

# Newsletter

## July 2023



## TECHNICAL FILE

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01

## EDITORIAL #1

This is the 33<sup>rd</sup> edition of the LQRC-CIEQV, the 2<sup>nd</sup> of this new coordination, and it intends, as defined since the beginning of its implementation, to promote and disseminate the research carried out within the scope guaranteeing its members accessible and organized information for better structuring and continuity of research and development projects.

Once again, we thank all the work and collaboration by the Coordinating Committee, which is made up by the coordinators of the different scientific areas that make up the LQRC-CIEQV: Education and Training; Food Production and Technology / Eating Behavior, Individual and Community Health, Organisational Dynamics and Physical Activity and Healthy Lifestyles, respectively researchers **Fernando Santos**, **Paula Ruivo**, **José Amendoeira**, **Pedro Sobreiro** and **Carla Chicau Borrego**.

This newsletter reflects some of the research and development activities carried out within the scientific area of Food Production and Technology / Eating Behavior. In this issue, we can find Vanda Andrade and António Vicente interviews. The **Nair Cunha** research article about an emerging theme – “*Effects of Insect Consumption on Human Health: A Systematic Review of Human Studies*” and **António Vicente** study related with the evaluation of the sprint racing performance of Quarter Horses in Brazil.

News about projects under development, **Helena Mira**, present the project: Croatian grape varieties in Portugal; **Rosa Santos Coelho** present the project: RedeSusTERRA – Network for the promotion of sustainable practices in agricultural systems with an impact on territories; **Igor Dias**, present the project: SPIN – Sustainable ProteIN and **Gabriela Basto de Lima**, present the project: Spreadable healthy creams protein.

We want to extend our sincere thanks to **Paula Ruivo** and all the researchers and who contributed to this edition of the Newsletter and to the activities of the scientific area of Production and Food Technology / Food Behaviors.

We wish you all good readings and nice holidays.



José Amoroso <sup>1,2</sup>

<sup>1</sup> ESECS – Polytechnic Institute of Leiria

<sup>2</sup> Life Quality Research Centre

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## EDITORIAL #2

We return in the summer to present the July issue of our Newsletter, highlighting research results at the intersection of agricultural production, animal science, food technology and eating behaviors. In our research, we seek to study the impact of our sustainable choices on quality of life, and in this issue we reveal the contributions of integrated and collaborating members of the scientific area of Production and Food Technology / Food Behaviors (PFT/FB) of the Life Quality Research Centre (LQRC-CIEQV) in order to solve the complexity that shapes agrifood systems and the broader implications with human health, sustainability and well-being for all of us.

In the pursuit of sustainable development, the importance of agri-food production cannot be underestimated. Our researchers have been seeking to make advances in the characterization and optimization of agroecological practices, promoting the sustainable use of soil, water, and biodiversity, to minimize environmental impact and to support the economic and social development of farmers and territories. Advances in food technology are transforming the way we process, preserve, and distribute food. From new food formulations that improve nutritional content, to the valuing raw material losses and waste, our researchers are creating a more resilient and resource-efficient food industry. At the same time, by embracing innovation, we are contributing to strengthening our ability to face both global challenges, in terms of access and the right to safe and healthy food, as well we make possible to offer solutions that meet the specific needs of different target populations. In this edition, we feature the launch of a new project aimed at promoting an innovative line of spreadable creams enriched with protein isolated from cricket powder. This collaborative initiative brings together a Food Technology master's student and researchers from all scientific areas within the LQRC-CIEQV.

The LQRC-CIEQV has been promoting the design of studies on the interactions of biological, psychological and social factors that influence dietary behaviors and, in this context, the PFT/FB scientific area is working on a proposal for future research activities. We expect to gain a deeper understanding of the drivers behind our food preferences, and thereby be better prepared to design targeted interventions that promote healthier lifestyles and improve overall quality of life.

At this moment when many are starting their well-deserved pause, I want to extend my sincere thanks to all the researchers and all the partners who contributed to this edition of the Newsletter and to the activities of the scientific area of Production and Food Technology / Food Behaviors.



Paula Ruivo <sup>1,2</sup>

<sup>1</sup> ESAS – Polytechnic Institute of Santarém

<sup>2</sup> Life Quality Research Centre

5211-EB99-9145



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## INFORMATION #1

### — Save the date: 2<sup>nd</sup> October 2023 — IPSantarém

The Conference will promote the exchange of knowledge and cooperation between 4 scientific domains: Health and Life Sciences, Natural and Environmental Sciences, Social and Human Sciences, and Exact and Engineering Sciences. The main goals are to emphasize the potential applications of research results into the society and industry, and foster capacity building of university students for presentation of research results.

For more information see the website at this link: [Conferência Impact Science'23 | Revista da UI IPSantarém \(rcaap.pt\)](https://www.rcaap.pt/conferencia-impact-science-23)



04

## INFORMATION #2

### — Save the date: 28-29<sup>th</sup> September 2023 – Évora

IPSantarém is part of the Network of Higher Education Institutions for the Safeguarding of the Mediterranean Diet (RIESDM) which, with the University of Évora, is organising the 2<sup>nd</sup> Congress of the Network of Higher Education Institutions for the Safeguarding of the Mediterranean Diet. The event runs in parallel with the 2<sup>nd</sup> International Conference on Mediterranean Diet and Gastronomy that will take place at Palácio D. Manuel, in Évora, on 28 and 29 September 2023.

For registration and other information, see the website at this link: [Regras registo e submissa-o trabalhos.pdf \(cdn-website.com\)](https://cdn-website.com/Regras_registro_e_submissao_trabalhos.pdf)



05

## INFORMATION #3

### — Spreadable healthy creams protein+

### #DARE TO DISRUPT THE FUTURE OF AGRI-FOOD

On 18<sup>th</sup> July, Nair Cunha and Gabriela Basto de Lima have taking part in an event organized by EIT Food Portugal HUB. The event, held at Instituto Superior Técnico, encompassed two enlightening workshops, namely “Research-Industry Disruptor” and “From Academia to Innovation”. EIT Food HUBs serve as vital regional points of contact in EIT RIS countries, with Building Global Innovators (BGI) fulfilling this role in Portugal.

EIT Food, a pioneering food innovation initiative established by the European Institute of Innovation & Technology (EIT), is at the forefront of transforming the food system into a more sustainable, healthy, and trustworthy one. During the event, Nair Cunha and Gabriela Basto de Lima showcased the multidisciplinary project, “SPREADABLE HEALTHY CREAMS PROTEIN+”, through an engaging pitch session in the morning. Subsequently, they participated in a brokerage session, collaborating with leading companies in the agri-food industry, fostering innovation and entrepreneurship within the sector.



