NEWSLETTER

LAQV-REQUIMTE@Aveiro Newsletter n.10

LAQV-REQUIMTE UA is a hub of the Associated Laboratory for Green Chemistry (LAQV) of the Network of Chemistry and Technology (REQUIMTE) located in the Chemistry department of University of Aveiro (DQUA).

February 2025

LFA – Lisbon Food Affair 2025



The Lisbon Food Affair (LFA) exhibition took place from 10 to 12 February at the Lisbon International Fair, with the participation of members of LAQV@UA Professor **Jorge Saraiva** and Researcher **Carlos Pinto**, as part of the PRR VIIAFood Agenda.

LFA has consolidated its position as the largest food sector marketplace in Portugal. The 2025 edition featured over 300 national and international companies, more than 500 brands, over 30 markets connecting exhibitors and buyers, and more than 50 activities, including conferences, lectures, pitches, and showcookings.

Press Highlights



Química, sustentabilidade e sociedade

Nuno R. Candeias *

Ácido quínico: rumo a medicamentos de origem natural

O ácido quínico é um composto natural presente nos grãos de café verde e também nas borras de café. O ácido quínico, descoberto em 1790, deriva o seu nome do termo "quina", usado para plantas arbóreas da família *Rubiaceae*, nativas da América do Sul, sendo a *Cinchona officinalis* a espécie mais conhecida. Para além do ácido quínico, a casca destas árvores é utilizada para extrair a quinina, o primeiro tratamento eficaz contra a malária, deveras utilizado nos séculos XIX e XX. Curiosamente, o gosto amargo da quinina foi a motivação para a criação da água tónica pelos soldados e administradores britânicos nas colónias indianas, e, mais tarde, pela criação do gin tónico. Outras plantas, como as folhas do tabaco, do chá verde ou das cenouras, frutos, como maçãs e arandos, e até resíduos alimentares, podem ser utilizados para a obtenção do ácido quínico. Este composto pode também ser produzido a partir de açúcares por microorganismos geneticamente modificados.

Na indústria química, o ácido quínico é visto como um valioso material de partida. Devido à sua estrutura única e versátil, é uma peça-chave na produção de uma variedade de compostos. É amplamente explorado na preparação de outros produtos naturais, frequentemente difíceis de isolar em suficientes quantidades diretamente dos seres vivos. É também extremamente utilizado na síntese de medicamentos e no desenvolvimento de novas moléculas com potencial terapêutico, como anti-diabéticos, anti-inflamatórios, hepatoprotetores e anti-tumorais. Uma das áreas de investigação do Departamento de Química da Universidade de Aveiro tem-se centrado na modificação química do ácido quínico com o objetivo de valorizar este composto natural no âmbito da síntese orgânica, através de transformações seletivas de baixo impacto ambiental. Uma das abordagens tem sido a utilização da luz visível para promover e acelerar reações que levam à criação de sistemas moleculares mais complexos, ampliando as bases de dados de moléculas disponíveis para as comunidades sintética e farmacêutica poder utilizar em novas estratégias de combate a doenças.

A interação do ácido quínico e seus derivados com os sistemas biológicos e alvos terapêuticos ainda inexplorados tem demonstrado que alguns compostos sintetizados apresentam propriedades antitumorais, induzindo a morte de células de glioblastoma multiforme, um tumor cerebral extremamente agressivo. Outros derivados estão a ser desenvolvidos para ajudar a prevenir sintomas da diabetes tipo 2, atuando nas enzimas responsáveis pela absorção de glucose intestinal. Esta abordagem de investigação científica está a contribuir para novas descobertas de desenvolvimento de fármacos e tratamento de doenças.

* Professor auxiliar do Departamento de Química, Universidade de Aveiro
LAQV-REQUIMTE - Laboratório Associado para a Química Verde da Rede de Química e Tecnologia

Latest publication in the opinion section of the Diário de Aveiro newspaper, on the topic of Chemistry, Sustainability and Society refers to the research work of Professor **Nuno Candeias**, which focuses on "Ácido quínico: rumo a medicamentos naturais".

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PAST EVENTS

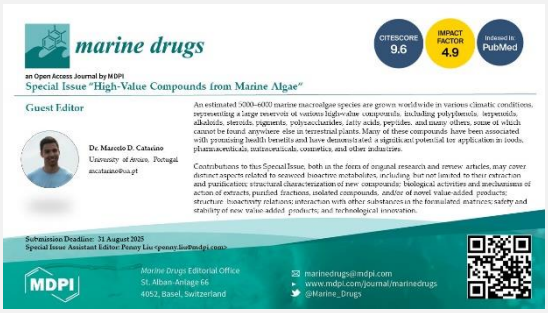


PhD thesis



The public examination for **Cristina Dias**, PhD in Biochemistry ,was held on the 14 of February 2025, with the title "Fotossensibilizadores baseados em clorofila para o tratamento do cancro da mama e do pâncreas", supervised by Professor **Maria do Amparo Faustino** from LAQV@UA and Luísa Helguero from IBIMED.

