

1st International FibEnTech Congress 2021

Online December 9th and 10th

FINAL CONGRESS PROGRAM

9th December 2021

09h00 - Opening session  full video

Congress Chair

Prof. Doutor Arlindo Caniço Gomes 

Dean of the University of Beira Interior

Professor Doutor Mário Lino Barata Raposo 

President of the City Council of Covilhã

Doutor Vítor Manuel Pinheiro Pereira 

Vice-Dean of the University of Beira Interior

Professora Doutora Sílvia Cristina da Cruz Marques Socorro 

Scientific coordinator of the FibEnTech

Prof. Doutor Paulo Torrão Fiadeiro 


09h15 - Technical Session 1  full video

Chair: Paulo Fiadeiro

“Biopolymer geogrids for Geotechnics” 

Gabriel Oliveira and Isabel Falorca


Centre of Materials and Building Technologies (C-MADE-UBI), University of Beira Interior, Faculty of Engineering, Calçada Fonte do Lameiro, 6200-358 Covilhã, Portugal

“*Agrimonia eupatoria* L.-incorporated electrospun nanofibers and cotton composite for antibacterial wound dressing applications” 

Cláudia Mouro¹, Raul Figueiro², and Isabel C. Gouveia¹

¹ *Fiber Materials and Environmental Technologies (FibEnTech-UBI), Universidade de Beira Interior, 6201-001 Covilhã, Portugal*

² *Centre for Textile Science and Technology (2C2T), University of Minho, Guimarães, Portugal*

“Functionalization of Bacterial Cellulose with bacterial pigments: Optimization using full factorial design approach” 

Lúcia F.A. Amorim¹, Raul Figueiro², and Isabel C. Gouveia¹

¹ *Fiber Materials and Environmental Technologies (FibEnTech-UBI), Faculty of Engineering, University of Beira Interior, 6201-001 Covilhã, Portugal*

² *Centre for Textile Science and Technology (2C2T), University of Minho, Guimarães, Portugal*

“Peppermint essential oil biodegradable Drug Delivery System (DDS) for dermic application” 

Joana Moreira¹, Catarina Lopes¹, Manuel-Jose Lis Arias², Lucia Silva¹, Joana M.R. Curto¹

¹ *Fiber Materials and Environmental Technologies (FibEnTech-UBI), Chemistry Department, University of Beira Interior, 6201-001 Covilhã, Portugal*


² *POLQUITEX, Chemical Engineering Department, Universitat Politècnica de Catalunya, Terrassa, Spain*

Discussion period 

10h25 – 10h40 Break

10h40 - Technical Session 2 full video

Chair: Paulo Fiadeiro 

“Assessment of autofocus techniques for isolated cellulose microfiber 3D imaging by digital holography” 

Francisca Silva¹, Paulo Fiadeiro², and Elsa Fonseca²

¹ Universidade da Beira Interior, 6201-001 Covilhã, Portugal

² Fiber Materials and Environmental Technologies (FibEnTech-UBI), Universidade da Beira Interior, 6201-001 Covilhã, Portugal

“*E. globulus* vessel and fibre chemical analysis” 


Álvaro Vaz¹, João Coelho¹, Vera Costa¹, Ana Marques², Thaddeus Malooney³, Phiri Joshat³, Paula Pinto⁴, Ricardo Oliveira⁴, Rogério Simões¹, and António M. Sousa²

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² IST, Department of Chemical Engineering – DEQ, Av. Rovisco Pais, 1, 1049-001 Lisboa, Portugal

³ Aalto University, Department of Bioproducts and Biosystems, P.O. Box 11000 (Otakaari 1B), FI-00076 Aalto, Finland.

