable the conversion of agricultural by-products into safe, high-value ingredients, thereby closing resource loops within the food supply chain. My goal is to bridge these two areas by establishing science-based frameworks that ensure the quality and safety of novel, sustainable food products in compliance with regulatory requirements. Through interdisciplinary collaboration and industry partnerships, I hope to translate scientific innovations into practical solutions that benefit both consumers and the planet, contributing to food systems that are not only safer and more efficient, but truly regenerative by design.

8. What Attracts You to Join the Editorial Board of *Recent Progress in Science and Engineering*?

I am drawn to the journal's commitment to multidisciplinary, solution-driven research, which aligns with my scientific values. The open-access model resonates with my belief in science's societal impact, and my expertise in food science, engineering, and sustainability positions me to contribute meaningfully. As an editor and researcher, I am eager to promote high-quality, transformative work, identify emerging trends, and bridge fundamental research with practical applications. Joining the

Editorial Board would allow me to support the journal's mission while fostering interdisciplinary progress.

9. What Do You Think of the Future of *Recent Progress in Science and Engineering*, an Open-Access Journal?

Recent Progress in Science and Engineering has tremendous potential to become a leading force in open-access scientific publishing. Its commitment to accessibility and multidisciplinary research positions it perfectly to address modern scientific challenges. The journal's open-access model is particularly valuable for democratizing knowledge, especially for researchers in developing regions and industry professionals. Its interdisciplinary focus on fields like food science, engineering, and sustainability aligns with where major scientific breakthroughs are happening today. To maximize its impact, the journal should: i) maintain rigorous peer-review standards; ii) highlight emerging fields like AI in food science and circular agri-food systems; iii) bridge academia and industry to enhance real-world applications; and iv) leverage new publishing formats. By combining academic excellence with practical relevance, the journal will not just document but actively catalyze scientific innovation. Given its current editorial direction and strategic positioning, the journal is fully equipped to become an indispensable resource for the global scientific community.