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## INFORMATION #4

### — Spreadable healthy creams protein+ ENCONTRO COM A CIÊNCIA na ESAS

On the 6<sup>th</sup> of July, researchers from the Escola Superior Agrária de Santarém (ESAS) participated in the Meeting with Science event, promoted by the new direction of ESAS. Among the accomplished presenters, Gabriela Basto de Lima stood out as she introduced the remarkable short-term project, “Spreadable Healthy Creams Protein+”. This project has successfully brought together researchers from diverse scientific domains, united under the banner of the Life Quality Research Centre. The collaborative effort aims to explore and innovate in the realm of healthy and protein-enriched spreadable creams.



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## INFORMATION #5

### — Poster communication at OIV / 44<sup>th</sup> World Congress of Vine and Wine

The 44<sup>th</sup> edition of the World Congress of Vine and Wine unfolded in the Spanish locales of Jerez de la Frontera and Cadiz, spanning five enriching days from the 5<sup>th</sup> to the 9<sup>th</sup> of June. This edition, centred around the theme “Viticulture and Information Technologies”, served as a confluence of expertise and innovation in the wine industry.

Professor Helena Mira presented a poster communication titled “Comparison of Various Products for Tartaric Stabilization and Wine Filterability”, shedding new light on cutting-edge techniques in the wine-making process.

For further details, please refer to: [44th World Congress of Vine and Wine 2023 in Cadiz-Jerez, Spain. | OIV](#)



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## INFORMATION #6

### — Participation in NEPPE project

Professor Rui Jorge participated in two international meetings of the New Era of Pregnancy and Postpartum Exercise project, in last May and June, for the final balance meetings of the project and planning of future projects. Site with information and photographs in: <https://neppe.awfis.net/en /1376-2/>

Application for THCS financing within the scope of the project ACTIVEPREGNAPP – Promoting and empowering active and healthy lifestyles during pregnancy and postpartum by developing research-informed, socially-inclusive, and digital-based resources for women (submitted past June).

For further details, please refer to: <https://www.thcspartnership.eu/>



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## INFORMATION #7

### — Oral communication at VIII Simpósio Doenças Inflamatórias do Intestino

Rui Jorge was honoured with an invitation to deliver a presentation on the topic “The Significance of Diet in Inflammatory Bowel Diseases” at the VIII Symposium of the Crohn’s/Colitis Portugal Association. This event was held on the 20<sup>th</sup> of May, in Braga.

For further details, please refer to: <https://www.eventbrite.com/e/bilhetes-8o-simposio-das-doencas-inflamatorias-do-intestino-607406839207>



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## INFORMATION #8

### — Oral communication at Algae Seminar

Antónia Macedo, from IPBeja, and collaborator member of LQRC participated, in 18<sup>th</sup> of April in Algae Seminar, in Lisbon. She presented the communication “Addition of fruit waste concentrated solutions obtained from membrane technology to non-conventional diet pig’s manure for improving AD processes”. The Algae Seminar was organized as part of the YUM Algae project, an initiative of LEAF, Instituto Superior de Agronomia. The event took place as a part of the Earth Week Celebrations, curated by the Associated Laboratory TERRA. It provided a valuable platform for experts and researchers to share their knowledge and advancements in the field of algae and its applications.

For further details, please refer to: <https://www.isa.ulisboa.pt/cef/laboratorios/laboratorio-associado-terra/>





Antónia Macedo presented the latest results of her work at the 1<sup>st</sup> LEAF – LINKING LANDSCAPE, ENVIRONMENT, AGRICULTURE AND FOOD Meeting 2023.

Additionally, you can find more information on this topic at [Membranes | Free Full-Text | Mango Peel Nanofiltration Concentrates to Enhance Anaerobic Digestion of Slurry from Piglets Fed with Laminaria](#) (mdpi.com)

**LISBOA**

# Nanofiltration Concentrates From Mango Peels And Feaces Of Piglets Fed With Laminaria Digitata To Enhance Bioenergy Recovery

**ANTÓNIA MACEDO<sup>a</sup>, JOÃO BENSALA FREIRE<sup>b</sup>, MARGARIDA MOL DOLZ,<sup>c</sup>RITA FERGOSO<sup>d</sup>, VÍTOR ALVES<sup>e</sup>**

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<sup>b</sup>LEAF – Linking Agriculture, Environment Agri-food and Food Research Centre, Associação Laboratório TICSA, Instituto Superior de Agronomia, Universidade da Lisboa, Taguspark de Lisbona, 1399-077 Lisbona, Portugal

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**AIM**

Recovery of renewable energy from fruit bio-wastes and piglet's faeces through green processes: membrane separation technologies and anaerobic digestion.

**APPROACH**

- Evaluation of the influence of a non-concentrated piglet's diet, based on macroalgae, *Laminaria digitata*, on the quality of piglet's wastes;
- Recovery and concentration of simple sugars from mango peels (orange peaks), through membrane separation processes ( $\text{UF} + \text{NF}$ );
- Integration of two biomasses (mango peels and piglet's) faeces to enhance biogas production by anaerobic co-digestion process.

**FUNDING**

This research was funded by national funds through FCT - Fundação para a Ciência e Tecnologia LP, under the Project UIDB/PID/00028/2020 of LEAF - Linking Landscape, Environment, Agriculture and Food Research Centre, Associação Laboratório TICSA, Instituto Superior de Agronomia, Universidade da Lisboa, Tagus Park de Lisboa, 1399-077 Lisbon, Portugal.

**ACKNOWLEDGEMENTS**

Beyond the researchers of the "Núcleo Científico," we want to thank Elizabeth Duarte (Food Professional) and Inês Silva (PhD student), both from IST; Tatiana Gomes (Cell & Microbiology Degree in Food Engineering from ISPA) and Carlos Mariano (Producer at Alpacas Ciliares Martins (PHD student)) and David Rodrigues (PHD student), from ICA.

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**RESULTS**

- The incorporation of 10% *Laminaria digitata* had a positive impact on AD as feeding pH related to values within the recommended for that process (5.5–7.5).
- The introduction of *Laminaria digitata* in piglet's diet contributed to an increase of about 8% in methane yield, resulting in a better anaerobic digestion performance.
- The sequence of membrane processes UF-NF of aqueous extracts of mango peels allowed to recover more than 98% of the fermentable sugars in NFC.
- NFC showed potential to be used as carbon source in the AD process by increasing CN ratio up to 20%.
- The Anaerobic co-digestion of piglet's faeces fed with *Laminaria digitata* and NFC concentrates from mango leaves led to an increase in SMP up to 29%.

Treatment Stage	SMP Evolution (kWh/m³)
NMF	~180
NFS	~190
NFS+NFS	~290

**OUTPUTS**

Júlia Almeida (MSc Program), João Silva ("The Green Culture") Master and Strategic Plans and Sustainable Cities (SCSP). Major paper transformation Contributes to Increase Agricultural Efficiency and Quality for Climate Resilient Systems. Grant Number: PTDC/BTE-BIO/30890/2019  
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## INTERVIEW #1

### — Interview with Vanda Andrade



Vanda Andrade <sup>1,2</sup>

<sup>1</sup> ESAS – Polytechnic Institute of Santarém

<sup>2</sup> Life Quality Research Centre

**Ciência ID:** 6D1B-AC87-16EE

## Main activities conducted in 2023

### Published articles

Cunha N., Andrade V., Ruivo P., Pinto P. Effects of Insect Consumption on Human Health: A Systematic Review of Human Studies. *Nutrients*. 2023; 15(14):3076. <https://doi.org/10.3390/nu15143076> (N.C. and V.A. contributed equally to this work).

