

# CURRICULUM VITÆ

## 1. Personal data

### Full name

André Guimarães Lemos Antunes

### Birth Place and date

Coimbra (Portugal) 05-07-1977

### Nationality

Portuguese

### Address

Macau University of Science and Technology (MUST),  
State Key Laboratory of Lunar and Planetary Sciences- Space Science Institute,  
Avenida Wai Long,  
Taipa, Macau SAR,  
China



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## 2. Academic degrees

Year	Academic degree	Institution	Classification
2001-2006	Ph.D. in Biochemistry/Microbiology	University of Coimbra	<i>summa cum laude</i>
1995-2000	Biology degree (Licenciatura)	University of Coimbra	17 (Good with appraisal)

## 3. Previous and current scientific and/or professional activities

Period	Position or category	Institution
2020-Present	Leader of the Astrobiology Unit and Lab Coordinator	Macau University of Science and Technology (MUST), State Key Laboratory of Lunar and Planetary Sciences- Space Science Institute, Macau SAR, China
2019-Present	Associate Professor	Macau University of Science and Technology (MUST), State Key Laboratory of Lunar and Planetary Sciences- Space Science Institute, Macau SAR, China
2016-2019	Biotechnology BSc. Programme Coordinator	Biology Department, Edge Hill University, Ormskirk, UK
2016-2019	Year Tutor of the Biology Department (2 <sup>nd</sup> year of BSc. programmes in Biology, Biotechnology, Ecology and Conservation, Human Biology, Genetics)	Biology Department, Edge Hill University, Ormskirk, UK
2016-2019	Departmental Employability Lead	Biology Department, Edge Hill University, Ormskirk, UK
2016-2019	Senior Lecturer	Biology Department, Edge Hill University, Ormskirk, UK
September 2018	Chief Scientist	CHASE 2018 Research Expedition to Cabo Verde
2015	Research Consultant/ Researcher	Computational Bioscience Research Center (CBRC), Computer, Electrical and Mathematical Sciences and Engineering Division (CEMSE), King Abdullah

		University of Science and Technology (KAUST), Thuwal, Saudi Arabia
2014	Editorial Board Member of the MIRRI Newsletter	MIRRI EU project (Microbial Resource Research Infrastructure): Micoteca da Universidade do Minho, Centro de Engenharia Biológica, University of Minho, Braga, Portugal
2012- 2014	Project Manager/ Post-doc Researcher	MIRRI EU project (Microbial Resource Research Infrastructure): Micoteca da Universidade do Minho, Centro de Engenharia Biológica, University of Minho, Braga, Portugal
April 2013	Member of the scientific crew of the 4 <sup>th</sup> KAUST Red Sea Expedition (4 <sup>th</sup> Leg)	<i>RV Aegeo</i>
2009- 2012	Post-doc Researcher	Marine Environmental Microbiology Lab, Red Sea Research Center, King Abdullah University of Science and Technology (KAUST), Thuwal, Saudi Arabia (Supervisor: Ulrich Stingl)
October- November 2011	Member of the scientific crew of the 3 <sup>rd</sup> KAUST/WHOI Red Sea Expedition (2 <sup>nd</sup> and 3 <sup>rd</sup> Leg)	<i>RV Aegeo</i>
October 2011	Chief Scientist of the 3 <sup>rd</sup> KAUST/WHOI Red Sea Expedition (2 <sup>nd</sup> Leg)	<i>RV Aegeo</i>
2009- 2011	Teaching Assistant	King Abdullah University of Science and Technology (KAUST), Thuwal, Saudi Arabia
April 2010	Member of the scientific crew of the 2 <sup>nd</sup> KAUST/WHOI Red Sea Expedition (2 <sup>nd</sup> Leg)	<i>RV Aegeo</i>
March 2010	Member of the scientific crew of the 2 <sup>nd</sup> KAUST/WHOI Red Sea Expedition (1 <sup>st</sup> Leg)	<i>RV Aegeo</i>
June 2009	Member of the scientific crew of <i>RV Kilo Moana</i> cruise (KM 09-14)	<i>RV Kilo Moana</i>
2009	Researcher of the Research Summer Course: "Microbial Oceanography: Genomes to Biomes"	Agouron Institute and the Center for Microbial Oceanography, University of Hawaii, Honolulu, USA
2008-2009	Member of the Expert Committee for the Harmonization of Training in Pharmaceutical Sciences in the ECOWAS region	West African Health Organization
2008	Director of the Unit of Health and Environmental Sciences	Universidade Jean Piaget de Cabo Verde, Praia, Cape Verde
2007-2009	Assistant Professor	Universidade Jean Piaget de Cabo Verde, Praia, Cape Verde
2007	Teaching Assistant of the <i>Advanced Course in Microbiology</i> (Experimental Biology and Biomedicine PhD Programme- BEB)	Centro de Neurociências e Biologia Celular, University of Coimbra, Portugal
2006-2007	Post-doc researcher	Laboratório de Microbiologia, Centro de Neurociências e Biologia Celular, University of Coimbra, Portugal (Supervisor: Milton da Costa)
2003	Teaching Assistant of the Undergraduate practical intensive course in Organismic Microbiology	Lehrstuhl für Mikrobiologie und Archäozentrum, University of Regensburg, Germany
2001-2005	PhD student	Lehrstuhl für Mikrobiologie und Archäozentrum, University of Regensburg, Germany

(Supervisor: Robert Huber)

March to April 2002 Member of the scientific crew of *RV Meteor* cruise (M 52/3) *RV Meteor*

1999-2000 Undergraduate research intern  
Laboratório de Microbiologia, Centro de Neurociências e Biologia Celular, University of Coimbra, Portugal  
(Supervisor: Milton da Costa)

#### 4. Domain of specialization, investigation interests and other skills/activities

(in Present research interest)

##### Domain of specialization

I have worked mostly with the microbial ecology and biodiversity of extreme environments, more specifically with deep-sea and low water activity biotopes. The main goal of my work is to shed some light on the enormous untapped microbial biodiversity present in marine and extreme environments, and clarify their possible role in their local environment, and identify novel genomic, physiologic, and metabolic feature, and possible industrial applications.

##### Present investigation interests

I am currently very interested in the study of environmental microbiology of marine and extreme biotopes. I am especially keen on exploring, characterizing, and comparing the microbial communities present in hypersaline environments (e.g. deep-sea brines, salterns) using OMICS-data (e.g. genomics, metabolomics, metagenomics) and cultivation-based approaches. I am very keen on directing my research efforts towards the fields of metabolic pathway, design, optimization, and engineering and new solutions for the biosynthesis of compounds of industrial relevance. Additional points of interest for me include studies in trans-disciplinary fields such as geomicrobiology and exobiology/astrobiology in a context of planetary protection and determining the limits of Life.

##### Other skills/activities

###### Teaching experience:

Teaching experience in the following modules (B.Sc. level):

1. Introduction to Biotechnology (2018-2019)- Tutor (Edge Hill University, UK)
2. Life on the Edge (2016-2019)- **Module Leader** (Edge Hill University, UK)
3. Biochemistry and Metabolism (2016-2019)- **Module Leader** (Edge Hill University, UK)
4. Current Issues in Biology (2016-2019)- Tutor (Edge Hill University, UK)
5. Research Methods (2016-2019)- **Module Leader** (Edge Hill University, UK)
6. Biodiversity (2016-2019)- **Module Leader** (Edge Hill University, UK)
7. Genomics and Bioinformatics (2016-2019)- **Module Leader** (Edge Hill University, UK)
8. Dissertation (2016-2019)- Tutor (Edge Hill University, UK)
9. Laboratory Masterclass (2016-2017)- Tutor (Edge Hill University, UK)
10. Microbial Genetics (2016)- **Module Leader** (Edge Hill University, UK)
11. Microbiology (2008-2009)- **Module Leader** (University Jean Piaget, Cabo Verde)
12. General Bacteriology (2007-2009)- **Module Leader** (University Jean Piaget, Cabo Verde)
13. Virology (2007-2008)- **Module Leader** (University Jean Piaget, Cabo Verde)
14. Cell Biology (2007-2009)- **Module Leader** (University Jean Piaget, Cabo Verde)
15. Histology (2007-2009)- **Module Leader** (University Jean Piaget, Cabo Verde)
16. Genetics (2007-2009)- **Module Leader** (University Jean Piaget, Cabo Verde)
17. Molecular Biology (2007-2009)- **Module Leader** (University Jean Piaget, Cabo Verde)
18. Practical Course in Microbiology (2003)- Tutor (University of Regensburg, Germany)

Teaching experience in the following modules (Master's Level):