Special Issue



Researcher **Marcelo Catarino** from LAQV@UA was invited as guest editors of the special issue "High-Value Compounds from Marine Algae" of Marine Drugs.

Podcast UA



Recognized for his dedication and impact on the scientific community, **Professor Jorge Saraiva** is one of the most cited researchers among his peers. This month, on the UA Podcast, we had the opportunity to learn more about his career trajectory, exploring the motivations and achievements that have shaped his path. Passionate about research and teaching, he spoke about significant scientific advancements with the ease of someone who makes the complex accessible.

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FunHiperbaric's HPP Academy networkding



The high-pressure technology available at the University of Aveiro, coordinated by Prof. Jorge Saraiva, is featured in the promotional video of Hiperbaric, the world's leading company in the production of high-pressure equipment for non-thermal food pasteurization.

Watch Video

FUNDING





"**MIME - Exploring gut microbiota-metabolome interactions in breast cancer neoadjuvant therapy**", funded by FCT. This study aims to identify predictive biomarkers of response to neoadjuvant therapy in breast cancer patients by integrating gut microbiota characterization with metabolic profiling of fecal, blood plasma, and urine samples.
Coordinated by **Iola Duarte**, the project brings together a multidisciplinary team of researchers from the University of Aveiro (LAQV-REQUIMTE and iBiMED), Unidade Local de Saúde de Gaia e Espinho, Hospital de Cascais, Hospital CUF Descobertas, and Cellularis Biomodels.



"MoodFood- Desenvolvimento de produtos alimentares enriquecidos em fibras como promotores de psicobióticos para a saúde cerebral", funded by COMPETE2030-FEDER-00744200, MPr-2023-12.
Coordinated by **Elisabete Coelho**, the MoodFood project aims to identify dietary fibres that promote the growth of psychobiotic populations in the human gut. By modulating the structure of fruit and vegetable polysaccharides, juices and soups with the potential to improve mood and mental health will be obtained. The development of a MoodJuice and a MoodSoup, in partnership with Sumol Compal, will be based on knowledge of the relationship between the chemical structure of dietary fibres and their prebiotic potential and impact on neuronal connectivity.



"BiSiPe4Tame- funded by FCT.
The "BiSiPe4Tame" project is a collaboration between the University of Aveiro, the University of Lisbon, and Ascenza Agro, led by **Nuno Candeias**. BiSiPe4Tame aims to address the limitations of sp3 carbon-centered radicals in organic synthesis by using bis(silyl)peroxides (BSPs). BSPs are stable and can participate in both ionic and radical mechanisms. The project will explore the potential of BSPs in alkylation, phenylation, and as oxofunctionalization agents, with the primary goal of developing new strategies in organic synthesis.





"CAMP&Valor - Otimização integrada de processos industriais para Valorização de resíduos", funded by COMPETE2030-FEDER-01418000, MPr-2023-7. Coordinated by **Sónia Silva** and **Susana Cardoso.**
The CAMP&Valor Project aims to valorise waste in order to develop new added-value products, taking into account some of the challenges facing the agri-food sector in Portugal. Some of the important objectives include i) recovering-transforming-valorising peeling waste (e.g. reusing/modifying native starch for animal feed and developing new biocoagulants); ii) improving controlled anaerobic digestion to produce biogas; iii) reducing WWTP sludge and valorising it to produce biochar, with high value in primary production (e.g. soil restructuring).

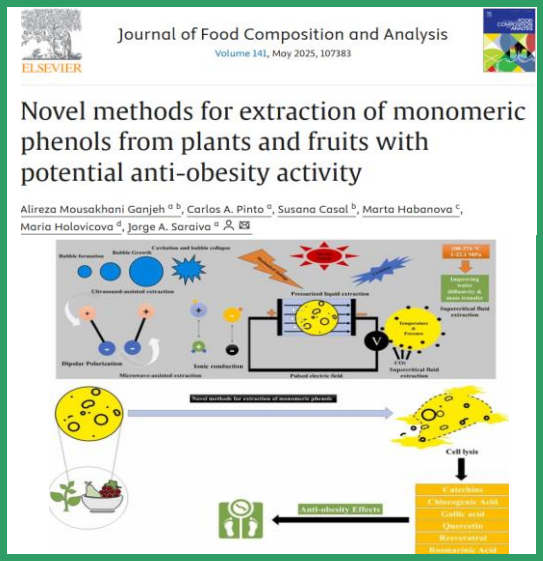


"Pineaceutic 2.0 - Demonstração do potencial ativo de novo ingrediente nutracêutico à base de Pinus pinea", funded by CENTRO2039-FEDER-01488500, MPr-2023-7. Coordinated by **Susana Cardoso**.
Pineaceutic 2.0 aims to recover compounds with biological activity present in stone pine cones in the form of bioactive extracts and obtain versatile functional ingredients that can be used in the formulation of natural nutraceuticals for human consumption, with antioxidant and anti-inflammatory properies, and competitive for industry. Pineaceutic 2,0 is I&D Empresarial - Operações em Copromoção with Promotor Líder: Labotanic – Laboratório de Produtos Farmacêuticos e Nutracêuticos, Lda.