⁴ Forest and Paper Research Institute (RAIZ), Quinta de S. Francisco, 3800-783 Eixo, Aveiro, Portugal


“Development of sustainable cellulose-based tissue materials using an innovative experimental and computational methodology” 

Flávia P. Morais¹, Ana M.M.S. Carta², Maria E. Amaral¹, and Joana M.R. Curto^{1,3}

¹ Fiber Materials and Environmental Technologies (FibEnTech-UBI), Universidade da Beira Interior, 6201-001 Covilhã, Portugal

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³ Chemical Process Engineering and Forest Products Research Centre (CIEPQPF), Universidade de Coimbra, R. Sílvio Lima, Polo II, 3004-531 Coimbra, Portugal

“Dynamic penetration profile of starch betainate, Pluronic and PCC coated papers” 

Mohit Sharma¹, Roberto Aguado², Artur J. M. Valente², Dina Murtinho², and Paulo J. T. Ferreira¹

¹ *University of Coimbra, CIEPQPF, Department of Chemical Engineering, Rua Sílvio Lima, Pólo II – Pinhal de Marrocos, 3030-790 Coimbra, Portugal*

² *University of Coimbra, CQC, Department of Chemistry, Rua Larga, PT - 3004-535 Coimbra, Portugal*

“Efficient recovery of lignin and hemicelluloses from kraft black liquor” 

Manorma Sharma, André Simões, Patrícia Alves, and Licínio M. Gando-Ferreira

University of Coimbra, CIEPQPF, Department of Chemical Engineering, Faculty of Sciences and Technology, Pólo II, Rua Sílvio Lima, 3030-790 Coimbra, Portugal

“Effect of pre-hydrolysis reaction conditions on xylooligosaccharides extraction in *Eucalyptus globulus*” 

André E.P. Cunha, and Rogério M. S. Simões


Fiber Materials and Environmental Technologies (FibEnTech-UBI), Department of Chemistry, Universidade da Beira Interior, 6200-001 Covilhã, Portugal

Discussion period 

12h00 – 14h30 Lunch


14h30 - Technical Session 3 full video

Chair: Joana Curto 

Invited speaker 1 – “Natural fibers: future materials for a sustainable world” 

Raúl Fangueiro

*Professor and Senior Researcher Coordinator of Fibrenamics University of Minho, School of Engineering, Portugal
University of Minho*

“Chemical composition of the essential oils from Portuguese *Daucus carota* subspecies” 

Sofia J. Silva¹, Jasmine Barata², Violeta R. Lopes³, Ana M. Barata³, Arlindo Gomes^{1,4}, Lúcia Silva^{1,4}, and Ana Luísa Fernando


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³ *Banco Português de Germoplasma Vegetal, INIAV, I.P., Quinta de S. José, S. Pedro de Merelim, 4700-859, Braga, Portugal*

⁴ *Fiber Materials and Environmental Technologies (FibEnTech-UBI), Universidade da Beira Interior, 6201-001 Covilhã, Portugal*

⁵ *MEtRICs, Departamento de Ciências e Tecnologia da Biomassa, NOVA School of Science and Technology FCT NOVA, Universidade NOVA de Lisboa, Campus de Caparica, 2829-516 Caparica, Portugal*

“Degradation of C. I. Direct Red 80 by the electro-Fenton process” 

Boaventura Borges¹, Ana Baía^{1,2}, Ana Lopes^{1,2}, Maria José Pacheco^{1,2}, Lurdes Ciríaco^{1,2}, and Annabel Fernandes^{1,2}

¹ *Department of Chemistry, Universidade da Beira Interior, 6201-001 Covilhã, Portugal*

² *Fiber Materials and Environmental Technologies (FibEnTech-UBI), Universidade da Beira Interior, 6201-001 Covilhã, Portugal*

“Chemical characterization of essential oils with biocide base for conservation and restoration” 

Cecília Baptista^{1,2}, Luís Santos^{2,3}, Maria Emília Amaral^{4,5}, and Lúcia Silva^{4,5}


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² Techn&Art Research Centre, Polytechnic Institute of Tomar, Campus da Quinta do Contador, 2300-313 Tomar, Portugal

³ Archaeology, Conservation and Restoration and Heritage Unit, Polytechnic Institute of Tomar, Campus da Quinta do Contador, 2300-313 Tomar, Portugal

⁴ Department of Chemistry, University of Beira Interior, 6201-001 Covilhã, Portugal

