

# MICRO BIOTEC 23

CONGRESS OF MICROBIOLOGY  
AND BIOTECHNOLOGY 2023

## BOOK OF **ABSTRACTS**

DECEMBER  
7<sup>TH</sup> - 9<sup>TH</sup>



UNIVERSIDADE DA BEIRA INTERIOR  
Covilhã



# Congress of Microbiology and Biotechnology 2023



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UNIVERSIDADE DA **BEIRA INTERIOR**  
Covilhã



## Welcome to MICROBIOTEC 23

We would like to welcome you to MicroBiotec '23, which is held in the beautiful city of Covilhã.

Our congress venue, located at the Health Sciences Faculty of the University of Beira Interior, offers a prime setting at the heart of this inviting city. Covilhã, nestled amidst the stunning landscapes of Serra da Estrela and Serra da Gardunha, along with its historic villages, provides a splendid framework for our meeting. We are excited to gather in this vibrant city known for its warm hospitality, and we eagerly await the invaluable discussions and insights that will unfold during our congress.

Our scientific program comprises a wide range of presentations, including 5 plenary lectures, 15 keynote talks, 54 oral presentations, 1 round table, and 325 posters. These discussions delve into the latest advancements in Microbiology and Biotechnology. Over recent years, the world has faced an unparalleled wave of challenges, sparking remarkable progress within Microbiology and Biotechnology. These steps will be highlighted throughout the conference sessions, showcasing the profound influence these challenges have had on these fields. We are honored to have an impressive lineup of invited speakers who will share their expertise and perspectives with us.

Besides our scientific program, we feature a sponsors' exposition and talks that offer valuable chances for interactions with companies. We want to express deep appreciation to our sponsors and partners whose support is vital in enabling this congress and recognize the dedicated work of our PhD candidates and of the organizing and scientific committees. Additionally, a special acknowledgment goes out to our session chairs and committee awards whose contributions are invaluable for the success of our sessions.

As you immerse yourselves in the scientific content, discussions, and networking opportunities, we hope you may find solutions to your microbiology and biotechnology challenges and leave with relevant insights that will drive your research forward.

Enjoy your participation in MicroBiotec'23 and a memorable time visiting Covilhã.

Warm regards,

  
Two handwritten signatures are shown. The first signature is 'Ana Cristina Dias Coimbra' and the second is 'Susana Ferreira'.

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# Poster Session Overview



**P1.24 - THE CONNECTION BETWEEN ANIMAL ORIGIN OF HISTORICAL PARCHMENT AND MICROBIOME**

*Maria João Penetra, António Candeias, Catarina Miguel, Ana Teresa Caldeira*

**P1.25 - RESISTANCE OF ACETOBACTER ACETI TO THE MAJOR CHEMICALS FOUND IN WINERY WASTEWATERS**

*Nuno Ramos, Ana Baía, Alonso Escoto, Maria C. Fernandes, Ana Lopes, Annabel Fernandes*

**P1.26 - TACKLING CO<sub>2</sub> EXCESS WITH BIOELECTRODES**

*Nuno Machado, Inês A. C. Pereira, Américo G. Duarte, Felipe Conzuelo*

**P1.27 - ONE-YEAR SURVEILLANCE OF PATHOGENS IN A FULL-SCALE MUNICIPAL WASTEWATER TREATMENT PLANT**

*Rafael D. S. Tavares, Elsa T. Rodrigues, Marta Tação, Isabel Henriques*

**P1.28 - BIOTECHNOLOGICAL PROSPECTS OF MARINE BACTERIA ISOLATED FROM THE SADO ESTUARY**

*Rodrigo Martins, Constança Bertrand, Francisco Quintas-Nunes, Pedro Reynolds- Brandão, Teresa Crespo, Francisco X. Nascimento*

**P1.30 – PROTEIN HYDROLYSATES FROM SALMON HEADS AND CAPE HAKE BY-PRODUCTS: A POTENTIAL SOURCE OF BIOACTIVE PEPTIDES**

*Matilde Leitão, Amparo Gonçalves, António Marques, Helena Oliveira, Maria Leonor Nunes, Bárbara Teixeira, Rogério Mendes, Romina Gomes, Carla Pires*