1. Environmental Microbiology (2009-2010)- Tutor (KAUST- King Abdullah University of Science and Technology, Saudi Arabia)
2. Marine Microbial Ecology (2010)- Tutor (KAUST- King Abdullah University of Science and Technology, Saudi Arabia)
3. Practical Course in Marine Microbial Ecology (2011)- Tutor (KAUST- King Abdullah University of Science and Technology, Saudi Arabia)
4. Practical Course in Organismic Microbiology (2003)- Tutor (University of Regensburg, Germany)

Teaching experience in the following modules (Ph.D. Level):

1. Comparative Planetology (2020)- Tutor (MUST- Macau University of Science and Technology, Macau SAR, China)
2. Practical Course in Marine Microbial Ecology (2011)- Tutor (KAUST- King Abdullah University of Science and Technology, Saudi Arabia)
3. Advanced Microbiology (2007)- Tutor (University of Coimbra, Portugal)

Other Teaching experience:

1. "Introduction to Scientific Writing for Industry" (2017)- Course organiser and tutor (Edge Hill University, UK)

##### Laboratorial experience with:

1. Aerobic and anaerobic cultivation techniques.
2. Biochemical, physiological, and metabolic characterization of microorganisms.
3. Isolation of microorganisms using standard and alternative methods (e.g. "optical tweezers" technique)

- and gel stabilized gradient cultivation).
4. Phylogenetic staining (Fluorescence in situ hybridization).
  5. Mass-growth of microorganisms (Fermenter).
  6. Cultivation under high-pressure conditions.
  7. Whole Genome sequencing.
  8. Bioinformatic analysis of genomic and metagenomic data.
  9. Bioprospection and Biotechnology.
  10. Geomicrobiology.
  11. Astrobiology.
  12. Development of new bioinformatic tools and databases.

#### Additional Training

##### Participation in the following courses (selection):

1. Introduction to Arb: A software environment for sequence data- *University of Hawaii* (June 2009; 1-day course)
2. Introduction to genomic and metagenomic analysis using MG-RAST- *University of Hawaii* (June 2009; 1-day course)
3. Research Summer Course: "Microbial Oceanography: Genomes to Biomes"- *Agouon Institute and the Center for Microbial Oceanography, University of Hawaii, Honolulu* (June-July 2009; 6 weeks course).
4. IGS Genomics Workshop- *Institute of Genomic Sciences, University of Maryland* (November 2009; 3 day course)
5. Writing in the Sciences- *Stanford University* (October- November 2012; 6 weeks online course)
6. Advanced technologies in identification of microbial strains- *13<sup>th</sup> International Conference on Culture Collections (ICCC 13)*, Beijing, China (Sep 2013; 1 day course).
7. Metabolic Engineering and Optflux- *King Abdullah University of Science and Technology (KAUST), CBRC Workshop*, Thuwal, Saudi Arabia (June 2015; 2 day course).
- 8- ARB Workshop- *Ribocon & Max Planck Institute for Marine Microbiology*, Bremen, Germany (December 2015; 5 day course).
- 9- Metagenomics Workshop- *Natural Environment Research Council (NERC), University of Liverpool, Centre for Genomic Research*, Liverpool, UK (June 2017; 2-day course).
- 10- From Primer to Paper: Training in Biodiversity Analysis using NGS Amplicon Data- *Ribocon & Max Planck Institute for Marine Microbiology*, Bremen, Germany (Nov 2017; 5 day course).
- 11- "An introduction to the PREVENT duty as it affects higher education" - E-learning training at [www.safecampuscommunities.ac.uk](http://www.safecampuscommunities.ac.uk) (October 2017; half-day course).
- 12- Introduction to Biolog- Technopath, Ormskirk, UK (Dec 2017; half-day course).

#### 5. Language skills

Language	Reading	Writing	Conversation
Portuguese	Excellent	Excellent	Excellent
English	Excellent	Excellent	Excellent
German	Very Good	Good	Excellent
Spanish	Very Good	Good	Excellent
French	Very Good	Good	Good

#### 6. Scholarships and Awards

Period	Scholarship/Award	Institution
2019	People's Choice Poster Prize 2 <sup>nd</sup> Place (Microbiology Society Annual Conference 2019)	Microbiology Society (UK)
2018	Winner of the People's Choice Poster Prize (Microbiology Society Annual Conference 2018)	Microbiology Society (UK)
2017	Winner of the Best Principal Investigator Poster Prize (Microbiology Society Annual Conference 2017)	Microbiology Society (UK)
2016	2016 Society for Applied Microbiology Annual Photo Award (2nd Runner Up)	Society for Applied Microbiology (UK)
2012-2014	7 <sup>th</sup> Framework Programme INFRA-2012-2.2.5 "MIRRI Resource Research Infrastructure"	ESFRI-BMS European Union (EU 7 <sup>th</sup> Framework Programme)

2011	SEDCO Research Excellence Award (awarded to research project)	SEDCO Holding Company
2011	Best Poster Award (W.E.P. Research Poster Session 2011)	King Abdullah University of Science and Technology (KAUST)
2010	External Laboratory Access- Collaborative Research KAUST scholarship	Global Collaborative Research- King Abdullah University of Science and Technology (KAUST)
2009	Research Fellowship to participate in the Research Summer Course: "Microbial Oceanography: Genomes to Biomes"	Agouron Institute
2006-2007	Post-doc scholarship (SFRH/BPD/22576/2005)	Fundação para a Ciência e a Tecnologia (FCT)
2006	Travel Fellowship to participate in the IOM 2006 Meeting	International Organization for Mycoplasma (IOM)
2001-2004	PhD scholarship (SFRH/BD/3170/2000)	Fundação para a Ciência e a Tecnologia (FCT)

## 7. Participation in Scientific Projects and Funding

Period	Project	Financing Institution	Project coordinator
2020- Present	MiBiT-CV: Microbiology and Biotechnology Training for Cabo Verde (Team Member)	Microbiology Society International Development Fund, UK	Dr Marta Filipa Simões, Macau University of Science and Technology (MUST), Macau SAR, China (Approved)
2020- Present	ILAST- Investigating Life Across Space and Time	FDCT- Fundo para o Desenvolvimento das Ciências e da Tecnologia (FDCT-EC Match Funding Programme), Macau SAR, China	Prof. André Antunes, Macau University of Science and Technology (MUST), Macau SAR, China (submitted)
2020- Present	ILAST- Investigating Life Across Space and Time	European Union- Horizon 2020 Programme	Dr. Karen Olson-Francis, Macau The Open University, UK (submitted)
2020- Present	B3iS - Biodiversity and Bioprospection of Biosurfactants In Saline environments (Team Member)	Fundação para a Ciência e a Tecnologia (Portugal)	Prof. Lígia Rodrigues, Universidade do Minho, Braga, Portugal (submitted)
2020- Present	Emergence and evolution of hyperacid systems in SW Europe as an interplay between climate evolution, biological activity and human takeover (Team Member)	National Science Foundation of China (NSFC), China	Prof. David Fernandez-Remolar, Macau University of Science and Technology (MUST), Macau SAR, China (submitted)
2020- Present	MiNTS-Microbiology of New Terrestrial analogue Sites	FDCT- Fundo para o Desenvolvimento da Ciência e da Tecnologia, Macau SAR, China	Prof. André Antunes, Macau University of Science and Technology, Macau SAR, China (submitted)
2020- Present	Use of Sulfate Reducing Bacteria in the Petroleum and derivatives treatment with electricity Biogeneration using solid membrane reactors of the type Microbial Fuel Cell (Team Member)	FAPESP (Fundação de Amparo à Pesquisa do Estado de São Paulo), Brazil	Prof. Cristiane Angélica Ottoni, Universidade Estadual Paulista, Brazil (submitted)
2020- Present	Metagenomics and Microbiology of Dolomite of the	Qatar University High Impact Grant Application, Qatar	Prof. Fadhil Sadooni, Qatar University, Qatar