⁵ Fiber Materials and Environmental Technologies (FibEnTech-UBI), Universidade da Beira Interior, 6201-001 Covilhã, Portugal

“Photocatalytic activity of $\text{LaTi}_{1-x}\text{Fe}_x\text{O}_3$ perovskite-type oxides under UV and visible light” 

Maria João Nunes¹, André Rodrigues², Ana Lopes¹, Maria José Pacheco¹, and Lurdes Ciríaco¹

¹ Fiber Materials and Environmental Technologies (FibEnTech-UBI), Department of Chemistry, Universidade da Beira Interior, 6201-001 Covilhã, Portugal


² Department of Chemistry, Universidade da Beira Interior, 6201-001 Covilhã, Portugal

Discussion period 

16h15 – 16h30 Break


16h30 - Technical Session 4 full video

Chair: Annabel Fernandes 

“Diclofenac photodegradation under visible light with (La,Ba)(Fe,Ti)O₃ perovskites” 

Ana Sofia Rodrigues, Lurdes Ciríaco, Maria José Pacheco, and Ana Lopes

Fiber Materials and Environmental Technologies (FibEnTech-UBI), Universidade da Beira Interior, 6201-001 Covilhã, Portugal

“Phytoremediation of Boron from wastewater in a vertical flow constructed wetland” 


Pedro Correia^{1,2,3}, Carlos Ribeiro¹, Humberto Chaves¹, Fátima Carvalho^{1,3,4}, and Adelaide Almeida^{1,3,4}

¹ *Polytechnic Institute of Beja, Rua Pedro Soares - Campus do IPB, 7800-295 Beja, Portugal*

² *Faculty of Science and Technology, University of Algarve, 7, Campus de Gambelas, 8005-139 Faro, Portugal*

³ *CENSE - Center for Environmental and Sustainability Research, Faculty of Science and Technology, University Nova de Lisboa, 2829-516 Caparica, Portugal*

⁴ *Fiber Materials and Environmental Technologies (FibEnTech-UBI), 6201-001 Covilhã, Portugal*

“Phytoremediation as sustainable alternative for organic matter removal from slaughterhouse wastewater pretreated by immediate one-step lime precipitation” 


Luís Madeira^{1,2,3}, Fátima Carvalho^{2,3,4}, Margarida Ribau Teixeira^{1,3}, and Adelaide Almeida^{2,3,4}

¹ *Faculdade de Ciências e Tecnologia, Universidade do Algarve, Edifício 7, Campus de Gambelas, 8005-139 Faro, Portugal*

² *Departamento de Tecnologias e Ciências Aplicadas, IPBeja, Ap. 158, 7801-902 Beja, Portugal*

³ *CENSE, Center for Environmental and Sustainability Research, Portugal*

⁴ *Fiber Materials and Environmental Technologies (FibEnTech-UBI), Universidade da Beira Interior, 6201-001 Covilhã, Portugal*


“Tube-in-tube membrane photocatalytic reactor for the treatment of urban wastewater after secondary treatment targeting 19 CECs selected in NOR-WATER project” 

Lúcio M.M.T. Gomes¹, Pedro H. Presumido¹, Daniela G. Della Rocca², Regina F.P.M. Moreira², Rosa Montes³, Rosario Rodil³, José Benito Quintana³, Ana I. Gomes¹ and Vítor J.P. Vilar¹

¹ *Laboratory of Separation and Reaction Engineering – Laboratory of Catalysis and Materials (LSRE-LCM), Departamento de Engenharia Química, Faculdade de Engenharia da Universidade do Porto, Rua Dr. Roberto Frias, 4200-465 Porto, Portugal*

² *Laboratory of Energy and Environment (LEMA), Department of Chemical and Food Engineering, Federal University of Santa Catarina (UFSC), 88040-900, Florianópolis, SC, Brazil*

³ *Department of Analytical Chemistry, Institute of Research on Chemical and Biological Analysis (IAQBUS), Universidade de Santiago de Compostela, Spain*


“Real-scale study of use of Vetiver Zizanioides floating beds to improvement quality of surface water body in a Mediterranean climate” 