### Published book



Lopes de Andrade, V. *Biomarkers of Toxic Metals*. Aprox. 285 pg. Taylor & Francis Editors (em processo de publicação). Andrade, V. d. (20230804). *Biomarkers of Toxic Metals*. [[VitalSource Bookshelf version]]. Retrieved from [vbk://9781000954401](https://vbk://9781000954401).

## **Abstract with Round table**

Primeiro Seminário de Pesquisadoras/es de Soberania e Segurança Alimentar e Nutricional da Comunidade dos Países de Língua Portuguesa – 1º SPSSAN CPLP, 20 e 21 de junho, 2023.

## **Oral communications**

Cunha, N., Andrade, V., Ruivo, P., Lima, M. G. (2023). Extracting protein methods from crickets (*Acheta domestica*) for food. LQRC-CIEQV 2<sup>nd</sup> International Congress, 23<sup>rd</sup> and 24<sup>th</sup> February, Leiria, Portugal

## **Brief curricular presentation**

PhD in Pharmacy/Toxicology, Faculty of Pharmacy of Lisbon University (FFLU) with Thesis title “Selection and combination of biomarkers to control and prevent the risk of occupational exposure to the mixture of lead, arsenic and manganese” (2014); Post-Graduation in “Quality control and food Toxicology”, FFLU (2008); MSc in “Animal diversity conservation”, Faculty of Sciences of Lisbon University (FSLU) with Thesis title: “Viral infections in reptiles from the Portuguese fauna” (1998); Biology degree, FSLU (1992). Invited Adjunct Professor (since 2014), in Santarém Agrarian School of Polytechnic Institute of Santarém were has been responsible of curricular units such as Toxicology, Toxicological Analysis Pollution and ecotoxicology, Environmental Pollution, Chemical and Biochemical Methods, Introduction to Analytical Methods and Instrumental Method of Analysis I. LQRC-CIEQV integrated member and member of the Research Institute for Medicines (iMed.Ulisboa) and collaboration with the Toxicological and Bromatological Sciences Section (since 2010), in FFLU. Scientific production, mainly in metals toxicity in environmental and occupational contexts and food, and Mediterranean Diet (MD), include 1 international book, 2 chapters' books, 22 peer reviewed papers in international journals (10 as first author) and 3 papers in UI\_PSanarém, 12 oral communications and 14 poster communications. Editorial Board member of 4 life sciences international journals, with over 40 peer reviews for several journals (since 2017). Research activities in FSLU: amphibians ecophysiology (1993/1995) and Selenium biochemistry (1992/1993). Other activities include Medium School teaching (1994/1998), Lisbon Oceanarium: Education Department (1998), Water Quality Laboratory (WQL) (1998/2002), Implementation of Environmental and Quality Management Systems (2002/2005), and Mora Fluvium mounting of the water quality laboratory and implementation of analytical methods (2006/2007).

### **What are your goals as a LQRC-CIEQV member?**

Being a member of a Life Quality Research Centre, more precisely in the Food Production and Technology / Eating Behaviour area, it is my objective to continue to contribute with research in the areas in which my work has been focused, Toxicology and MD. Considering the transversality of Toxicology to so many diverse areas, and the multiple dimensions of MD with their relations with environmental sustainability and even with a Mediterranean lifestyle, these areas converge to the improvement of Life Quality; such convergence may additionally be better achieved and improved through the creating of synergies with the diverse areas of LQRC-CIEQV, such as Sports, Education and Management.

### **What are your most important research projects? Develop one of the indicated projects.**

As will be mentioned, my main research projects are devoted to food toxic contaminants, MD adherence assessment instruments and more recently I have been co-developing some work on edible insects, working in methodologies of protein extraction to be integrated as powder as a food ingredient. This is an interesting and novel area (for me), which may contribute to reduce greenhouse gas emissions when compared with other animal sources and can be less impacting on animal well-being. I believe that unfortunately climate change is now hardly unstoppable, the availability of livestock and agricultural areas will be challenged by the rise of the oceans' levels; along with all the efforts to reduce impacts, there is an urgent need of start thinking and developing alternative food sources for future generations.

Knowing that knowledge should be transferred to society, how can the area of scientific research and professional intervention in which you are involved contribute to the union of theory and practice?

All research developed was always aimed at technology transfer, as is the philosophy of polytechnic institutes. For example, within the scope of the Bioma project, the development of osmotically dehydrated products through the valorisation of by-products from a company's fruit and vegetable production chain. Another example was the Emulsio line of the Agrio et Emulsio Project – new products development, where innovative spreads with additions were developed.

### **Considering that the LQRC-CIEQV promotes research on the quality of life, what are the practical implications of the research it develops?**

Concerning Toxicology, this is a science transversal to many areas, which are integrated and globally intend to contribute to Life Quality. Indeed, as food toxic contaminants mostly arise from environmental pollution, monitoring and controlling chronic exposures from foods to the general population, is a way to prevent diseases for which toxics are proven risk factors; they are, among others, cancers and neurodegenerative diseases. My line of work in food contamination have been, and is still focused, on the determination of metal levels in several food items and subsequent risk analysis. Such published information, along with the one from other authors, is important for Regulatory Toxicology, regarding the identification of weakness in such areas, implementation of policies programs and establishment of maximum exposure limits. As mentioned, another component of my research is MD, in collaboration with other colleges from IPS, more precisely the validation of instruments which allows to access the adherence to this diet and identify population groups in need of educational intervention; the broadly recognized benefits of MD regarding health, and consequently, life quality is nowadays unnecessary to be described and educational programs can be developed as academic extensions to the community. Another scope of the research in MD is sustainability, which is definitely a key feature of MD; in truth, “every impact we exert in the environment sooner or later will come to our door”, meaning here “our door”, our health and life quality, this time under several integrated perspectives which include dimension out of my scope, such as societal and economical.

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## INTERVIEW #2

### — Interview with António Vicente



António Vicente <sup>1,2</sup>

<sup>1</sup> ESAS – Polytechnic Institute of Santarém

<sup>2</sup> Life Quality Research Centre

**Ciência ID:** 231F-EDE4-4366

## Main activities conducted in 2023

### Published articles

Faria, Ricardo; Vicente, António; Silva, Josineudson. “Racing Performance of the Quarter Horse: Genetic Parameters, Trends and Correlation for Earnings, Best Time and Time Class”. *Animals* 13 12 (2023): 2019. <http://dx.doi.org/10.3390/ani13122019>.