	<b>Coastal Sabkhas of Qatar (Team Member)</b>		<b>(submitted)</b>
<b>2018-Present</b>	<b>ICExPOSE: Icy Exposure of Microorganisms (Team Member)</b>	<b>Access Approved by European Space Agency (funding pending)</b>	<b>Dr. Corinna Pannitz, German Aerospace Center (DLR), Cologne, Germany</b>
<b>2018-Present</b>	<b>MEXEM: Mars Exposed Extremophile Mixture (Team Member)</b>	<b>Access Approved by ESA and NASA (funding pending)</b>	<b>Dr. Petra Rettberg, German Aerospace Center (DLR), Cologne, Germany</b>
2018-2019	Exploring taxonomic diversity and the genetic basis of microbial carbonate production (PI)	EHU PhD/DT Funding Scheme 2018	Dr. André Antunes, Edge Hill University, Ormskirk, UK
<b>2017-2020</b>	<b>The development of subsurface properties and ecological characteristics in young natural and restored saltmarsh environments (Co-PI)</b>	<b>EHU PhD/GTA Funding Scheme 2017</b>	<b>PI: Dr James Rowson; Co-PI: Dr. André Antunes, Edge Hill University, Ormskirk, UK</b>
2016-2019	Microbiology of Salt Marshes in the UK: Insights into Life in Gradient-rich Environments	EHU PhD/GTA Funding Scheme 2016	Dr. André Antunes, Edge Hill University, Ormskirk, UK
2018	Microbial Diversity and Bioprospection of Unexplored and Threatened Coastal Environments (PI)	EMBRIC- European Marine Biological Research Infrastructure Cluster Transnational Access Programme	Dr. André Antunes, Edge Hill University, Ormskirk, UK
2018	Bioprospection of Extremophilic Microbes from the Cheshire Salt District: Anti-microbial potential (PI)	PARSUK (Portuguese Association of Researchers and Students in the UK)	Dr. André Antunes, Edge Hill University, Ormskirk, UK
2017-2018	PPOSS- Planetary Protection of Outer Solar System (External Consultant)	European Commission, H2020 Programme (grant agreement 687373)	Nicolas Walter/ Patricia Cabezas, European Science Foundation (ESF), France
2017-2018	EDEN: Exploration of the Diversity of Extremophiles in the North of England (PI)	RIF Fund- Edge Hill University	Dr. André Antunes, Edge Hill University, Ormskirk, UK
2017	Anti-microbial Potential of Novel Extremophiles from Unexplored Hypersaline Locations in the UK (PI)	PARSUK (Portuguese Association of Researchers and Students in the UK)	Dr. André Antunes, Edge Hill University, Ormskirk, UK
2015-2016	RItrain- Research Infrastructures Training Programme (Team Member; National Project Manager)	European Union, Horizon 2020 Work Programme (H2020-EU.1.4.2.2.)	Dr. Markus Pasterk Biobanking and BioMolecular resources Research Infrastructure (BBMRI-ERIC), Prague, Czech Republic
2012-2014	MIRRI – Microbial Resource Research Infrastructure (Team Member; National Project Manager)	European Union, 7th European Framework Program (ESFRI-BMS INFRA-2012-2.2.5)	Prof. Nelson Lima, Micoteca da Universidade do Minho, University of Minho, Braga, Portugal (national coordinator)
2011-2013	"The Deep Sea Brine Pools of the Red Sea: From Novel Extreme Organisms to Commercial Applications" (Team Member/ Co-PI)	SEDCO Holding Company	Prof. Uli Stingl, King Abdullah University of Science and Technology (KAUST), Thuwal, Saudi Arabia
2009-2011	"Whole-Genome Sequencing of Microbes from the Deep-Sea	King Abdullah University of Science and Technology (KAUST)	Prof. Uli Stingl, King Abdullah University of

	Brines of the Red Sea" (Team Member)		Science and Technology (KAUST), Thuwal, Saudi Arabia
2009-2011	"Extremophiles in the Deep Brine Pools of the Red Sea" (Team Member)	King Abdullah University of Science and Technology (KAUST)	Prof. Uli Stingl, King Abdullah University of Science and Technology (KAUST), Thuwal, Saudi Arabia
2009-2011	"Prokaryotic Surface Water Communities in the Red Sea" (Team Member)	King Abdullah University of Science and Technology (KAUST)	Prof. Uli Stingl, King Abdullah University of Science and Technology (KAUST), Thuwal, Saudi Arabia
2008-2009	"Microbial quality of drinking-water from wells in Praia and neighboring villages" (Team Leader)	Polish Aid Programme, Ministry of the Foreign Affairs of the Republic of Poland	Prof. André Antunes, Universidade Jean Piaget de Cabo Verde, Praia, Cape Verde
2005-2008	"Ecologia e diversidade microbiana em ambientes abissais hipersalinos do Mar Vermelho" (Team Member)	Fundação para a Ciência e a Tecnologia (POCI/BIA-DO Mar Vermelho) (Team Member)	Prof. Milton Simões da Costa, Laboratório de Microbiologia, Centro de Neurociências e Biologia Celular, University of Coimbra, Portugal
2002-2004	"Analyse mikrobieller Lebensgemeinschaften in tiefliegenden Brinebecken des Roten Meeres (M 52/3)" (Team Member)	Deutsche Forschungsgemeinschaft (DFG) HU 711/2-1 and HU 711/2-2, integrated in the PP 516 program from the DFG:"Auswertung der Meteor-Expeditionen")	Prof. Robert Huber, Lehrstuhl für Mikrobiologie und Archaeozentrum, University of Regensburg, Germany
2001-2002	"Molekulare und mikrobielle Analysen hochsaliner Brinebecken des Roten Meeres" (Team Member)	Deutsche Forschungsgemeinschaft (DFG) HU 711/3-1 integrated in the PP 516 program from the DFG:"Auswertung der Meteor-Expeditionen")	Prof. Robert Huber, Lehrstuhl für Mikrobiologie und Archaeozentrum, University of Regensburg, Germany
2000-2001	"Isolamento e caracterização de Micróbios provenientes de ambientes com elevado teor de açúcares" (Team Member)	Centro de Neurociências e Biologia Celular, University of Coimbra	Prof. Milton Simões da Costa, Laboratório de Microbiologia, Centro de Neurociências e Biologia Celular, University of Coimbra, Portugal

## 8. Publications

### Papers in international scientific periodicals with referees

**53. Devaynes, A., Antunes, A., Bedford, A., Hipperson, H., Dawson, D. & Ashton, P. (2020).** Bacteria and ectoparasite presence in Blue tit nests. *Microbial Ecology* (**submitted**).

**52. More, P., Huber, R. & Antunes, A. (2020).** Gel-stabilized gradient plates: a new cultivation approach for the laboratorial recreation of naturally-occurring interfaces. *Frontiers in Microbiology* (**submitted**).

**51. Rennie, V., Kelbrick, M., Antunes, A. & Olsson-Francis, K. (2020).** Polyextremophiles and their relevance for Astrobiology. *Current Issues in Molecular Biology* (**submitted**).

**50. Alam, I., Kamau, A. A., Ngugi, D. K., Antunes, A., Gojobori, T., Duarte, C. & Bajic, V. B. (2020).** Enabling Access to Improved Analytics of Massive Metagenomics Data. *Nature Microbiology* (**submitted**).

**49. Zhang, G., Dong, X., Sun, Y., Antunes, A., Hikmawan, A., Haroon, M. F., Wang, J. & Stingl, U. (2020).** *Haloferax profundus* sp. nov. and *Haloferax marisrubri* sp. nov., isolated from the Discovery Deep brine-seawater interface in the Red Sea. *Microorganisms* (**accepted**).

**48. Kelbrick, M., Abed, R., & Antunes, A. (2020).** *Motilimonas cestriensis* sp. nov., isolated from an Inland Brine Spring in the UK, and emended description of the genus *Motilimonas*. *Int J Syst Evol Microbiol* (**submitted**).

