

## Curriculum vitae



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Name and Surname	<b>Concetta Gugliandolo</b>
E-mail	<a href="mailto:cgugliandolo@unime.it">cgugliandolo@unime.it</a>
Nationality	Italian
Birth date	07 07 1959

### CURRENT POSITION(S)

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**University of Messina (UNIME) Dep Chemical, Biological, Pharmaceutical and Environmental Sciences (CHIBIOFARAM)**

**From 30/12/2014 to date** Full Professor of Ecology (UNIME)

**From 2015 to 2022** Director of the "Research Centre of Extreme Environments and Extremophiles" at the Dip CHIBIOFARAM (UNIME)

**2016-2019** Board member of the National Interuniversity Sea Sciences Consortium (CoNISMa)

### EDUCATION

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-2008-2014 Researcher, University of Messina

-1992 Ph. D. in Environmental Sciences, University of Messina

-1985 Specialization in Marine Biochemistry, University of Messina

-1982 Doctoral degree, Biological Sciences, University of Messina

## RESEARCH INTERESTS

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Microbial Ecology, Environmental and Applied Microbiology, Geomicrobiology, Environmental Biotechnology, Marine Biotechnology

The aims include: taxonomic aspects, spatial patterns in microbial communities, relationship of microbial community structure and function, research of novel biomolecules of interest in biotechnology.

Topics:

- Microbial community distribution and diversity in aquatic environments: brackish lakes, marine coastal zone, marine extreme environments (polar and shallow hydrothermal vents)
- Microbial quality of water, sediments and shellfish
- Relationships among planktonic organisms and bacterial pathogens
- Marine bacteria producing new biomolecules of biotechnological interest

## RESEARCH ACTIVITY

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Her research is documented by **215** scientific paper:

- Scientific peer-reviewed international articles in Scopus/WOS **83**
- Book chapters: 4
- National and International not-indexed Articles: 20
- Articles *in extenso* in Conference proceedings: 7
- Abstract in National and International Journals: 11
- Abstract in National and International Conference proceedings 90

### **Publication impact**

-H index: 30 (Scopus)

-N° of citations 2.320

## TEACHING ACTIVITY

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**From 2022** Marine Microbial Ecology (CdLT, Marine and Terrestrial Environmental Sciences, SMART)

**From 2021** Microbial Ecology and Biotechnologies for Environment and Human Health (CdM Biologia della Salute, Tecnologie Applicate e della Nutrizione)

**2015 -2020** Microbial Ecology (CdM Biologia)

**From 2015** Marine Biotechnologies (CdM Biologia ed Ecologia dell'ambiente Marino Costiero, BEAMC)

**From 2016** Microbial Ecology and Protection of Marine Environment (CdL Scienze Biologiche)

**2015-2016** Ecology (CdL Triennale in Tecniche della Prevenzione nell'ambiente e nei luoghi di lavoro)

**From 2013** Environmental Biotechnologies (CdM Biologia)

**2014-2015** Microbial Ecology (CdLT Scienze dell'Ambiente e della Natura)

**2009-2014** Geomicrobiology (CdM Tutela e Gestione dell'Ambiente)

**MEMBER OF PH.D  
COURSES**

**TEACHING AT FOREIGN  
OR INTERNATIONAL -  
UNIVERSITIES AND  
RESEARCH INSTITUTES**

**From 2013 to date** Applied Biology and Experimental Medicine

**2012-2013** Scienze Ambientali: Ambiente Marino e Risorse

**2009-2012** Biologia e Biotecnologie Cellulari.

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**2022** June 6–17 pre-and postgraduate teaching activities at the Faculty of Biological Sciences of the University Chile, within the framework of the activities of the ERAMUS plus Mobility for Teaching project A.A. 2021/22 KA107

**2021** June 9 “Ciarla Magistral: Bacilli from Shallow hydrothermal vents of Eolian Islands (Italy) and their biotechnological potential”  
(online:<https://cienciasbiologicasudec.cl/curso-en-experimentos-en-microbiologia-realizo-charla-inaugural-con-dra>)

**2017** January 14-24, Escuela de Verano “Microorganisms from Extreme Environments and their biotechnological potential” Faculty of Biological Science, Department of Microbiology, University of Concepción, Chile

**2015** October 29-November 3, Lectures for graduate students of Bioremediation Laboratory and Environmental Microbiology Laboratory. Faculty of Biological Science, Department of Microbiology, University of Concepción, Chile.

**2011** June Virginia Commonwealth University Richmond (USA), International Summer School "Biodiversity and Conservation", lectures on “Bioindicators and water quality” collaborative program with the University of Messina "Ecological water quality assessment of the Alcantara and James rivers using bioindicators".