Mercat, M.J.; Amaral, A.; Bozzi, R.; ....; Vicente, A. A.; Ribeiro, V.; Rodriguez Silva, T.; et al. «Perception des acteurs impliqués dans la préservation des races locales: une enquête du projet européen GEroNIMO». Work presented on 55es Journées de la Recherche Porcine, France, Saint-Malo, 2023.

### Published book

António Vicente; Da Silva Faria, Ricardo António. *Manual de avaliação morfofuncional de equinos*. Portalegre: Instituto Politécnico de Portalegre. 2023. 77pp. ISBN 978-989-8806-64-2. EQUIMAIS Project.

## **Oral communications**

2023/03/30. Linear profiling in Lusitano horses: genetic parameters and plans for further development. 7<sup>th</sup> International Workshop on Linear Profiling in the Warmblood Horse. EAAP Horse Commission (Plon, Germany).

2023/02/17. Análise morfo-funcional e parâmetros genéticos na raça Lusitana. Workshop Equimais: Avaliação morfológica e locomotora em cavalos de desporto. Escola Superior Agrária de Elvas – Instituto Politécnico de Portalegre (Alter do Chão, Portugal).

## **Organization of workshops**

2023/02/17 – 2023/02/17. Workshop Projeto Equimais: Avaliação morfológica e locomotora em cavalos de desporto.

## **Scientific reviewer for several indexed journals.**

## **Brief curricular presentation**

António Pedro Vicente Andrade has completed a PhD in Veterinary Sciences – Specialization in Animal Production by the Faculty of Veterinary Medicine, University of Lisbon, Portugal in 2015, with a final grade of Very Good with Distinction. He is Associate Professor with a PhD degree in the Agricultural School of the Polytechnic Institute of Santarém (ESAS-IPS). Published 21 articles in journals and 22 papers in conference proceedings. He has 69 items of technical production. Participated in 15 events abroad and 75 in Portugal. 25 guided completions of course work bachelor / degree in the areas of Veterinary Science and Animal Production. Received 2 awards and/or honors. Operates in the areas of Agricultural Sciences with special emphasis on Genetics, Animal Genetic Resources, horse production and swine production. In his professional activities interacted with 68 different professionals in co-authorship of scientific papers. Reviewer of several scientific journals on Animal Science.

Member of the Order of Engineers, founding member and President of the Portuguese Society of Animal Genetic Resources (SPREGA).

International Judge for the Lusitano horse breed and for Working Equitation accredited by WAVE and responsible for Working Equitation judge's formation. President of the Ground Jury in European Championships of WE and several times jury member in World Cups and international events. National Judge Level 3 in Dressage. Technical Consulting of Stud farms in Europe.

### **What are your goals as a LQRC-CIEQV member?**

Being part of the LQRC-CIEQV as a collaborating member enables direct contact with more researchers and colleagues from different areas of scientific knowledge, expanding the range of contacts and potential partnerships for the future development of applied research in the field of agricultural sciences, with special emphasis on the quality of life.

### **What are your most important research projects? Develop one of the indicated projects.**

My main area of activity is the conservation and genetic improvement of animal genetic resources, with special emphasis on Portuguese indigenous breeds. I have developed technical-scientific work and research projects essentially in horses and pigs, which are the areas in which I have specialized the most. The different studies carried out deal with the issue of improving the efficiency of production systems, with special focus on programs for genetic improvement and conservation of native Portuguese breeds such as the Lusitano horse, the Sorraia horse and the Malhado de Alcobaça pig. Our working group has developed different approaches for the genetic evaluation of different livestock species and with that we hope to be able to contribute to productive sustainability, the improvement of efficiency and quality of the products obtained and with that the quality of life of people and animals involved.

### **Knowing that knowledge should be transferred to society, how can the area of scientific research and professional intervention in which you are involved contribute to the union of theory and practice?**

Our working group interacts directly with the associations of breeders of the several breeds of domestic animals and with the official services of the Ministry of Agriculture of Portugal and, as such, the scientific



studies to be carried out are, in many cases, requested by the associations/companies, as a result of the need that may exist in knowing more about a topic or solving a specific problem. We have also developed projects for the transfer of scientific knowledge to private breeders and companies, in the area of preservation and improvement of native genetic animal resources and, as such, we work in close relationship with society, in a very solid connection between theory and practice.

**Considering that the LQRC-CIEQV promotes research on the quality of life, what are the practical implications of the research it develops?**

In an increasingly global and accelerated world, deeper knowledge on the complex theme of quality of life proves to be fundamental to respond to the new challenges that are emerging, where key words such as sustainability, circular economy, human and animal well-being are on the agenda.

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## ARTICLE | POSTER PRESENTATION | EXTENDED ABSTRACT

### – Article 1:

## Effects of Insect Consumption on Human Health: A Systematic Review of Human Studies



Nair Cunha <sup>1,2,†</sup>, Vanda Andrade <sup>1,2,†</sup>, Paula Ruivo <sup>1,2</sup>, Paula Pinto <sup>1,2,\*</sup>

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<sup>†</sup> N.C. and V.A. contributed equally to this work

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### Abstract

Insects have been consumed as food in diverse cultures worldwide, gaining recognition as a sustainable and nutritious food source. This systematic review aims to update information on the impact of insect consumption on human health based on human randomized controlled trials (RCTs) and allergenicity assessment studies. Following PRISMA guidelines, studies published in the last 10 years were analyzed. From one-thousand and sixty-three retrieved references, nine RCTs and five allergenicity studies were analyzed. Post-prandial amino acid levels increased after insect protein consumption. In comparison with other protein sources, insect protein showed no significant differences in the area under the curve (AUC) values for essential amino acids but tended to have lower peaks and peak later. In terms of muscle protein synthesis, there were no significant differences between insect protein and other protein sources. Glucose levels did not differ; however, insulin levels were lower after the consumption of insect-based products. The effects on inflammatory markers and microbiota composition were inconclusive and the studies did not show significant effects on appetite regulation. Allergenicity assessments revealed a sensitisation and cross-reactivity between insect allergens and known allergens. A partial reduction of cross-allergenicity was observed via thermal processing. Insect

protein is an adequate protein source with promising health benefits; however, further research is needed to fully understand its potential and optimise its inclusion into the human diet.

**Keywords:** cricket; worm; amino acid absorption; protein synthesis; satiety; biomarkers; allergy

Cunha, N., Andrade, V., Ruivo, P., & Pinto, P. (2023). Effects of Insect Consumption on Human Health: A Systematic Review of Human Studies. *Nutrients*, 15(14), 3076. MDPI AG.  
<http://dx.doi.org/10.3390/nu15143076>

## – Article 2:

# Racing Performance of the Quarter Horse: Genetic Parameters, Trends and Correlation for Earnings, Best Time and Time Class



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## Simple summary

The main goal in selecting racehorses for breeding is usually monetary earnings, and animals that earn the highest amounts of money are usually selected for breeding. These animals are not always the fastest on the racecourse because there are several competitions where the animals were faster but the prize money for the winners was lower. This practical strategy meant that the fastest racehorses were not always selected for breeding. The present study evaluated several traits through the results of heritability, genetic correlations and trends. Results from this study indicate that when we evaluated the earnings trait together with other important traits, the best values were observed. The selection process for the best sires and dams should be performed through two stages: first, by evaluating the animals that obtained the best times and, in the second stage, by evaluating the animals that had the highest monetary earnings. The design of breeding programs using the earnings trait in conjunction

with another racing performance trait can change the results observed and improve genetic gains for speed racing Quarter Horses around the world.