**P1.31 – UNWELCOME ENTHUSIASTS OF ALMADA NEGREIROS MURAL PAINTINGS – A METAGENOMIC APPROACH TO THE MURALS SITUATED IN ALCÂNTARA MARITIME STATION, LISBON (PORTUGAL)**

*L. Dias, M. Gil, I. Silva, A. Candeias, A.T. Caldeira*

**P1.32 – FROM EFFLUENTS TO ASSETS: WINERY WASTEWATER UTILIZATION FOR MICROALGAE FARMING**

*Catarina Dias, Ana Rita Martins, Ana Cláudia Sousa, Ana Gabriela Gomes, Miguel Cachã, Carla Santos*

**P1.33 – MYCELIA INACTIVATION PROCESSES –MAINTAINING THE FLEXIBILITY AND STRENGTH OF MYCELIUM-BASED BIOCOMPOSITES**

*Ana T. Oliveira, Miguel A. Ramos, Paula M. L. Castro*

**P1.34 – SUSTAINABLE PRODUCTION OF YEAST-DERIVED CAROTENOIDS USING RICE BRAN HYDROLYSATES**

*Thercia Rocha Balbino, Salvador Sánchez-Muñoz, Stephanie Custódio Inácio, Júlio César Santos, Jorge Fernando Brandão Pereira, Sílvio Silvério da Silva*

**P1.35 – ANTI-CANDIDA ACTIVITY OF CYMBOPOGON SPP. ESSENTIAL OILS: A PROMISING NEW TREATMENT STRATEGY FOR SUPERFICIAL INFECTIONS**

*Sandra Simões Tomás, Daniela Marques Almeida, Ana Sofia Oliveira, Joana Domingues, Rita Palmeira-de-Oliveira, José Martinez-de-Oliveira, Fernanda Delgado, Ana Palmeira-de-Oliveira, Joana Rolo*

# Poster Session Abstracts



## P1.33 - MYCELIA INACTIVATION PROCESSES –MAINTAINING THE FLEXIBILITY AND STRENGTH OF MYCELIUM-BASED BIOCOMPOSITES

Ana T. Oliveira <sup>1(\*)</sup>, Miguel A. Ramos <sup>1,2</sup>, Paula M. L. Castro <sup>1</sup>

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**Keywords:** mycomaterials; mycelia inactivation; circular economy; MTT assay.

### ABSTRACT

The current trend towards a sustainable and circular economy proposes the development and use of bio-based materials from renewable resources. Mycelium-based biocomposites (MBB), which consists of defragmented lignocellulosic particles linked by dense mycelium, are an ecological and innovative solution to replace petroleum-based products. MBB have shown advantageous properties, such as acoustic insulation, fire resistance, and the absence of harmful synthetic chemical components. These properties are the basis for the production and use of MBB for a wide range of applications, including paper, textiles, foams for packaging material, vehicle parts, and electronic equipment packaging materials. Briefly, MBB production is achieved through the sterilization the biomass, inoculation and incubation with selected fungi, homogenization, and interruption of fungal growth (or inactivation). Most MBB go through a heating treatment to inactivate the mycelia. However, that treatment results in rigid biocomposites with low flexibility. This work investigated the performance of alternative inactivation methods aiming to achieve flexible but sturdy MBB. Low temperature treatments and CuSO<sub>4</sub> were tested in biocomposites obtained from two fungi strains. The inactivation efficiency was evaluated through a cell viability assay, MTT assay. The physical properties of the resulting biocomposites were also assessed. Spraying MBB with a CuSO<sub>4</sub> solution did not efficiently inactivate the fungi. Although the low temperatures seemed to have inactivated the fungi two days after treatment (ca. 1% cell viability), 15 days later the mycelia resumed growth again (34% cell viability). Therefore, those treatments did not efficiently inactivate the fungi but left them in a latent dormancy state. None of the tested methods compromised the biocomposites' flexibility features. Further studies need to be conducted to identify inactivation methods that allow the production of MBB with a more diverse range of physical characteristics to expand their application potential.

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