- 47. Al-Mahrouqi, N., Muthukrishnan, T., Nallusamy, S., Antunes, A., & Abed, R. M. M. (2020).** Utilization of food wastes for the production of bioethanol using moderately halophilic bacteria isolated from a hypersaline microbial mat. *Biofuels* (submitted).
- 46. 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., Nery, G., 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. (2020).** Habitability Models for Astrobiology. *Astrobiology* (accepted).
- 45. Simões, M. F., Ottoni, C. A., & Antunes, A. (2020).** Mycogenic metal nanoparticles for the treatment of mycobacteriosis. *Antibiotics*, 9(9), 569.
- 44. Antunes, A. (2020).** Out of this World: From the bottom of the Red Sea to the Red Planet. *Frontiers for Young Minds* (accepted).
- 43. McGenity, T. J., Gessesse, A., Hallsworth, J. E., Garcia Cela, E., Verheecke-Vaessen, C., Wang, F., Chavarría, M., Haggblom, M. M., Molin, S., Danchin, A., Smid, E. J., Lood, C., Cockell, C. S., Whitby, C., Liu, S.-J., Keller, N. P., Stein, L. Y., Bordenstein, S. R., Lal, R., Nunes, O. C., Gram, L., Singh, B. K., Webster, N. S., Morris, C., Sivinski, S., Bindschedler, S., Junier, P., Antunes, A., Baxter, B. K., Scavone, P., & Timmis, K. (2020).** Visualizing the invisible: class excursions to ignite children's enthusiasm for microbes. *Microbial Biotechnology*, 13, 844-887.
- 42. Simões, M. F., Ottoni, C. A., & Antunes, A. (2020).** Biogenic Metal Nanoparticles: A New Approach to Detect Life on Mars?. *Life*, 10(3), 28.
- 41. DasSarma, P., Antunes, A., Simões, M. F., & DasSarma, S. (2020).** Earth's Stratosphere and Microbial Life. *Current Issues in Molecular Biology*, 38, 197-244.
- 40. Antunes, A., Olsson-Francis, K., & McGenity, T. (2019).** Exploring deep-sea brines as potential terrestrial analogues of oceans in the icy moons of the outer solar system. *Current Issues in Molecular Biology*, 38,123-162
- 39. Jebbar, M., Hickman-Lewis, K., Cavalazzi, B., Taubner, R. S., Simon, K. M. R., & Antunes, A. (2020).** Microbial Diversity and Biosignatures: An Icy Moons Perspective. *Space Science Reviews*, 216(1), 10.
- 38. Taubner, R.S., Olsson-Francis, K., Vance, S.D., Ramkissoon, N.K., Postberg, F., de Vera, J.P., Antunes, A., Casas, E.C., Sekine, Y., Noack, L., & Barge, L. (2020).** Experimental and simulation efforts in the astrobiological exploration of exooceans. *Space science reviews*, 216(1), 9.
- 37. Kelbrick, M., Abed, R. & Antunes, A. (2019).** *Motilimonas cestriensis* sp. nov., isolated from a Cheshire Brine Spring. *Access Microbiology* 1(1A). doi:10.1099/acmi.ac2019.po0227
- 36. McCulloch, B., Rowson, J., da Moura, A., Rocha, H., Simões, M. F. & Antunes, A. (2019).** Metabolic Profiling and Environmental Characterisation of Salterns in the Islands of Cabo Verde. *Access Microbiology* 1(1A). doi:10.1099/acmi.ac2019.po0517
- 35. Loftus, P. & Antunes, A. (2019).** Genomic Trends on the Biogenic CaCO<sub>3</sub> production in the genus *Bacillus*. *Access Microbiology* 1(1A). doi:10.1099/acmi.ac2019.po0331
- 34. D'Arcy, J. & Antunes, A. (2019).** Biomineralization of microbes in natural and restored saltmarshes: A missing link in restoration efforts? *Access Microbiology* 1(1A). doi:10.1099/acmi.ac2019.po0516
- 33. Rettberg, P., Antunes, A., Brucato, J., Cabezas, P., Collins, G., Haddaji, A., Kminek, G., Leuko, S., McKenna-Lawlor, S., Moissl-Eichinger, C., Fellous, J.-L., Olsson-Francis, K., Pearce, D., Rabbow, E., Royle, S., Saunders, M., Sephton, M., Spry, A., Walter, N., Schweingruber, R. W. & Treuet, J.-C. (2019).** Biological contamination prevention for Outer Solar System moons of astrobiological interest– What do we need to know? *Astrobiology* 19, 1-24. doi.org/10.1089/ast.2018.1996
- 32. Devaynes, A., Antunes, A., Bedford, A. & Ashton, P. (2018).** Bacterial species richness at three stages of the breeding season in *Cyanistes caeruleus* (Blue tit). *Journal of Avian Biology* 92, 123-130.
- 31. Othoum, G. K., Bougouffa, S., Razali, R. M., Bokhari, A., Alamoudi, S., Antunes, A., Gao, X., Hoehndorf, R., Aroid, S. T., Gojobori, T., Hirt, H., Mijakovic, I., Bajic, V. B., Lafi, F. F. & Essack, M. (2018).** *In Silico* Exploration of Red Sea *Bacillus* Genomes for Natural Product Biosynthetic Gene Clusters. *BMC Genomics* 19, 382.
- 30. Devaynes, A., Antunes, A., Bedford, A. & Ashton, P. (2018).** Progression in the bacterial load of Blue tit occupied nest boxes during the breeding season and its potential impact upon hatching or fledging



success. *Journal of Ornithology* 159(4), 1009-1017.

**29. Kaartvedt, S., Antunes, A., Røstad, A. & Klevjer, T. A., Vestheim (2016).** Zooplankton at deep Red Sea brine pools. *Journal of Planktonic Research* 38(3), 679-684.

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- 3. Meyer, K. A., Antunes, A., Calil, P. H., Chow, C., Gärdes, A., Regaudie de Gioux, A., Ruiz González, C., Jones, C., Kashtan, N., Olson, E., Pedler, B., Pham, C., Samo, T., Wright, J., Young, J. & Leon Zayas, R. (2010).** 2009 Microbial Oceanography: Genomes to Biomes; Nutrient influences on plankton community structure and production in oligotrophic regions of the North Pacific Subtropical Gyre. Proceedings from the 2010 AGU Ocean Sciences Meeting, Portland, USA.
- 2. Antunes, A., Eder, W., Schmidt, M. & Huber, R. (2003).** Microbial diversity in the brine-filled pools of the northern Red Sea. *BIOspektrum (sonderausgabe VAAM)*, p. 101. Spektrum Akademischer Verlag, Heidelberg.
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## 9. Communications

### Posters

- 57. Simões, M.F., Ottoni, C.A. & Antunes, A. (2020).** Biogenic Metal Nanoparticles as Potential Alternative Biosignatures- *ABGradCon 2020- Astrobiology Graduate Conference*, Tokyo, Japan. (submitted)
- 56. Simões, M.F., Ottoni, C. A. & Antunes, A. (2020).** Biogenic metal nanoparticles as potential alternative biosignatures- *V CIAB- 5º Congreso Internacional de Astrobiología*, Barranquilla, Colombia. (submitted)
- 55. Simões, M.F., Rocha, H., da Moura, A. & Antunes, A. (2019).** Fungal Diversity in The Salterns of the Islands of Maio, Boavista and Sal (Cabo Verde)- *Microbiotec'19- Congress of Microbiology and Biotechnology 2019*, Coimbra, Portugal.
- 54. da Moura, A., McCulloch, B., Rowson, J., Rocha, H., Simões, M. F. & Antunes, A. (2019).** Cabo Verde Hypersaline Environments: Analysis, Survey and Exploration (The Chase Project)- *Microbiotec'19- Congress of Microbiology and Biotechnology 2019*, Coimbra, Portugal.
- 53. McCulloch, B., Rocha, H., Loftus, P., Kelbrick, M., Werner, J., Simões, M.F., da Moura, A. & Antunes, A. (2019).** Genomic-Based Exploration of Novel Microbial Isolates from Hypersaline Locations in Cabo Verde- *Microbiotec'19- Congress of Microbiology and Biotechnology 2019*, Coimbra, Portugal.
- 52. Waddington, E., Antunes, A. & Rowson, J. (2019).** Responses of CO<sub>2</sub> and CH<sub>4</sub> fluxes in early-stage managed re-alignment saltmarshes to tidal inundation and climatic conditions- *EGU General Assembly 2019*, Vienna, Austria.
- 51. Kelbrick, M., Abed, R. & Antunes, A. (2019).** *Motilimonas cestriensis* sp. nov., Isolated From a Cheshire Brine Spring- *The Microbiology Society 2019 Annual Conference*, Belfast, UK.
- 50. McCulloch, B., Rowson, J., da Moura, A., Rocha, H., Simões, M. F. & Antunes, A. (2019).** Metabolic Profiling and Environmental Characterisation of Salterns in the Islands of Cabo Verde- *The Microbiology Society 2019 Annual Conference*, Belfast, UK.
- 49. Loftus, P. & Antunes, A. (2019).** Genomic Trends on the Biogenic CaCO<sub>3</sub> production in the genus *Bacillus*- *The Microbiology Society 2019 Annual Conference*, Belfast, UK (**2<sup>nd</sup> Place in People's Choice Poster Prize**).
- 48. D'Arcy, J. & Antunes, A. (2019).** Biomineralization of microbes in natural and restored saltmarshes: A missing link in restoration efforts?- *The Microbiology Society 2019 Annual Conference*, Belfast, UK.