## Abstract

The aim of this study was to evaluate the sprint racing performance of Quarter Horses in Brazil. Estimating genetic parameters, trends and correlations were obtained by single- and two-trait analyses using Bayesian inference (earnings to 2 years of equestrian age, best time and time class at distances of 301 m and 402 m). The data comprised a period of 38 equestrian years (1978 to 2015) with 23,482 sprint race records from 5861 animals. The heritability estimates were of low to moderate magnitude, ranging from 0.10 to 0.37 (single-trait) and from 0.15 to 0.41 (two-traits), and the repeatability was 0.31 to 0.46. The additive, residual and phenotypic correlations between earnings to 2 years of equestrian age and the other traits (best time and time class in distances 301 m and 402 m) were high (−0.95, −0.96, 0.69 and 0.92), low (−0.29, −0.37, 0.26 and 0.27) and moderate (−0.41, −0.47, 0.37 and 0.47), respectively. There is a positive genetic trend for all traits considered. However, evaluation of the last 10 equestrian years (2006 to 2015) showed negative trends (genetic loss) and trends close to zero (genetic stagnation). The design of breeding programs using the earnings trait in conjunction with other racing performance traits can enhance changes in the genetic gains as a whole in speed-racing Quarter Horses. These findings suggest that the traits studied should be included in breeding selection programs for racing Quarter Horses.

**Keywords:** equine; heritability; racecourse; racehorse; speed

Faria, R., Vicente, A., & Silva, J. (2023). Racing Performance of the Quarter Horse: Genetic Parameters, Trends and Correlation for Earnings, Best Time and Time Class. *Animals*, 13(12), 2019. MDPI AG. <http://dx.doi.org/10.3390/ani13122019>

## – Book



In May, a book of international circulation was published, titled “ACTIVE PREGNANCY GUIDE: Physical Activity, Nutrition, and Sleep”. Contributing to this resource was the co-author Rui Jorge, a collaborating member of the scientific area of Food Production and Technology / Food Behaviours.

“ACTIVE PREGNANCY GUIDE” is available for download at the following [link](#).

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## NEWS – PROJECTS UNDER DEVELOPMENT

### — Project 1:

### Croatian grape varieties in Portugal



Helena Mira <sup>1,2</sup>

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<sup>2</sup> Life Quality Research Centre

**Ciência ID:** A91E-43E6-90D9

Winegrowing is historically linked to Portugal and the Municipality of Alenquer as an agricultural activity of relevant economic and social importance. In 2015, the Municipality of Alenquer started a project with the main objective of recovering a set of ancient grape varieties, differentiating the wines produced in the county. Thus, an ampelographic collection of autochthonous grape varieties was created with the grafting of forks from the National Collection of INIAV – Dois Portos.

In 2017, an International Cooperation Agreement was signed between the Municipality of Alenquer and the Croatian Municipality of Benkovac, a city located in the county of Zadar. Adega Cooperativa da Labrugeira was also part of this partnership with a view to recovering the native grape variety Vital B, a variety almost abandoned. To celebrate the signing of this Agreement, the municipality of Alenquer presented the first wine from the winemaking of the autochthonous variety Vital, which was given the name “EMPATIA” (Empathy), while the city of Benkovac, presented two wines from Croatian autochthonous grape varieties, Maraština B and Svrđlovina N.



One of the objectives of this cooperation Agreement is the development of scientific actions, regarding the choice of grape varieties, the study of the respective agronomic and oenological characteristics, the assessment of potential market acceptance, or other valuation factors that may be identified and that may support the development of this project for the recovery of regional autochthonous grape varieties.

In 2019, the autochthonous grape varieties of the two regions were exchanged. In Alenquer, six varieties from the region of Benkovac were planted, and in that Croatian city, six varieties from the region of Alenquer were planted. The Croatian varieties planted were Posip B, Marastina B and Vugava B (white varieties) and the red varieties were Plavac Mali N, Plavina N and Svrđlovina N. The Portuguese varieties selected were Arinto B, Fernão Pires B and Vital B (white varieties), Touriga Nacional N, Touriga Franca N and Sousão N (red varieties).

This project involves several partners: Municipality of Alenquer, Municipality of Benkovac, INIAV – Dois Portos, Viveiros Pierre Boyer, Adega Cooperativa da Labrugeira, University of Zagreb, Escola Superior Agrária de Santarém and Associação dos Viticultores de Alenquer.

In 2022, the first wines from Croatian grape varieties planted in Portugal (Alenquer) were vinified, and in Croatia the first wines produced from Portuguese grape varieties.



In 2023, to mark the 6<sup>th</sup> anniversary of the Cooperation Agreement, it was produced a blend wine from the Posip and Vital varieties. Also held on the 22<sup>nd</sup> and 23<sup>rd</sup> of June, in Vila Verde dos Francos, was a seminar where the first results were presented, either by the Escola Superior Agrária de Santarém or by the University of Zagreb. There was also an opportunity to taste the wines produced, both Portuguese and Croatian.

The IPS – Escola Superior Agrária de Santarém team is made up of Professor Helena Mira and a student Ana Isabel Marques. The Escola Superior Agrária de Santarém and INIAV – Dois Portos oversee the scientific component of the project, in the sense of evaluating and characterizing the agronomic characteristics of the Croatian grape varieties and the oenological characteristics of the wines produced.



**Team:** Ana Marques<sup>1</sup>, Paulo Franco<sup>2</sup>, Jorge Cunha<sup>3</sup>, José Eira-Dias<sup>3</sup>, Ricardo Noronha<sup>4</sup>, João Inácio<sup>4</sup>, Ana Figueiredo<sup>5</sup>, Miguel Policarpo<sup>5</sup>, Paulo Marques<sup>2</sup>, Helena Mira<sup>1,6</sup>

<sup>1</sup> Escola Superior Agrária de Santarém; <sup>2</sup> Câmara Municipal de Alenquer; <sup>3</sup> Instituto Nacional de Investigação Agrária e Veterinária – Polo de Dois Portos; <sup>4</sup> Adega Cooperativa da Labrugeira; <sup>5</sup> Associação dos Viticultores de Alenquer; <sup>6</sup> LQRC-CIEQV – Centro de investigação e Estudo em Qualidade de Vida



## — Project 2:

### **RedeSusTERRA – Network for the promotion of sustainable practices in agricultural systems with an impact on territories**



Rosa Santos Coelho <sup>1,2</sup>

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<https://redesusterra.webnode.pt/>

The RedeSusTERRA project (Network for the promotion of sustainable practices in agricultural systems with an impact on territories) is a project within the scope of the Plano de Recuperação e Resiliência (PRR), The Iniciativa Emblemática 6, and the Agenda de Inovação para a Agricultura 2030. This project is coordinated by COTHN-CC (National Horticultural Operative and Technological Centre-Skills Centre). and involves collaboration with partners from the National Scientific and Technological System (ESAS, INIAV), FNOP (Organisation of Producers) and 14 SME in the fruit and vegetable sector in the target regions: Beira Interior, Ribatejo-Oeste and Litoral Alentejano.

