



Research Field: Astrobiology, Microbiology
Focused Field: Astromycology, Applied Mycology,
Microgravity, Planetary Protection



Assistant Professor

MARTA FILIPA SIMÕES



SHORT BIO

Marta Filipa Simões is a microbiologist, who has worked with a myriad of microorganisms (mycobacteria, environmental and clinical bacteria, mycobacteriophages and filamentous fungi) and has a multidisciplinary background, mostly focused on mycology (filamentous fungi).

She is currently based in Macau (China), where she is working as an assistant professor on astrobiology, at the State Key Laboratory of Lunar and Planetary Sciences (SKLPlanets) located at the Macau University of Science and Technology (MUST). Her current work is focused mostly on: fungal ecology, biodiversity in environmental analogues to outer-space conditions, bioprospection and application of filamentous fungi, and fungal growth containment and exploitation in outer-space similar conditions.

Before coming to Macau, she worked at the Biology Department of Edge Hill University (UK), developing research on fungal ecology and biodiversity in uncommon environments (e.g.: salt marshes, peatlands, bogs, brine springs), bioprospection and application of filamentous fungi for the production of secondary metabolites with biotechnological relevance. Prior to that, she was a post-doc at the Computational Bioscience Research Center – CBRC, King Abdullah University of Science and Technology – KAUST (Saudi Arabia), where she did most of her research work on marine microbiology.

Marta received her PhD in Chemical and Biological Engineering, at the University of Minho, Braga (Portugal). Her PhD research focused on quality management systems based on ISO 9001, isolation, identification, preservation (application of common methodologies and development of alternatives to the standard methods) and characterisation of filamentous fungi (macroscopy, microscopy – SEM, confocal, MALDI-TOF, HPLC, enzymatic screenings, mycotoxin profiles evaluation and typing through molecular biology). Her PhD research was featured in the section “PhD highlights”, on the magazine of the Portuguese Society of Microbiology (2014). Before her PhD, she worked as a researcher for the EU project EMbaRC – European Consortium of Microbial Resources Centres (www.embarc.eu/project.html) with research developed on: Management of data from the Micoteca da Universidade do Minho (MUM) within the European collection networking. Previously, as a researcher at the Centre for Molecular Pathogenesis – Retrovirus and Associated infections unit (CPM-URIA), Faculty of Pharmacy at the University of Lisbon, she studied the characterisation of lytic genes encoded by mycobacteriophages with antimicrobial activity against mycobacteria. Furthermore, she has a MSc in Clinical Microbiology and a degree in Biotechnological Engineering, during which she worked on the development of prodrugs and tested them, in free form and encapsulated in liposomes, for the treatment of tuberculosis. She has performed many research activities since her graduation and during her masters within the research field of tuberculosis.

EDUCATION

- Ph.D. in Chemical and Biological Engineering – Minho University (PT) (2013)
- Master in Clinical Microbiology – Faculty of Medicine, Lisbon University (PT) (2009)
- Bachelor in Biotechnological Engineering – ULHT (PT) (2006)

PROFESSIONAL EXPERIENCE

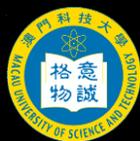
- 2021-Current:** Assistant Professor - Macau University of Science and Technology (MO).
- 2019-2021:** Postdoctoral fellow - Macau University of Science and Technology (MO).
- 2016-2019:** Associate tutor and Junior Research Fellow - Edge Hill University, (UK).
- 2014-2015:** Postdoctoral fellow - King Abdullah University of Science & Technology, Saudi Arabia.
- 2010-2013:** Curator - Micoteca da Universidade do Minho (MUM), Minho University, (PT).
- 2009-2010:** Researcher, EU project EMbaRC (www.embarc.eu/project.html) - Minho University, (PT).
- 2009-2010:** Researcher, Centre for Molecular Pathogenesis, University of Lisbon, (PT).
- 2009-2010:** Researcher, Faculty of Pharmacy, University of Lisbon, University of Lisbon, (PT).