José Correia¹, Adelaide Almeida^{1,3}, Anabela Durão², Ana Pardal^{1,3}, and Teresa Borralho^{1,3}

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³ *Fiber Materials and Environmental Technologies (FibEnTech-UBI), Universidade de Beira Interior, 6201-001 Covilhã, Portugal*

“Tubular membrane photo-reactor for radial smart-dosing of iron (II) to promote photo-Fenton at neutral pH towards the removal of contaminants of emerging concern in urban wastewaters” 

Carla S. Santos¹, Rosa Montes², Rosario Rodil², José Benito Quintana², Ana I. Gomes¹, Vítor J.P. Vilar¹

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Porto, Portugal

² Department of Analytical Chemistry, Institute of Research on Chemical and
Biological Analysis (IAQBUS), Universidad de Santiago de Compostela, Spain

Discussion period

10th December 2021

09h30 - Technical Session 5  full video


Chair: Rogério Simões 

Invited speaker 2 – “The surface functionalization of cellulose fibres”



Mohamed Naceur Belgacem

Head of Grenoble INP-Pagora Engineering School – France

“Treatment of industrial effluents by the microalgae *Selenastrum*
sp.: Biotechnological and environmental potential assessment” 

Bruno Escobar, André Cunha, and Rogério Simões


*Fiber Materials and Environmental Technologies (FibEnTech-UBI), Department
of Chemistry, Universidade da Beira Interior, Chemical Department, 6201-001
Covilhã, Portugal*

“Water reuse: A risk assessment model for water resources” 

Anabela Rebelo¹, Albertina Bento Amaro², and Felisbina Quadrado¹

¹ Portuguese Environment Agency, Water Resources Department, 2610-124,
Amadora, Portugal

² University of Beira Interior, Chemistry Department, 6201-001 Covilhã, Portugal


“Investigation of agricultural waste as economical and effective bio-inhibitors for scaling inhibition in natural hard water” 

Faléstine Souiad^{1,3}, Yasmina Bendaoud-Boulahtib¹, Wafa Kerkatou², Annabel Fernandes³, Chibani Aissa¹, and Ana Lopes³

¹ *Unité de recherche CHEMS, Département de Chimie, Faculté des Sciences Exactes, Université Constantine 1, 25000, Constantine, Algérie*

² *Unité de Recherche Valorisation des Ressources Naturelles, Molécules Bioactives et Analyses Physicochimiques et Biologiques. Université Constantine 1, 25000, Constantine, Algérie*

³ *Fiber Materials and Environmental Technologies (FibEnTech-UBI), Universidade da Beira Interior, 6201-001 Covilhã, Portugal*

“Opportunities for microalgae-bacteria consortium application to the treatment of effluents generated in fibers-waste-based recycling processes” 

Josivaldo Sátiro^{1,3}, Sanderson Leitão¹, Arlindo Gomes², Rogério Simões², and António Albuquerque^{1,3}

¹ *Fiber Materials and Environmental Technologies (FibEnTech-UBI), Department of Civil Engineering and Architecture, University of Beira Interior, Covilhã, Portugal*

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³ *GeoBioTec-UBI, Department of Civil Engineering and Architecture, University of Beira Interior, Covilhã, Portugal*

Discussion period 

11h15 – 11h30 Break

11h30 - Technical Session 6 full video

Chair: António Mendes 

“Water reuse in a municipal sports center” 

Flora Silva^{1,4,5}, Ana Maria Antão-Geraldes^{2,4}, and António Albuquerque^{3,4,5}


¹ ESTiG - Instituto Politécnico de Bragança, Campus de Santa Apolónia, 5300-253, Bragança, Portugal

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³ Departamento de Engenharia Civil e Arquitetura, Universidade da Beira Interior, Calçada Fonte do Lameiro, 6201-001, Covilhã, Portugal

⁴ Fiber Materials and Environmental Technologies (FibEnTech-UBI), Universidade da Beira Interior, Calçada Fonte do Lameiro, 6201-001, Covilhã, Portugal

⁵ GeoBioTec-UBI, Universidade da Beira Interior, Calçada Fonte do Lameiro, 6201-001, Covilhã, Portugal