The project started on 1 September 2023 and has a duration of 36 months (30 October 2025). During its initial phase, the project focused on organizing partnership meetings to establish benchmarks and align protocols for the tasks related to the four lines of action (LoA):

- **LoA 6.1.** Promoting more sustainable production systems, with an emphasis on increasing the area under integrated production, organic production, conservation agriculture, agroecology, and other sustainable practices;

- **LoA 6.2.** Developing and adopting agricultural practices, that incorporate integrated and agroecological protection measures to reduce the use risk of synthesis inputs;
- **LoA 6.3.** Enhancing ecosystem services by developing and valuing ecological services, supporting biodiversity, apiculture, and forestry;
- **LoA 6.5.** Promoting the use of endogenous animal and plant genetic resources to harness endogenous resources.

As part of the project, the Socio-Economic Sustainability Index has been defined and will be implemented at the project's outset and throughout its duration. This index will weigh the monitoring indicators for the different lines of action and serve as a robust tool to communicate the project's sustainability performance to stakeholders.

**ESAS Team:** Rosa Coelho (Coordinator), Maria Céu Godinho, Mafalda Ferreira, Paula Ruivo.

## — Project 3:

### SPIN – Sustainable ProteIN



Igor Dias <sup>1,2</sup>

<sup>1</sup> ESAS – Polytechnic Institute of Santarém

<sup>2</sup> Life Quality Research Centre

**Ciência ID:** 3913-EE5F-8399



Investimento RE-C05-i03 – Agenda de investigação e inovação para a sustentabilidade da agricultura, alimentação e agroindústria N.º 15/C05-i03/2021 – PRR-C05-i03-I-000192 Projetos de Investigação e Inovação – Promoção dos Produtos Agroalimentares Portugueses

The SPIN Project approved under the PRR addresses four opportunities, spread over four rows, focused on obtaining healthy and sustainable protein, which allows contributing to the development of new products and following new consumption trends: Opportunity 1) valorize crickets of the species *Acheta domesticus* as an alternative source of protein, gradually incorporating it into the Mediterranean Diet, contributing to healthy and sustainable diets; meeting Horizon Europe, where it is mentioned that insect-based proteins are considered one of the key areas of research and the Green Deal and Farm to Fork strategies; Opportunity 2) to valorize the non-native species *Silurus glanis* (European catfish), given its rapid spread and abundance along the Tagus River, as a quality animal protein, contributing to healthy diets and to balance the aquatic ecosystem of the middle and lower Tagus; Opportunity 3) to valorize varieties of “chícharo” and chickpeas, reinforcing the resilience and adaptation of national varieties to climate change, as sources of healthy and sustainable proteins; Opportunity 4) promote the sustainability of the agricultural area through regenerative agriculture, improving the environmental and climate performance of the farms, including soil carbon management and storage, as well as nutrient

management, while at the same time using these farms to obtain protein of bovine origin (beef) that meets the highest animal welfare standards.

**ESAS Team:** Igor Dias (Coordinator), Ana Ribeiro, Ana Neves, António Raimundo, Artur Amaral, Helena Mira, João Gago, Margarida Oliveira, Maria Lima, Paula Pinto, Paula Ruivo.

## — Project 4: Spreadable healthy creams protein<sup>+</sup>



Gabriela Basto de Lima <sup>1,2</sup>

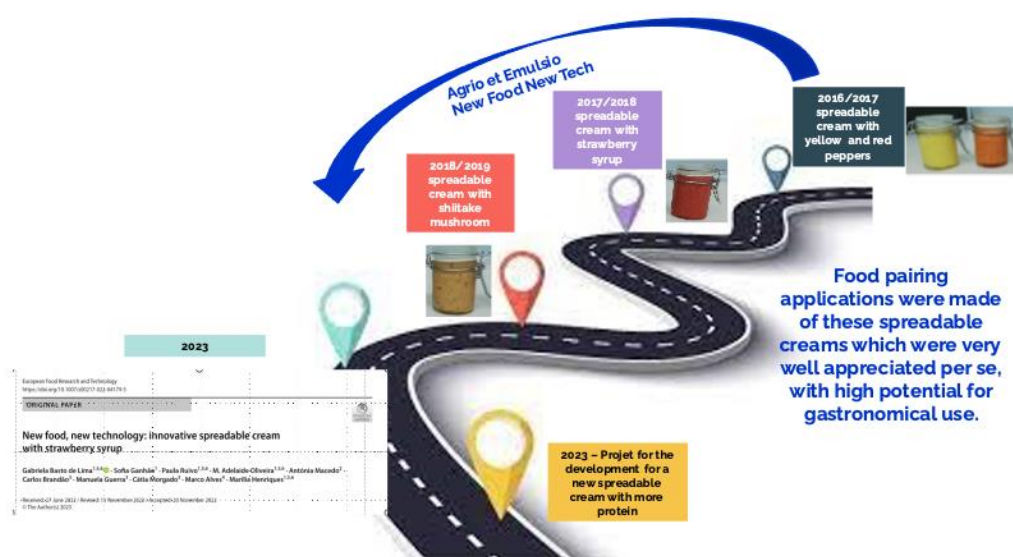
<sup>1</sup> ESAS – Polytechnic Institute of Santarém

<sup>2</sup> Life Quality Research Centre

**Ciência ID:** B71B-11DE-0042

This project received an honourable mention in its participation in the 4<sup>th</sup> Multidisciplinary Scientific Research Competition, by LQRC-CIEQV, in 2023. The multidisciplinary is guaranteed bringing together the skills and know-how of LQRC-CIEQV members from all scientific areas.

This project arises naturally, due to the development of the research line on spreadable creams led by Professor Gabriela Basto de Lima, since 2016, and the recent work of Nair Cunha, research scholarship of LQRC-CIEQV for protein extraction from cricket powder. In this context, it was proposed to innovate in the creation of prototype(s) of spreads enriched with cricket protein. These water in oil emulsions with protein enrichment in the aqueous phase, are different from what is already produced industrially. It will thus expect to provide a stable, safe and healthy, supplemented product that satisfies target audiences with specific protein needs. The use of cricket protein isolate allows the formulation of foodstuffs enriched in quality protein and presents very interesting advantages over the use of other alternative protein sources from plants (e.g., soy, milk derivatives...).



