



COST ACTION GREENERING – DATA COLLECTION

First name, Family Name: Ana Leite, Oliveira

Type (Academic or Industrial): Academic

Country: Portugal

Leadership position in the COST: none

Working Group in which you are involved: WG3

E-mail: aloliveira@porto.ucp.pt

Laboratory/Company: Biomaterials and Biomedical Technology Laboratory, CBQF – Centre for Biotechnology and Fine Chemistry, Universidade Católica Portuguesa

Laboratory/Company info (limited to 400 characters):

At the Biomaterials and Biomedical Technology Lab is composed by a team of materials scientists, biochemists, cell biologists, microbiologists and clinicians that work together in the development of new natural-based material solutions for wound healing. We have been developing membrane systems, hydrogels and powders, able tissue healing and regeneration. We have also experience in testing biomaterials according to international standards.

Link to the home page of the Laboratory/Company: <http://www.cbqf.esb.ucp.pt/en/cbqf-biobased-and-biomedical-products>

Fields of expertise (limited to 400 characters):

We are interested on biomaterials development for medical related applications, with strong emphasis on natural-based polymers for tissue healing and regeneration, in particular functional silk-based biomaterials for tissue healing and regeneration. The sterilization of sensitive biomaterials is also a concern in our group. We are using supercritical CO₂ technology to reach the sterility levels required by regulation without altering the materials properties.

5 Main publications or patents:

1. Serôdio, R., Schickert, S.L., Costa-Pinto, A.R., Dias, J.R., Granja, P.L., Yang, F., and Oliveira, A.L.*, 2019. Ultrasound sonication prior to electrospinning tailors silk fibroin/PEO membranes for periodontal regeneration. *Materials Science and Engineering: C*. Volume 98, May 2019, p. 969-981.
2. Dias J.R., Oliveira da Silva S., Ribeiro N., Batista da Silva Sara, Costa-Pinto A.R., Alves N., Oliveira A.L.*, In Situ Enabling Approaches For Tissue Regeneration: Current Challenges and New Developments, *Frontiers in Bioengineering and Biotechnology*, 2020, 8:85 DOI: 10.3389/fbioe.2020.00085



3. Ana L. Oliveira, Sara. B. Silva, Sandra C. Borges, Paulo J. Alves, Silk Sericin-based Hydrogel, Methods and Uses Thereof, WO/2018/011732 (2018).
4. Soares, G.C., Learmonth, D.A., Vallejo, M.C., Davila, S.P., González, P., Sousa, R.A. and Oliveira, A.L.*, 2019. Supercritical CO₂ technology: The next standard sterilization technique?. Materials Science and Engineering: C, Volume 99, June 2019, p. 520-540.
5. Ribeiro N., Soares G.C., Santos-Rosales V., Concheiro A., Alvarez-Lorenzo C., García-González C.A. and Oliveira A.L.*, 2020, A new era for sterilization based on supercritical CO₂ technology, Journal of Biomedical Materials Research: Part B - Applied Biomaterials.

Collaborations:

- Luis Rojo, Biomaterials Group, ICTP-CSIC, Madrid
- Pedro Granja, INEB - i3S
- Raquel Soares, Faculdade de Medicina da Universidade do Porto
- Juliana Dias, CDRSP – Center for Rapid and Sustainable Product Development, Polytechnical Institute of Leiria
- Pio Gonzalez, Grupo Nuevos Materiales, University of Vigo
- Carlos Garcia-Gonzalez, Faculty of Pharmacy, Universidade de Santiago de Compostela
- Joana Magalhães, INIBIC- University of Coruña
- Lorenzo Moroni, Maastricht University
- David Kaplan, Tufts University, USA
- Tony Eisenhut, Novasterilis
- Rui Sousa, Stematters
- Jorge Gomes, BBraun

Facilities:

CBQF has a dedicated laboratory equipment and supporting facilities for research undertaken within areas such as microbiology (including pathogenic organisms), molecular biology, cell culture, fine chemistry and biochemistry, biomaterials, food technology and packaging. CBQF is equipped with the most advanced scientific resources in the areas of chemistry, biology, molecular biology, materials science, physical and sensory analysis. The Chemical platform is equipped with 1 FTIR, 4 HPLC coupled with DAD, UV-Vis, FLU and IR detectors, 3 GC coupled with FID detectors, 3 GC MS coupled with Ion Trap detectors and UHR-QqTOF (Ultra-High Resolution Qq-Time-Of-Flight) mass spectrometry with >50,000 Full-Sensitivity Resolution (FSR). Moreover, CBQF has excellent facilities and equipment for biomaterial processing and its valorization, including DSC, Micro DSC, Rheometer, Texturometer, 2d-Electrophoresis, RT-PCR, Q-PCR, DGGE; FTIR-ATR, freeze-drier, ovens, ultrafiltration system, zeta-sizer, contact angle, spraydrier, freeze-drier, membrane technology, fully automated supercritical CO₂ extraction/impregnation equipment. Moreover for in vitro cell culture CBQF has designed a state-of-the-art cell and tissue culture laboratory. CBQF also holds the basic equipment and techniques for microbiology and molecular biology studies (autoclaves, laminar flow chambers, deep-freezer, fluorescence microscopy,



microbiological incubators, conventional and RT-PCR, among others). All of these infrastructures have dedicated technicians some with more than 20 years of experience.