“Influence of hydraulic conditions on reclaimed water polishing using soil and sand columns” 

Flora Silva^{1,5}, Ana Maria Antão-Geraldes^{2,5}, Paulo Scalize^{3,5}, Victor Cavaleiro^{4,6}, and António Albuquerque^{4,5,6}

¹ ESTiG - Instituto Politécnico de Bragança, Campus de Santa Apolónia, 5300-253, Bragança, Portugal; ⁵FibEnTech; ⁶GeoBioTec-UBI


² Centro de Investigação de Montanha (CIMO), Instituto Politécnico de Bragança, Campus de Santa Apolónia, 5300-253, Bragança, Portugal;

³ Escola de Engenharia Civil e Ambiental, Universidade Federal de Goiás, Av. Universitária, 1488, Setor Universitário, CEP 74605-220 Goiânia-GO, Brasil;

⁵FibEnTech

⁴ Departamento de Engenharia Civil e Arquitetura, Universidade da Beira Interior, Calçada Fonte do Lameiro, 6201-001, Covilhã, Portugal; ⁵ FibEnTech;


⁶ GeoBioTec-UBI

“Removal of emergent pollutants by vertical constructed wetland with *Vetiveria zizanioides* – Case study for caffeine” 

Flávia Silva¹, Adelaide Almeida¹, Júlio Oliveira¹, Flávia Matias¹, Carlos Ribeiro¹, Daniele Silveira², and Jorge Tavares¹

¹ Department of Technologies and Applied Sciences, School of Agriculture (ESA), Polytechnic Institute of Beja (IPBeja), Beja, Portugal

² Department of Sanitary and Environmental Engineering (ENS), Federal University of Santa Catarina (UFSC), Florianopolis, Brazil

“Grape pomace as a renewable source of energy: degradation efficiency and biogas yield” 

R. Oliveira¹, I.C. Gonçalves^{1}, A. Mendonça¹, H.M. Pinheiro², and M.I. Ferra¹*

¹ Fiber Materials and Environmental Technologies (FibEnTech-UBI), Chemistry Department, University of Beira Interior, 6201-001 Covilhã, Portugal


² Institute for Bioengineering and Biosciences (iBB), Instituto Superior Técnico, University of Lisbon, Portugal

Discussion period 

12h30 – 14h30 Lunch


14h30 - Technical Session 7  *full video*

Chair: António Albuquerque 

Invited speaker 3 – “Sustainable waste management – new approaches” 

Andrzej Białowiec

Wroclaw University of Environmental and Life Sciences, Poland


“Chemical and mineralogical characterization of biomass ashes for soil reinforcement and liner material” 

André Studart^{1,2,3}, Leonardo Marchiori^{1,2,3}, Maria Vitoria Morais^{1,2,3}, António Albuquerque^{1,2,3}, Pedro Gabriel Almeida^{1,3}, and Victor Cavaleiro^{1,3}

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³ *GeoBioTec, Universidade da Beira Interior, 6201-001 Covilhã, Portugal*

“Geotechnical characterization of biomass ashes for soil reinforcement and liner material” 


Leonardo Marchiori^{1,2,3}, André Studart^{1,2,3}, Maria Vitoria Morais^{1,2,3}, António Albuquerque^{1,2,3}, Luís Andrade Pais^{1,3}, Maria Eugênia Boscov⁴, and Victor Cavaleiro^{1,3}

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“Evaluation of Entre-os-Rios thermal aquifer vulnerability using DRASTIC index” 

Vanessa Gonçalves^{1,2,3}, António Albuquerque^{1,2,3}, and Victor Cavaleiro^{1,3}

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³ *GeoBioTec-UBI, Universidade da Beira Interior, 6201-001 Covilhã, Portugal*


Discussion period 

15h50 - Closing session  *full video*

Scientific coordinator of the FibEnTech

Prof. Doutor Paulo Torrão Fiadeiro 

Congress Chair

Prof. Doutor Arlindo Caniço Gomes 

Apoio Técnico

within the groove
studio