- 47. Panitz, C., Beblo-Vranesevic, Cortesão, M, Raboow, E., Moeller, R. & the ICEXPOSE Research Team (2018).** Ice Exposure of Microorganisms- *EANA 2018, 18<sup>th</sup> European Astrobiology Network Association Conference*, Berlin, Germany.
- 46. Antunes, A., Beblo-Vranesevic, K., Bohmeier, M. & Rettberg, P. (2018).** *Salinisphaera shabanensis* – A New Extremophilic Model Organism for the Space Exposure Experiment MEXEM- *Extremophiles 2018*, Naples, Italy.
- 45. D’Arcy, J., McCulloch, B., Kelbrick, M., Simões, M. F. & Antunes, A. (2018).** Differential Tolerance to Salinity and Metals of Microbial Strains from Different Pools of the Anderton Brine Springs (UK)- *Extremophiles 2018*, Naples, Italy.
- 44. Kelbrick, M., Gray, G., More, P., Simões, M. F. & Antunes, A. (2018).** Microbiology and Bioprospection Of Saline Environments In The Northwest Of England- *Extremophiles 2018*, Naples, Italy.
- 43. Loftus, P., Infante Parra, T. A. & Antunes, A. (2018).** Genomic- And Cultivation-Based Insights into Biogenic CaCO<sub>3</sub> Production in Species of the Genus *Idiomarina*- *2018 Geomicrobiology Network Research in Progress Meeting*, Glasgow, UK.
- 42. Infante Parra, T. A., Loftus, P. & Antunes, A. (2018).** Microbially Induced Calcite Precipitation in *Bacillus*: New Findings from a Combined Genomic- and Cultivation-based Approach- *2018 Geomicrobiology Network Research in Progress Meeting*, Glasgow, UK.
- 41. Antunes, A., Fernández-Martínez, L., Ashton, P. & Jukes, A. (2018).** Innovative Assessments in Microbiology: The Bio-animation Project Experience- *The Microbiology Society 2018 Annual Conference*, Birmingham, UK. **(Winner of the People’s Choice Poster Prize)**
- 40. More, P., McGenity, T. & Antunes, A. (2018).** First Insights into the Microbial Diversity of the RSPB Marshside Saltmarsh- *The Microbiology Society 2018 Annual Conference*, Birmingham, UK.
- 39. Kelbrick, M. & Antunes, A. (2018).** The Cheshire Salt District: An Unexplored Source of Halophiles with Biotechnological Potential- *The Microbiology Society 2018 Annual Conference*, Birmingham, UK.
- 38. Loftus, P. & Antunes, A. (2018).** Genomic-based Insights into the Production of CaCO<sub>3</sub> Biominerals by *Bacillus* and *Idiomarina*- *The Microbiology Society 2018 Annual Conference*, Birmingham, UK.
- 37. Gray, G., Barsby, M., Kelbrick, M., Cooney, C. & Antunes, A. (2018).** Environmental Characterisation and Metabolic Profiling of The Anderton Park Brine Springs: An Unexpectedly Diverse Hypersaline Environment- *The Microbiology Society 2018 Annual Conference*, Birmingham, UK.
- 36. Hardman, R., Kelbrick, M, Simões, M. F. & Antunes, A. (2018).** Microbial Bioprospection in the Cheshire Salt District: Surveying Bioplastic-Producing Potential- *The Microbiology Society 2018 Annual Conference*, Birmingham, UK.
- 35. Simões, M. F., Ashton, P. & Antunes, A. (2017).** First insights on the filamentous fungal community at Roudsea wood bogs- *BES 2017: Annual Meeting of the British Ecological Society*, Ghent, Belgium.
- 34. Olsson-Francis, K., Cabezas, P., Kminek, G., Rabbow, E., Walters, N., Antunes, A., Leuko, S., Pearce, D., Saunders, M., Spry, A., Rettberg, P. & the PPOSS Consortium (2017).** Microbial Reduction and Good Practices for Planetary Protection of Outer Solar System Bodies- *ASB7: Astrobiology Society of Britain Meeting*, Milton Keynes, UK.
- 33. Simões, M. F. & Antunes, A. (2017).** Analysis of Carbonate Biomineral Production as Potential New Biomarkers- *2017 Geomicrobiology Network Research in Progress Meeting*, Manchester, UK.
- 32. Shibl, A. & Antunes, A. (2017).** Omics-based Insights into Calcium Carbonate Biomineralization by Halophiles- *2017 Geomicrobiology Network Research in Progress Meeting*, Manchester, UK.
- 31. Othoum, G., Bougouffa, S., Razali, R. B. M., Bokhari, A., Alamoudi, S., Saad, M. M., Antunes, A., Hirt, H., Bajic, V. B., Lafi, F. F. & Essack, M. (2017).** Comparative genomics of *Bacillus paralicheniformis* strains from the Red Sea with focus on the biosynthesis of antimicrobial products- *ISCB 2017: 18<sup>th</sup> International Conference on Systems Biology*, Blacksburg, Virginia, USA.
- 30. Iveson, K. L., Crisp, A., Kamau, A. A., Drotsevitch, V., Simões, M. F., Bajic, V. B. & Antunes, A. (2017).** HAPIE: A New Tool for Exploring Phenotypic Information from Halophilic Archaea - *The Microbiology Society 2017 Annual Conference*, Edinburgh, UK.
- 29. More, P., Huber, R. & Antunes, A. (2017).** Gel-stabilized gradient plates: A new approach to microbial strain cultivation and isolation - *The Microbiology Society 2017 Annual Conference*, Edinburgh, UK. **(Winner of the Best Principal Investigator Poster Prize)**

- 28. Devaynes, A., Antunes, A., Bedford, A. & Ashton, P. (2016).** Microbiota development in *Cyanistes caeruleus* nest boxes throughout their breeding season - *BES 2016: British Ecological Society Annual Meeting 2016*, Liverpool, UK.
- 27. Antunes, A., Alam, I., Siam, R., El-Dorry, H. & Bajic V. B. (2016).** Highlights from the Exploration of Metagenomic Data from Deep-sea Brines of the Red Sea- *Extremophiles 2016*, Kyoto, Japan.
- 26. Antunes, A., Kamau, A. A., Simões, M. F. & Bajic V. B. (2016).** Halophilic Archaea Phenotypic Information Explorer (HAPIE) - *Extremophiles 2016*, Kyoto, Japan.
- 25. Simões, M. F., Antunes, A. & Bajic, V. B. (2016).** Carbonate biomineral precipitation by a strain of *Pseudoalteromonas piscicida* CBRC.15.0062 from the Red Sea - *The Microbiology Society 2016 Annual Conference*, Liverpool, UK.
- 24. Antunes, A., Simões, M. F., Alam, I., Daniels, C., Ferreira, A. J. S., Siam, R., El-Dorry, H. & Bajic V. B. (2016).** Viral communities of the deep-sea anoxic brines of the Red Sea - *The Microbiology Society 2016 Annual Conference*, Liverpool, UK.
- 23. Simões, M. F., Antunes, A., Ottoni, C., Amini, M. S. & Bajic, V. B. (2015).** Fungal communities in grey mangroves (*Avicennia marina*) from the Red Sea - *RCCC 2015: Regional Conference on Culture Collections*, Serdang, Malaysia.
- 22. Costa, S. R., Antunes, A. & Lima, N. (2015).** The need for innovative learning programmes in the Microbial Resource Research Infrastructure (MIRRI) - *ECCO 2015: XXXIV Annual Meeting of the European Culture Collections' Organization*, Paris, France.
- 21. Helloin, E., Favel, A., Kempf, F., Antunes, A., Costa, S. R., Lima, N. & The MIRRI Consortium (2015).** Training and Education in microbiology provided in Europe: comparison of the current offer to needs of the customers of the MIRRI consortium: Gap analysis - *ECCO 2015: XXXIV Annual Meeting of the European Culture Collections' Organization*, Paris, France.
- 20. Costa, S. R., Antunes, A. & Lima, N. (2015).** Towards a strategic concept for innovative learning programmes and tools in the Microbial Resource Research Infrastructure (MIRRI) - *4th LifeTrain Workshop: Achievements and Challenges in Lifelong Learning for the Biomedical Sciences*, Brussels, Belgium.
- 19. Hikmawan, T., Guan, Y., Antunes, A., Ngugi, D. & Stingl, U. (2014).** Diversity of sulfate-reducing prokaryotes in five interfaces of deep-sea brines and seawater in the Red Sea - *ISME 15, 15th International Symposium on Microbial Ecology*, Seoul, South Korea.
- 18. Antunes, A., Piessens, V., Zuzuarregui, A., Perugini, I., Lima, N. & The MIRRI Consortium (2014).** Offer, Demand, and Needs in Training and Education: A Study Focusing on Microbial Culture Collections within the MIRRI Consortium - *ECB 16, 16th European Congress on Biotechnology*, Edinburgh, Scotland.
- 17. Antunes, A., Piessens, V., Zuzuarregui, A., Perugini, I., Fischer-Le Saux, M., Helloin, E., Lima, N. & The MIRRI Consortium (2014).** Training and Education Provided by Microbial Culture Collections in Europe (II): Overview on Current Demand and Needs of Customers of the MIRRI Consortium - *ECCO 2014: XXXIII Annual Meeting of the European Culture Collections' Organization*, Valencia, Spain.
- 16. Antunes, A., Kempf, F., Lima, N. & The MIRRI Consortium (2014).** Training and Education Provided by Microbial Culture Collections in Europe (I): Panorama on Tools, and Contents Produced and Used within the MIRRI Consortium - *ECCO 2014: XXXIII Annual Meeting of the European Culture Collections' Organization*, Valencia, Spain.
- 15. Antunes, A., Simões, M. F., Santos, C., Venâncio, A. & Lima, N. (2013).** Microbial resources and applications: Preliminary trends and insights for future economic impact estimates- *13th International Conference on Culture Collections (ICCC 13)*, Beijing, China.
- 14. Vestheim, H., Antunes, A. & Kaartvedt, S. (2013).** Faunal diversity above and along deep sea brines in the Red Sea- *European Marine Biology Symposium 2013*, Galway, Ireland.
- 13. Antunes, A., Alam, I., Bajic, V. B. & Stingl, U. (2012).** Genomic insights into the life of the unusual extremophiles of the deep-sea brines of the Red Sea- *Extremophiles 2012*, Sevilla, Spain.
- 12. Zhang, G., Guan, Y., Antunes, A., Hikmawan, T. & Stingl, U. (2012).** Microbial cultivation attempts and cultivation- independent analyses of five deep-sea brine pools of the Red Sea- *ISME 14, 14th International Symposium on Microbial Ecology*, Copenhagen, Denmark.
- 11. Hikmawan, T., Ngugi, D., Antunes, A. & Stingl, U. (2011).** Archaeal Community Structure Studies on the Deep-sea Brine Pools of the Red Sea- *Gordon Research Conference- Archaea:Ecology*,