### Project goals:

- Developing new spreadable creams (with or without additions).
- Incorporation of protein extracted from *Acheta domesticus* cricket powder.

### Expected benefits:

- Promoting nutritional access of more protein and fiber to populations that need it, such as seniors and athletes;
- Valorization of by-products from fruit and vegetable agri-food sector, as a good source of fiber;
- Innovatively use of alternative protein source extracted from cricket powder;
- Palm oil is excluded from the production of these spreadable creams;
- Contributing to sustainability and resilience of the agri-food sector.

**LQRC-CIEQV Team:** Gabriela Basto de Lima (Coordinator), Adelaide Oliveira, Marília Henriques, Marisa Correia, Nair Cunha, Paula Pinto, Paula Ruivo, Pedro Oliveira, Regina Ferreira, Susana Alves, Vanda Andrade.

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## PUBLICATIONS

- Aleixo, M., Leal, S., Mano, M. & Azeiteiro, U. (2023). The bond between Higher Education Institutions and society: A scoping review about knowledge transfer and valorisation to promote sustainable development. In S. Rodrigues and J. Mourato (Eds.), *The Impact of HEIs on Regional Development: Facts and Practices of Collaborative Work With SMEs* (pp.271-292). IGI Global. <https://doi.org/10.4018/978-1-6684-6701-5.ch015>
- Cunha, N., Andrade, V., Ruivo, P., & Pinto, P. (2023). Effects of Insect Consumption on Human Health: A Systematic Review of Human Studies. *Nutrients*, 15(14), 3076. <https://doi.org/10.3390/nu15143076>
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Oliveira, R., Canário-Lemos, R., Peixoto, R., Vilaça-Alves, J., Morgans, R., Brito, J.P. (2023). The relationship between wellness and training and match load in professional male soccer players. *PLoS ONE* 18(7): e0289374. <https://doi.org/10.1371/journal.pone.0289374>

Santos-Rocha, R., Szumilewicz, A., Wegrzyk, J., Hyvärinen, M., Silva, M.-R. G., Jorge, R., & Oviedo Caro, M. (2023). *Active Pregnancy Guide – Physical activity, nutrition, and sleep*.

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## R&D ACTIVITIES

- **Invitation for publication in Behavioral Sciences journal**

The researcher Prof. Dr. Filipe Rodrigues, Prof. Dr. Diogo Monteiro and Prof. Dr. Raul Antunes are the guest editors of a special issue with the topic: *Current Opinion in Sport Psychology*. Deadline for manuscript submissions: 30 September 2023. For more information [\*\*CLICK HERE\*\*](#).

- **Invitation for publication in Healthcare journal**

The researcher Prof. Dr. João Brito with researcher Prof. Dr. Rafael Oliveira are the guest editors of a special issue with the topic: *Exercise Testing and Prescription Strategies to Improve Quality of Life*. Deadline for manuscript submissions: 23 October 2023. For more information [\*\*CLICK HERE\*\*](#).

- **Invitation for publication in Healthcare journal**

The researcher Prof. Dr. Roberta Frontini is the guest editor of a special issue with the topic: *Research and Survey on Mental Health of Children and Adolescents*. Deadline for manuscript submissions: 30 November 2023. For more information [\*\*CLICK HERE\*\*](#).

- **Invitation for publication in Healthcare journal**

The researcher Prof. Dr. Rafael Oliveira is the guest editor of a special issue with the topic: *Supporting Athlete Development: The Role of Supporting Structures*. Deadline for manuscript submissions: 31 December 2023. For more information [\*\*CLICK HERE\*\*](#).

- **I&D Projects in the scientific areas of LQRC-CIEQV**

For more information [\*\*CLICK HERE\*\*](#).

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## CALLS AND FUNDING

- Calls for support to *Turismo*, START-PME. Status: open. For more information [\*\*CLICK HERE\*\*](#).
- Calls for support to *Programa de Desenvolvimento Rural*, START-PME. Status: in preparation. For more information [\*\*CLICK HERE\*\*](#).
- Calls for support to *Plano de Recuperação e Resiliência*, START-PME. Status: open. For more information [\*\*CLICK HERE\*\*](#).
- Calls for support to *Programa ATIVAR.PT*, START-PME. Status: open. For more information [\*\*CLICK HERE\*\*](#).
- Calls for support to *Apoio à Produção Nacional*, START-PME. Status: open. Deadline: to be defined. For more information [\*\*CLICK HERE\*\*](#).
- Calls for support to *Programa de Incentivo para os Açores*, START-PME. Status: in preparation. For more information [\*\*CLICK HERE\*\*](#).
- Calls for support to *Apoios à contratação – IEFP*, START-PME. Status: open. For more information [\*\*CLICK HERE\*\*](#).
- Studies in Support to the Implementation of the Ocean Mission. Deadline: 21 August 2023. For more information [\*\*CLICK HERE\*\*](#).
- Studies fostering cross programme synergies (Ocean Mission). Deadline: 21 August 2023. For more information [\*\*CLICK HERE\*\*](#).
- LLLAwards 2023. Deadline: 31 August 2023. For more information [\*\*CLICK HERE\*\*](#).
- OEI Award for Science and Technology Stories. Deadline: 31 August 2023. For more information [\*\*CLICK HERE\*\*](#).
- Industry 5.0 Award 2023. Deadline: 1 September 2023. For more information [\*\*CLICK HERE\*\*](#).
- Special issue on Doctoral students' season schools: multi-national and intercultural enrichment experiences for learning and networking. Deadline: 1 September 2023. For more information [\*\*CLICK HERE\*\*](#).
- *Programação em Python: Candidaturas Abertas*. Deadline: 10 September 2023. For more information [\*\*CLICK HERE\*\*](#).
- Sustainable Blue Economy Partnership (SBEP): 1<sup>st</sup> Joint Transnational Competition. Deadline: 13 September 2023. For more information [\*\*CLICK HERE\*\*](#).