"ITSEE - Innovative Technologies for Enhancing Seaweed Eating Experience", funded by COMPETE2030-FEDER-00782300, MPr-2023-12 - SACCCT - Projetos de IC&DT. Coordinated by **Susana Cardoso**.
ITSEE's main goal is to develop a seaweed food product, i.e., a new seaweed ingredient that is high in protein and appealing, through the development of processing strategies that will allow the modification/removal of the unpleasant organoleptic properties that hamper their acceptability. This product is meant for direct consumption and/or to be used as an alternative protein ingredient to be incorporated in the formulation of meat substitutes or other protein-rich snacks, offering consumers an easier way of accepting seaweeds as part of their regular diet and the possibility of taking advantage of their nutritional properties.

PUBLICATIONS

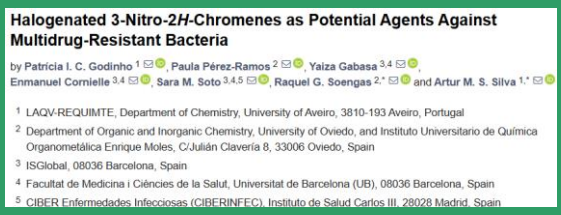
ARTICLES



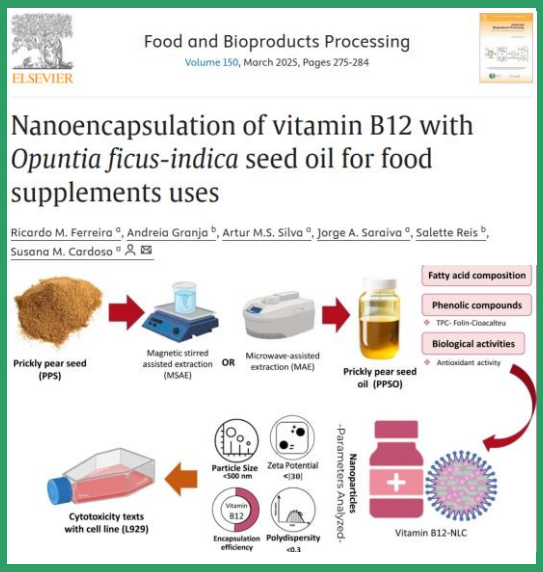
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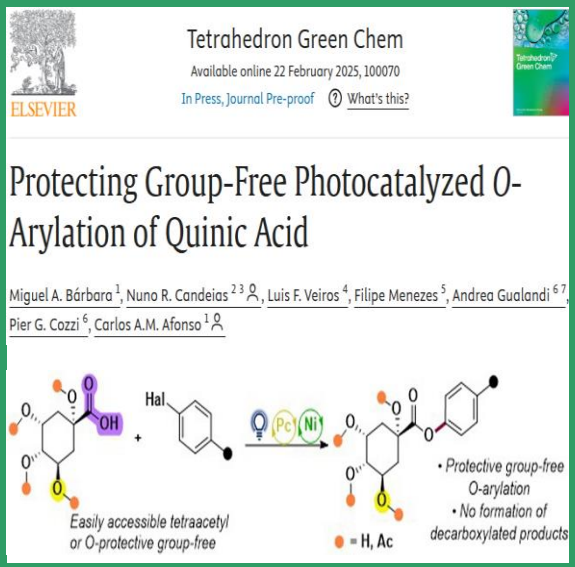
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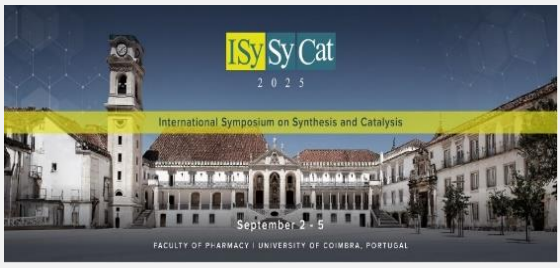
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UPCOMING EVENTS





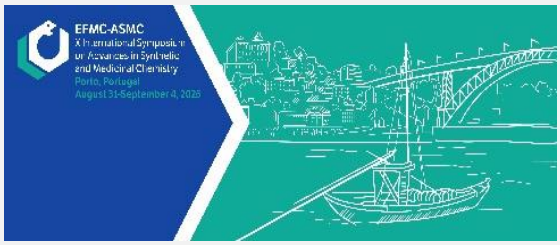
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