**10. Hikmawan, T., Ngugi, D., Antunes, A. & Stingl, U. (2011).** Deep-sea microbe hunting: The discovery of novel archaeal lineages in the Red Sea hypersaline brine pools- *W.E.P. Research Poster Session 2011*, Thuwal, Saudi Arabia. **(Winner of the Best Poster Prize).**

**9. Shibl, A., Maged, M., Sharaf, H., Stingl, U., Antunes, A., Setubal, J., Siam, R. & El Dorry (2010).** Mining the Red Sea's Atlantis II hot deep-sea brine for halophilic proteins- *Halophiles 2010*, Beijing, China

**8. Meyer, K. A., Antunes, A., Calil, P. H., Chow, C., Gärdes, A., Regaudie de Gioux, A., Ruiz González, C., Jones, C., Kashtan, N., Olson, E., Pedler, B., Pham, C., Samo, T., Wright, J., Young, J. & Leon Zayas, R. (2010).** 2009 Microbial Oceanography: Genomes to Biomes; Nutrient influences on plankton community structure and production in oligotrophic regions of the North Pacific Subtropical Gyre- *2010 Ocean Sciences Meeting*, Portland, USA.

**7. Wright, J., Antunes, A., Calil, P. H., Chow, C., Gärdes, A., Regaudie de Gioux, A., Ruiz González, C., Jones, C., Kashtan, N., Meyer, K. A., Olson, E., Pedler, B., Pham, C., Samo, T., Young, J. & Leon Zayas, R. (2010).** 2009 Microbial Oceanography: Genomes to Biomes; A transect study of the North Pacific Subtropical Gyre and Front- *2010 Ocean Sciences Meeting*, Portland, USA.

**6. Antunes, A., Taborda, M., Huber, R., Moissi, C. & da Costa, M. S. (2007).** *Halorhabdus tiamatea* sp. nov., a non-pigmented, extremely halophilic archaeon from a deep-sea hypersaline anoxic basin of the Red Sea- *Halophiles 2007*, Colchester, England.

**5. Antunes, A., da Costa, M. S., Wanner, G. & Huber, R. (2006).** "Haloplasma contractilis", a novel member of the *Mollicutes* isolated from a deep-sea, anoxic hypersaline environment- *IOM 2006*, Cambridge, England.

**4. Antunes, A., da Costa, M. S., Wanner, G. & Huber, R. (2006).** A novel wall-less, halotolerant, helical bacterium retrieved from a deep-sea, anoxic brine-pool and representing a new phylogenetic lineage within the class *Mollicutes*- "Haloplasma contractilis"- *2<sup>nd</sup> FEMS Congress of European Microbiologists, 2006*, Madrid, Spain.

**3. Antunes, A., Eder, W., Schmidt, M. & Huber, R. (2003).** Microbial diversity in the brine-filled pools of the northern Red Sea- *Vereinigung für Allgemeine und Angewandte Mikrobiologie (VAAM) 2003*, Berlin, Germany.

**2. Huber, R., Antunes, A., Eder, W., Santos, H. & Fareleira, P. (2002).** *Salinisphaera shabanensis* sp. nov., gen. nov., a novel, haloversatile bacterium from the brine-seawater interface of the Shaban Deep, Red Sea- *Extremophiles 2002*, Naples, Italy.

**1. Antunes, A., Eder, W., Koch, M. & Huber, R. (2002).** *Salinisphaera shabanense* sp. nov., gen. nov., a novel, haloversatile bacterium from the brine-seawater interface of the Shaban Deep, Red Sea- *Vereinigung für Allgemeine und Angewandte Mikrobiologie (VAAM) 2002*, Göttingen, Germany.

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#### Oral Presentations

**33. Rettberg, P., Antunes, A. & Beblo-Vranesevic, K. (2020).** *Salinisphaera shabanensis* - A New Astrobiological Model Organism- *IAC'2020- 71<sup>st</sup> International Astronautical Congress 2020*, Dubai, UAE. (submitted)

**31. Simões, M.F., Ottoni, C. A. & Antunes, A. (2020).** The importance of studying potential biosignatures – metallic nanoparticles as an unexplored example- *AAM2020, Australasian Astrobiology Meeting 2020*, Sidney, Australia.

**30. Antunes, A., Beblo-Vranesevic, K. & Rettberg, P. (2020).** Resilience to exposure experiments by *Salinisphaera shabanensis*: a new polyextremophilic model organism for astrobiology- *AAM2020, Australasian Astrobiology Meeting 2020*, Sidney, Australia.

**29. Loftus, P. & Antunes, A. (2019).** Biomineralisation-targeted genomics of the genus *Bacillus*: Implications for biogenic CaCO<sub>3</sub> production and biotechnology- *2019 Geomicrobiology Network Research in Progress Meeting*, Manchester, UK.

**28. Waddington, E., Antunes, A. & Rowson, J. (2019).** Responses of CO<sub>2</sub> and CH<sub>4</sub> fluxes in early-stage managed re-alignment saltmarshes to tidal inundation and climatic conditions- *EGU General Assembly 2019*, Vienna, Austria.

**27. Antunes, A., Kelbrick, M. & More, P. (2019).** Microbial diversity and bioprospection of unexplored and threatened coastal environments. *Transnational Access workshop of EMBRIC- European Marine Biological Research Infrastructure Cluster*, Institute Pasteur, Paris, France.

**26. Antunes, A., Olson-Francis, K. & McGenity, T. J. (2018).** Exploring deep-sea brines as potential

terrestrial analogues of oceans in the icy moons of the outer Solar System- *Extremophiles 2018*, Naples, Italy.

**25. Rettberg, P., Antunes, A., Brucato, J. R., Cabezas, P., Fellous, J.L., Haddaji, A., Kminek, G., Leuko, S., Mckenna-Lawlor, S., Moissl-Eichinger, C., Olsson-Francis, K., Rabbow, E., Royle, S., Treuet, J.-C. & Walter, N. (2018).** Scientific Challenges to Prevent the Biological Contamination of Outer Solar System Bodies- What do we need to Know for Planetary Protection?- *COSPAR 2018: 42<sup>nd</sup> Committee on Space Research Scientific Assembly*, Pasadena, USA.

**24. Rettberg, P., Antunes, A., Brucato, J. R., Cabezas, P., Fellous, J.L., Haddaji, A., Kminek, G., Leuko, S., Mckenna-Lawlor, S., Moissl-Eichinger, C., Olsson-Francis, K., Rabbow, E., Royle, S., Treuet, J.-C. & Walter, N. (2018).** The PPOSS Biology Roadmap- *ExoOceans Workshop: Science Strategy for Space Exploration of the Outer Solar System Icy Moons Oceans*, Bern, Switzerland.

**23. Antunes, A. (2018).** Exploring the Deep-sea Anoxic Brines of the Red Sea: Challenges, Approaches, and Findings- *ExoOceans Workshop: Science Strategy for Space Exploration of the Outer Solar System Icy Moons Oceans*, Bern, Switzerland.

**22. Rettberg, P., Brucato, J. R., Cabezas, P., Fellous, J.-L., Haddaji, A., Kminek, G., Mckenna-Lawlor, Rabbow, E., Royle, S., Sephton, M., Treuet, J.-C., Walter, N., Antunes, A., Olsson-Francis, K. & Leuko, S. (2017).** Search for Life on Icy Moons-What do we need to Know for Planetary Protection- *68<sup>th</sup> International Astronautical Congress 2017*, Adelaide, Australia.

**21. Antunes, A., Olson-Francis, K. & McGenity, T. J. (2017).** Deep-sea brines: Terrestrial analogues of oceans in the icy moons of the outer solar system- *ASB7: Astrobiology Society of Britain Meeting*, Milton Keynes, UK.