- Marie Skłodowska-Curie Actions (MSCA) Postdoctoral Fellowships 2023. Deadline: 13 September 2023. For more information [\*\*CLICK HERE\*\*](#).
- Sustainable Blue Economy Partnership (SBEP): 1<sup>st</sup> Transnacional Joint Call. Deadline: 13 September 2023. For more information [\*\*CLICK HERE\*\*](#).
- Call for expression of interest for Regional Innovation Valleys. Deadline: 18 September 2023. For more information [\*\*CLICK HERE\*\*](#).
- EMFAF Call for Proposals for Scientific Advice on Fisheries. Deadline: 19 September 2023. For more information [\*\*CLICK HERE\*\*](#).
- Proof of Concept Grants. Deadline: 21 September 2023. For more information [\*\*CLICK HERE\*\*](#).
- Program CHANSE (Collaboration of Humanities and Social Sciences in Europe), em colaboração com a rede HERA (The Humanities in the European Research Area). Deadline: 21 September 2023. For more information [\*\*CLICK HERE\*\*](#).
- João Monjardino 2023 Prize – Mental Health: Clinical Research and Mental Health Services. Deadline: 29 September 2023. For more information [\*\*CLICK HERE\*\*](#).
- *Prémio de Boas Práticas de Envelhecimento Ativo e Saudável na Região Centro*. Deadline: 30 September 2023. For more information [\*\*CLICK HERE\*\*](#).
- European Humanitarian Innovation Award (InnovAid). Deadline: 3 October 2023. For more information [\*\*CLICK HERE\*\*](#).
- EIC Accelerator – Challenges 2023. Deadline: 4 October 2023. For more information [\*\*CLICK HERE\*\*](#).
- Call Hop On 2023. Deadline: 4 October 2023. For more information [\*\*CLICK HERE\*\*](#).
- Hop-on facility. Deadline: 10 October 2023. For more information [\*\*CLICK HERE\*\*](#).
- Funding networking activities – Open call. Deadline: 25 October 2023. For more information [\*\*CLICK HERE\*\*](#).
- COST – Open call 2023. Deadline: 25 October 2023. For more information [\*\*CLICK HERE\*\*](#).
- Diseases 2023 Best PhD Thesis Award. Deadline: 31 October 2023. For more information [\*\*CLICK HERE\*\*](#).
- HORIZON-EURATOM-2023-NRT-01. Deadline: 8 November 2023. For more information [\*\*CLICK HERE\*\*](#).
- Cluster 2 – Culture, Creativity and Inclusive Society. Deadline: 7 February 2024. For more information [\*\*CLICK HERE\*\*](#).

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## SCHEDULE

- **Webinar internacional Dia da RACS**, 1 September 2023, online. For more information [\*\*CLICK HERE\*\*](#).
- **Inclusion in and by digital: access, well-being and rights**, 5 September 2023, FPCEUP. For more information [\*\*CLICK HERE\*\*](#).
- **II Encontro Nacional de História da Química | Múltiplas facetas na história da ciência química**, 8-9 September 2023, online. For more information [\*\*CLICK HERE\*\*](#).
- **International Bioelectrics Symposium 2023**, 10-13 September 2023, Lisbon, Portugal. For more information [\*\*CLICK HERE\*\*](#).
- **XXIV das Jornadas da Sociedade Portuguesa de Psicologia do Desporto**, 14-16 September 2023, University of Madeira, Funchal. For more information [\*\*CLICK HERE\*\*](#).
- **14ª Conferência Lusófona de Ciência Aberta (ConfOA)**, 18-21 September 2023, Federal University of Rio Grande do Norte, in Natal, Brazil. For more information [\*\*CLICK HERE\*\*](#).
- **I Encontro de Literacia em Saúde – (Re)inventar a Literacia em Saúde para um mundo em mudança**, 21-22 September 2023, Lisbon. For more information [\*\*CLICK HERE\*\*](#).
- **II International Walking Football Congress**, 29 September 2023, online. For more information [\*\*CLICK HERE\*\*](#).
- **Adult Learning at the Nexus of Life Course, Work & Transitions**, 27-29 September 2023, Goethe University Frankfurt, Germany. For more information [\*\*CLICK HERE\*\*](#).
- **I International Conference on Language and Intercultural Communication Learning (LaICL'23)**, 28-29 September 2023, ESTGA. For more information [\*\*CLICK HERE\*\*](#).
- **2<sup>nd</sup> International Congress of Physical Activity**, 28-30 September 2023, Castelo Branco, Portugal. For more information [\*\*CLICK HERE\*\*](#).
- **5<sup>th</sup> EMCEI**, 2-5 October 2023, Rende (Cosenza), Italy. For more information [\*\*CLICK HERE\*\*](#).
- **ISCSI 2023 – Conference on Industry Science & Computer Science Innovation**, 4-6 October 2023, Lusófona University of Lisbon. For more information [\*\*CLICK HERE\*\*](#).
- **2<sup>nd</sup> KIX Continental Symposium on Research and Education in Africa**, Dakar, Senegal. For more information [\*\*CLICK HERE\*\*](#).
- **IUFRO Forest Environment**, 8 October 2023. For more information [\*\*CLICK HERE\*\*](#).

- **11<sup>th</sup> ICESD International Congress of Educational Sciences and Development**, 18-20 October 2023. For more information [CLICK HERE](#).
- **Colloque “Le Sport & le Végétal: regards pluridisciplinaires”**, 19-20 October 2023, University of France. For more information [CLICK HERE](#).
- **VI Simpósio Europeu de Português como Língua de Herança (VI SEPOLH) | Português como Língua de Herança: da Gestão à Formação**, 23-25 October 2023, University of Aveiro, Portugal. For more information [CLICK HERE](#).
- **IUFRO Forest Environment DIV8 Conference 2023**, 24-27 October 2023, Évora, Portugal. For more information [CLICK HERE](#).
- **IV Congresso Internacional “As censuras na produção cultural infantojuvenil. Hábitos de leitura contemporâneos”**, 25-26 October 2023, Universidad de Zaragoza and Universidad de Extremadura, Spain & online. For more information [CLICK HERE](#).
- **Teacher Professional Development in Times of Global and Glocal Transformations: International Perspectives and Challenges**, 26-28 October 2023, University of Minho, Braga, Portugal. For more information [CLICK HERE](#).
- **13<sup>th</sup> International Conference on Health and Social Care ICT (HCist 2023)**, 8-10 November, Porto, Portugal. For more information [CLICK HERE](#).
- **Jornadas Científicas da Saúde da Lusofonia**, 10 November, online. For more information [CLICK HERE](#).
- **44e session d'études de l'ADMEE – Canada – De l'aube au crépuscule des réformes: les apports des méthodologies de l'évaluation**, 9-10 November 2023, Château de Frontenac, Quebec. For more information [CLICK HERE](#).
- **27as Jornadas de Endocrinologia e Diabetes de Coimbra**, 10-11 November 2023, Coimbra, Portugal. For more information [CLICK HERE](#).
- **VI Jornadas de Enfermagem Perioperatória de Leiria**, 16-17 November 2023, Batalha, Portugal. For more information [CLICK HERE](#).
- **Congresso Internacional da Inclusão Socioprofissional**, 22-23 November 2023, Figueira da Foz, Portugal. For more information [CLICK HERE](#).
- **ICCE Global Coach Conference**, 29 November – 3 December 2023, Singapore, Singapore. For more information [CLICK HERE](#).
- **WCQR2024 – 8<sup>th</sup> World Conference on Qualitative Research**, 23-25 January 2024, São Miguel, Azores & Johannesburg, South Africa & online. For more information [CLICK HERE](#).
- **CONGREGA 2024 – 1<sup>st</sup> Ibero-American Congress on Engineering Asset Management**, 3-5 July 2024, Lisbon, Portugal. For more information [CLICK HERE](#).

- ***IX Seminário Ibero-Americano CTS XIII Seminário CTS***, 8-10 July 2024, University of Aveiro.  
For more information [\*\*CLICK HERE\*\*](#).