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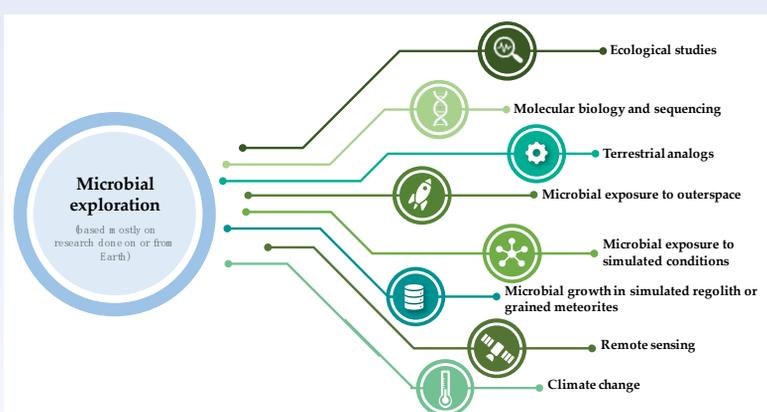


KEY PUBLICATIONS (latest)

- Wu, J.H., McGenity, T.J., Rettberg, P., **Simões, M.F.**, Li, W.J. and Antunes, A. (2022). The Archaeal Class Halobacteria and Astrobiology: Knowledge Gaps and Research Opportunities. *Frontiers in Microbiology*, p.3789.
- da Silva, C.A., Ribeiro, B.M., do Valle Trotta, C., Perina, F.C., Martins, R., de Souza Abessa, D.M., Barbieri, E., **Simões, M.F.** and Ottoni, C.A. (2022). Effects of mycogenic silver nanoparticles on organisms of different trophic levels. *Chemosphere*, 308, p.136540.
- Zhang, H. & **Simões, M.F.** (2022). Species Recognition of *Aspergillus Conidia* Using Convolutional Neural Networks in Scanning Electron Microscopy Imagery. *International Journal of Pharma Medicine and Biological Sciences*,
- Méndez, A., Rivera-Valentín, E.G., Schulze-Makuch, D., Filiberto, J., Ramírez, R., Wood, T.E., Dávila, A., McKay, C., Ceballos, K.O., Jusino-Maldonado, M., Torres-Santiago, N., Heller, R., Byrne, P., Malaska, M.J., Nathan, E., **Simões, M.F.**, Antunes, A., Martínez-Frías, J., Carone, L., Izenberg, N.R., Atri, D., Chitty, H.I.C., Nowajewski-Barra, P., Rivera-Hernández, F., Brown, C., Lynch, K., Catling, D., Zuluaga, J.I., Salazar, J.F., Chen, H., González, G., Jagadeesh, M.K. & Haqq-Misra, J. (2021). Habitability Models for Planetary Sciences. *Astrobiology*, 21, 8.
- Simões, M.F.** & Antunes, A. (2021). Microbial pathogenicity in space. *Pathogens*, 10(4): 450
- DasSarma, P., Antunes A., **Simões, M.F.**, & DasSarma, S. (2020). Earth's Stratosphere and Microbial Life. *Current Issues in Molecular Biology*, 38:197-244
- Simões, M. F.**, Ottoni, C. A., & Antunes, A. (2020). Biogenic Metal Nanoparticles: A New Approach to Detect Life on Mars?. *Life*, 10(3), 28.

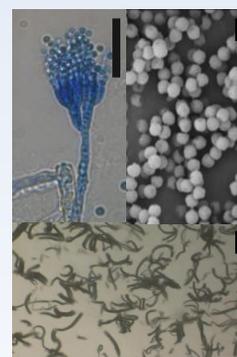
MORE DETAILS HERE:

- ▶ <https://scholar.google.co.uk/citations?user=sm5g6nsAAAAJ&hl=en&oi=sra;>
- ▶ www.researchgate.net/profile/Marta_Simes;
- ▶ www.linkedin.com/in/martafilipasimoes.



Field sampling at salterns in Cabo Verde.

Fungal morphological characterisation.



GRANTS (current)

- 2021-2022: **MiBiT-CV** – Microbiology and Biotechnology Training for Cabo Verde; Microbiology Society (UK): PI.
- 2021-2023: Development and validation of a low-cost, bio- and nano-based innovative technology for drinking water disinfection, project with collaborators from São Paulo State University (UNESP), MUST (Macau), and Aveiro University (Portugal). Funding from FAPESP (The São Paulo Research Foundation, Brazil): Collaborator .
- 2021-2024: **B3iS** – Biodiversity and Bioprospection of Biosurfactants in Saline environments; FCT (PT): Collaborator.