**20. Rettberg, P., Beblo-Vranesevic, K., Rabbow, E., Bohmeier, M., Leuko, S., Moeller, R., Berger, T., Antunes, A., Cockell, C., Deng, L., Marteinson, V., Milojevic, T., Moissl-Eichinger, C., Neilan, B., Panitz, C., Schwendner, P., Stoeck, S., Walter, M. & Westall, F. (2017).** MEXEM – Mars Exposed Extremophile Mixture – a space experiment to investigate the capability of anaerobic organisms to survive on Mars- *EANA 2017: 17<sup>th</sup> European Astrobiology Conference*, Aarhus, Denmark.

**19. Antunes, A. (2017).** Geomicrobiology of the Deep-sea Anoxic Brines of the Red Sea- *2017 Geomicrobiology Network Research in Progress Meeting*, Manchester, UK.

**18. Antunes, A. (2017).** First insights into the viral communities of the Red Sea brines- *DMPA (Dragon Metagenomic Analysis Platform) Workshop*, King Abdullah University of Science and Technology (KAUST), Thuwal, Saudi Arabia.

**17. Antunes, A. (2016).** Extreme Biology in the Depths of the Red Sea- *5th International Workshop on Deep sea Microbiology*, Kyoto, Japan.

**16. Antunes, A., Kaartvedt, S. & Schmidt, M. (2016).** Geochemistry and Life at the Interfaces of Brine-filled Depths in the Red Sea- *2<sup>nd</sup> Red Sea Workshop*, Jeddah, Saudi Arabia.

**15. Antunes, A., Santos, C. & Lima, N. (2013).** Challenges, Approaches and Future Work in the Deep-sea Anoxic Brine Lakes of the Red Sea- *13<sup>th</sup> International Conference on Culture Collections (ICCC 13)*, Beijing, China.

**14. Antunes, A., Santos, C., Smith, D. & Lima, N. (2013).** Capacity building initiatives, training and education: The EMbaRC experience and beyond- *13<sup>th</sup> International Conference on Culture Collections (ICCC 13)*, Beijing, China.

**13. Antunes, A. (2013).** Targeted microbial cultivation and isolation from extreme and gradient-rich environments in the Red Sea: Challenges and Approaches- *ECCO 2013: XXXII Annual Meeting of the European Culture Collections' Organization*, Athens, Greece.

**12. Simões, M. F., Antunes, A., Santos, C. & Lima, N. (2013).** Coleções de Culturas Microbianas na Europa: A construção de uma Infra-Estrutura de Pesquisa (MIRRI)- *I Congresso Internacional de Ciências Biológicas; II Congresso Nacional de Ciências Biológicas; VI Simpósio de Ciências Biológicas*, Pernambuco, Brasil.

**11. Antunes, A. (2013).** Extreme Red Sea: Life in the Deep-Sea Anoxic Brine Lakes- *6<sup>th</sup> Red Sea Conference*, Jeddah, Saudi Arabia.

**10. Antunes, A. & Stingl, U. (2010).** Revisiting the Deep-Sea Brines of the Red Sea- *Halophiles 2010*, Beijing, China.

**9. Antunes, A. (2010).** Halophilic Microbes in the Brine Pools of the Red Sea- Integrative Microbial Ecology- Red Sea Science Center Workshop, King Abdullah University of Science and Technology (KAUST), Thuwal, Saudi Arabia.

**8. Antunes, A. (2010).** Current Overview on the Microbiology of the Deep-Sea Brines of the Red Sea-



*Red Sea Metagenomics Course*, Department of Biology, American University of Cairo, Cairo, Egypt.

**7. Vieira, A., Fernandes, A., Antunes, A. & Pina, A.P. (2009).** Avaliação da Qualidade Microbiológica da Água Destinada ao Consumo Humano na Cidade da Praia- 1.º *Simpósio Nacional dos Recursos Hídricos ACRH, Praia, Cape Verde.*

**6. Antunes, A. (2009).** The Unexplored Microbial Biodiversity of Cape Verde- *Research Summer Course: "Microbial Oceanography: Genomes to Biomes"*, Agouron Institute and the Center for Microbial Oceanography, University of Hawaii, Honolulu, USA

**5. Antunes, A. (2009).** Microbial Biodiversity- Microbial ecology and diversity of the deep-sea brines of the Northern Red Sea- *Research Summer Course: "Microbial Oceanography: Genomes to Biomes"*, Agouron Institute and the Center for Microbial Oceanography, University of Hawaii, Honolulu, USA

**4. Antunes, A. (2008).** Formation des Pharmaciens au Cap Vert- *Réunion De Consensus sur La Formation des pharmaciens dans l'espace CEDEAO Luso-Francophone*, Dakar, Senegal.

**3. Antunes, A. (2008).** Pharmaceutical Sciences in Cape Verde- *WHAO Meeting 2008*, Bobo-Dioulasso, Burkina Faso.

**2. Antunes, A. (2007).** Marine Microbial Biodiversity- *TENATSO Annual Meeting 2007*, Mindelo, Cape Verde.

**1. Antunes, A., da Costa, M. S., Wanner, G. & Huber, R. (2006).** "Haloplasma contractilis", a novel member of the *Mollicutes* isolated from a deep-sea, anoxic hypersaline environment- *IOM 2006*, Cambridge, England.

#### Guest Lectures and Seminars

**Antunes, A. (2020).** Living on the Edge: From Deep-sea to Outer Space, University College Cork, Ireland; UCC Marine Webinar Series.

**Antunes, A. (2020).** Terrestrial Analogues and Astrobiology: Life in the Mysterious Deep-sea Brines, Physical Research Laboratory, Ahmedabad, India; PRL Astrobiology Webinar Series.

**Antunes, A. (2020).** New Frontiers in Microbiology: Brines, Biominerals, and Exooceans, Astrobiology Society of Asia Pacific; ASAP Astrobiology Webinar Series.

**Antunes, A. (2020).** Astrobiology of deep-sea brines: Life in the depths of the Red Sea, ELSI- Earth Life Science Institute- Tokyo, Japan.

**Antunes, A. (2020).** Exploring the Limits of Life: From the Depths of the Red Sea to the Red Planet and Beyond, Macau University of Science and Technology, Macau, China.

**Antunes, A. (2020).** From the Red Sea to the Red Planet and Beyond: Exploring the limits of Life, University of Saint Joseph, Macau, China.

**Antunes, A. (2019).** With a grain of Salt: Exploring Life in deep-sea brines, University of Regensburg, Regensburg, Germany.

**Antunes, A. (2019).** The secret Life of brines: Deep-sea brines and their inhabitants. German Aerospace Center (DLR), Cologne, Germany.

**Antunes, A. (2018).** Growing in the Deep: Extreme Life in the Red Sea brines. University of Edinburgh, Edinburgh, UK.

**Antunes, A. (2016).** Living on the Edge: Life in Hypersaline Environments. Edge Hill University, Ormskirk, UK.

**Antunes, A. (2016).** Extreme Biology in the Deeps of the Red Sea. University of Essex, Colchester, UK.

**Antunes, A. (2014).** Delivering Effective Learning in Europe: Challenges and Issues, University of Oxford, Oxford, England.

**Antunes, A. (2010).** Exotic Bugs from Exotic Places- Microbes from the Deep-sea Brines of the Red Sea, University of Konstanz, Konstanz, Germany.

**Antunes, A. (2009).** Salt, Halophiles and the Deep-Sea Brines of the Red Sea, *American University of Cairo, Cairo, Egypt.*

**Antunes, A. (2009).** The (not so sterile) deep-sea brines of the Red Sea, *Woods Hole Oceanographic*

Institute, Woods Hole, USA.

**Antunes, A. (2009).** Salt, Halophiles and the Deep-Sea Brines of the Red Sea, *King Abdullah University of Science and Technology, Thuwal, Saudi Arabia.*

**Antunes, A. (2009).** The (not so sterile) deep-sea brines of the Red Sea, *Center of Marine Biotechnology, University of Maryland, Baltimore, USA.*

**Antunes, A. (2007).** Microbiologia dos ambientes abissais hipersalinos do Mar Vermelho, *Centro de Neurociências e Biologia Celular, University of Coimbra, Coimbra, Portugal.*

**Antunes, A. (2007).** "*Haloplasma contractilis*", a new wall-less, helical, contractile bacterium from a deep-sea anoxic brine, *Max-Planck-Institut für Biochemie, Martinsried, Germany.*

**Antunes, A. (2006).** Astrobiologia – dos confins do espaço às profundezas do Mar Vermelho, *University of Coimbra, Coimbra, Portugal.*

**Antunes, A. (2004).** Identification and characterization of extremophiles from brines of the Red Sea, *Lehrstuhl für Mikrobiologie und Archaeozentrum, University of Regensburg, Regensburg, Germany.*

### Research features in the Media

Research featured in **Nature Middle East**: "Extreme Red Sea bacteria pack protein potential", July 28, 2011 ([www.nature.com/nmiddleeast/2011/.../full/nmiddleeast.2011.96.html](http://www.nature.com/nmiddleeast/2011/.../full/nmiddleeast.2011.96.html))

Research featured in the newsletter **Focus- Newsletter of the Federation of European Microbiological Societies (FEMS)**: "*Defining the Microbial Terrain*", September 2010 ([www.fems-microbiology.org/website/files/files/Focus/FOCUS8.pdf](http://www.fems-microbiology.org/website/files/files/Focus/FOCUS8.pdf))

Research featured in the magazine **Super Interessante**: "*Descobertas sem fim*", February 1, 2009 ([http://www.uc.pt/ftuc/noticias\\_ficheiros/noticias\\_ficheiros\\_documentos/Super\\_In\\_Milton\\_Costa.pdf](http://www.uc.pt/ftuc/noticias_ficheiros/noticias_ficheiros_documentos/Super_In_Milton_Costa.pdf))

Research featured in the newspaper **Correio da Manhã**: "*Portugueses acham bactéria*", July 22, 2008 ([http://www.uc.pt/ftuc/noticias\\_ficheiros/noticias\\_ficheiros\\_documentos/correio\\_manha\\_et](http://www.uc.pt/ftuc/noticias_ficheiros/noticias_ficheiros_documentos/correio_manha_et))

Research featured in the newspaper **Público**: "*Investigadores de Coimbra participam em descoberta de nova classe de bactérias no Mar Vermelho*", July 21, 2008 (<http://www.publico.pt/Ciências/investigadores-de-coimbra-participam-em-descoberta-de-nova-classe-de-bacterias-no-mar-vermelho-1336091>)

Research featured in the newspaper **Diário dos Açores**: "*Descoberta nova classe de bactérias no Mar Vermelho*", July 22, 2008 ([http://www.uc.pt/ftuc/noticias\\_ficheiros/noticias\\_ficheiros\\_documentos/diario\\_acores\\_ET](http://www.uc.pt/ftuc/noticias_ficheiros/noticias_ficheiros_documentos/diario_acores_ET))

Research featured in the newspaper **Diário de Coimbra**: "*Investigadores de Coimbra encontram micróbio estranho*", July 22, 2008 ([http://www.uc.pt/ftuc/noticias\\_ficheiros/noticias\\_ficheiros\\_documentos/diario\\_coimbra\\_ET](http://www.uc.pt/ftuc/noticias_ficheiros/noticias_ficheiros_documentos/diario_coimbra_ET))

Research featured in the newspaper **Jornal de Notícias**: "*Portugueses isolam bactéria "E.T."*", July 22, 2008 ([http://www.uc.pt/ftuc/noticias\\_ficheiros/noticias\\_ficheiros\\_documentos/jn\\_ET](http://www.uc.pt/ftuc/noticias_ficheiros/noticias_ficheiros_documentos/jn_ET))

### Reviewing and Editing

#### Project Reviewer for:

National Science Foundation (NSF)  
Leverhulme Trust  
British Ecological Society (BES)  
European Science Foundation (ESF)  
Research Foundation Flanders (FWO)  
Ministry of Science, Technology, and Space (MSTS-Israel)

#### Peer review of scientific publications for the following journals:

*3-Biotech*  
*Antonie van Leeuwenhoek*  
*Applied and Environmental Microbiology*  
*Aquatic Biosystems*  
*Archaea*  
*Archaeometry*  
*Archives in Microbiology*  
*Astrobiology*  
*Biotechnology Advances*

*Chemosphere*  
*Environmental Microbiology*  
*Extremophiles*  
*Frontiers in Microbiology*  
*Genomics, Proteomics & Bioinformatics*  
*International Journal of Systematic and Evolutionary Microbiology*  
*Environmental Microbiology Reports*  
*Journal of Basic Microbiology*  
*Microorganisms*  
*mSystems*  
*PLoS One*  
*Saline Systems*  
*Scientific Reports*  
*Space Science Reviews*  
*Systematic and Applied Microbiology*

**Book reviewer for:**  
Oxford University Press

**Editorial activities for the following journals:**  
Aquatic Biosystems (Editorial Board Member)  
Archaea (Handling Editor)  
Frontiers in Marine Sciences (Review Editor in Marine Molecular Biology and Ecology section)  
Frontiers in Microbiology (Associate Editor in Extreme Microbiology section)  
Frontiers in Microbiology (Topic Editor: Living with Salt: Genetics and Ecology of Halophiles)  
Current Issues in Molecular Biology (Focus Issue Guest Editor)  
Microbiology Today (Editorial Board Member)

**Book editing experience:**  
Astrobiology: Life on the Edge- Caister Academic Press

#### **Memberships, Consultancy and Other Scientific Activities**

##### **Member of the following scientific societies:**

Microbiology Society  
Society for Applied Microbiology  
Federation of European Microbiological Societies  
British Ecological Society  
American Society for Microbiology (ASM)  
The International Society for Extremophiles (ISE)  
International Organization for Mycoplasma (IOM)

##### **Committee Membership:**

2018-Present: Elected Member of the Communications Committee of the Microbiology Society  
2018-Present: Member of the joint European Science Foundation–National Academies' Committee on the Planetary Protection Requirements for Sample-Return Missions from the Martian Moons.  
2018-Present: Elected Member of the University's Employability Subcommittee (Edge Hill University, UK)  
2018-Present: Member of the Faculty's Enterprise and Employability Committee (Edge Hill University, UK)  
2018- Present: Member of the Departmental Health and Safety Committee (Edge Hill University, UK)  
2017-Present: Member of the Departmental Ethics Committee (Edge Hill University, UK)  
2016-2018: Member of the Genetically Modified Organisms Committee (Edge Hill University, UK)  
2008-2010: Member of the Scientific Committee (Universidade Jean Piaget de Cabo Verde, Cabo Verde)

##### **Consultancy and Advisory roles:**

2019: Representative of the Society for Applied Microbiology as Expert in Marine Microbiology in the Foreign and Commonwealth Office Expert Advisory Panel on the United Nations Biodiversity Beyond National Jurisdiction Treaty negotiation.  
2018-2019: Scientific Consultant for Expedition Earth.  
2018-2019: Invited member of the Committee on Planetary Protection Requirements for Sample-Return Missions from Martian Moons coordinated by the National Academies of Science, Engineering, and Medicine and the European Science Foundation for NASA and ESA.  
2017-2019: Member of the external expert Panel of the EU-funded European Science Foundation project PPOSS- Planetary Protection of the Outer Solar System (in collaboration with NASA and ESA).  
2017-2019: Science Advisor for the award-winning Computer Game Series "Alive" (currently under development by Cypherdelic).  
2017: Advisor to the NASA Mars Returned Sample Science Board

#### **Supervisions**

##### **Student Supervisions (Postgraduate students only):**

Ahmed Shibl (Post-doc: 2017, Edge Hill University, UK)  
Marta Filipa Jesus de Freitas Simões (Post-doc: Conclusion in 2021; Macau University of Science and Technology, Macau SAR, China)  
Grégoire Michoud (Post-doc: Conclusion in 2022; Macau University of Science and Technology, Macau, China)

Andrew Devaynes (PhD: Concluded in 2018; Edge Hill University, UK)  
Priyanka More (PhD: Conclusion in 2020; Edge Hill University, UK)  
Emma Waddington (PhD: Conclusion in 2020; Edge Hill University, UK)  
Rituparna Poria (PhD: 2019; Edge Hill University, UK)

Catherine Cooney (MRes: 2018; Edge Hill University, UK)  
Matthew Kelbrick (MRes: Concluded in 2019; Edge Hill University, UK)  
Philippa Loftus (MRes: Concluded in 2019; Edge Hill University, UK)

Jiahui Wu (MSc: Conclusion in 2021; Macau University of Science and Technology, Macau, China)

**Assisted Student Supervision (Masters and PhD only):**

Stephen Krauss (Masters: concluded in 2003; University of Regensburg, Germany)

Tyas Hikmawan (Masters: concluded in 2010; King Abdullah University of Science and Technology, Saudi Arabia)

Tyas Hikmawan (PhD: concluded in 2015; King Abdullah University of Science and Technology, Saudi Arabia)

Yue Guan (PhD: concluded in 2016; King Abdullah University of Science and Technology, Saudi Arabia)

Soha Al Amoudi (PhD: concluded in 2016; King Abdullah University of Science and Technology, Saudi Arabia)

Ghofran Othoum (Visiting PhD student: 2017; Edge Hill University, UK)

**Other Activities**

**Popular Science Writing:**

2012-2014 Column writer and collaborator of the Science and Technology Journal "Ciência Hoje" (<http://www.cienciahoje.pt>).