**SCIENTIFIC  
RESPONSIBLE OF  
RESEARCH UNIT IN  
NATIONAL AND  
INTERNATIONAL  
PROGRAMMES**

- 2018-2022 UniME-Lallemand "Antibiofilm activity of the exopolysaccharide produced by *Bacillus licheniformis* T14 against pathogenic bacteria of the respiratory tract".
- PO FEAMP SICILIA 2014/2020, Misura 2.56 Misure relative alla salute e al benessere degli animali - art. 56 del Reg. (UE) n. 508/2014, Progetto FISH PATH NET "Sviluppo di antibiotici naturali" (A.3.4)
- PNRA16\_00020 "Poriferi antartici: Hot-spots di diversità Procariotica e Potenzialità biotecnologiche - P3" approvato dal Programma Nazionale di Ricerche in Antartide (Bando PNRA 5 aprile 2016, n. 651) (OR3).
- PON02 2007-2013 (00451-3362185) "Innovazione tecnologica a supporto dell'incremento della produttività e della competitività dell'acquacoltura siciliana" OR3, SA 3.1.2

**COMPONENT OF  
RESEARCH UNIT IN  
NATIONAL AND  
INTERNATIONAL  
PROGRAMMES**

- SAMOTHRACE Sicilian MicronanoTech Research And Innovation Center PNRR - Missione 4, Componente 2, Investimento 1.5 - D.D. 3277 del 30.12.2021- CUP J43C22000310006, WP5 AGRITEC, Component Task 5.11 Monitoring of contaminants in irrigation water by electrochemical sensors
- MISE ORTHOLINE POS 169 Prog. n. F/190169/01-03/X44 - Sviluppo linea di produzione per dispositivi medici impiantabili, Component OR4
- BONE++ ARS01-00693 Sviluppo di micro e nanotecnologie per la predittività, la diagnosi, la terapia e i trattamenti rigenerativi delle alterazioni patologiche dell'osso e osteoarticolari, CUP J66C18000340005 Component OR3 and OR4
- PON2 2013-2015 "Marine Hazard (24 months) "Sviluppo di tecnologie innovative per l'identificazione, monitoraggio e mitigazione di fenomeni di contaminazione naturale e antropica", Distretto Tecnologico per l'Ambiente Marino della Sicilia
- PNRA-MIUR 2013-2015 linea A "Ecologia del permafrost a Victoria Land: passato, presente ed evoluzione futura in un contesto di Cambiamento Climatico" (UR3)
- PNRA-MIUR 2011-2013 "Studio della diversità microbica (Batteri ed Archea) nel continente antartico
- 2010-2012: Virginia Commonwealth University - University of Messina Collaboration Program "Ecological water quality assessment of the Alcantara and James rivers using bioindicators" Operative Unit Microbial Ecology: "Use of microbial community structure, dynamic and diversity as bioindicator of ecological status"
- 1996-1999: MAST3-CT95-0034 European project: "Microorganisms in deep sea and marine hot springs as sources of potentially valuable chemicals"

**INVITED  
PRESENTATIONS (Last 5  
Years)**

- 2017** 27-30 September 45°Congress SIM, Genova "Bacilli from shallow hydrothermal vents of Eolian Islands (Italy) and their biotechnological potential" (Invited speaker)
- 2015** 27-November, University Concepcion, Chile, Lecture "Molecular approaches for studying microbial diversity"

**EDITORIAL BOARD  
MEMBER OF SCIENTIFIC  
JOURNALS**

**2022** Guest Editor, Special Issue Marine Microbes and Their Application in Biotechnology Journal of Marine Science and Engineering, MDPI, Basel  
**From 2020** Editorial Board Member of Journal of Marine Science and Engineering, MDPI, Basel  
**2018-2019** Guest Editor, Special Issue: Microbial Diversity in Extreme Environments: implications for ecological perspectives Diversity, MDPI  
**2017** -International Scholarly Research Notices - ISRN Microbiology, Hindawi Publishing Corporation ISSN: 2090-2016-Chinese Journal of Biology Hindawi Publishing Corporation, Open Access ISSN: 2090-7486 (Online)  
**2016**-Chinese Journal of Biology Hindawi Publishing Corporation, Open Access

**MAJOR NATIONAL AND INTERNATIONAL  
COLLABORATIONS**

**Consiglio Nazionale delle Ricerche (C.N.R.), Institute of Biomolecular Chemistry (I.C.B.)** Dr Barbara Nicolaus, Dr Annarita Poli; Dr Paola Di Donato  
**Consiglio Nazionale delle Ricerche (C.N.R.)** Institute of Polar Sciences Dr Angelina Lo Giudice  
**Stazione Zoologica Anton Dohrn (SZN)**, National Institute of Biology, Department of Marine Biotechnology, Dr Carmen Rizzo

-**Università di Concepción, Cile** Department of Microbiology, Prof. Miguel Martinez, Prof. Victor Campos  
-**Universidad de La Frontera** Temuco, Chile Dr. Gonzalo Tortella Fuentes.-  
-**University of Applied Sciences Bonn-Rhein-Sieg, Germany** Prof. Dr. Ralf Möller, Team Leader of the Space Microbiology Research Group Professor for Space Microbiology;  
-**German Aerospace Center** Institute of Aerospace Medicine Radiation Biology Linder Höhe, 51147 Köln/Cologne;

**MEMBERSHIP OF  
SCIENTIFIC SOCIETIES**

-Member of the Italian Society of Ecology (SItE)  
-Member of Accademia Peloritana dei Pericolanti, University of Messina  
-Member of CoNISMA

**OTHER**

2007-2008 vice-director for the Master GaMaCoR (CoNISMa-Regione Sicilia)

Reviewer for the Following Journals: Cahiers de Biologie Marine, Environmental Science and Pollution Research, Marine Pollution Bulletin, Food Control, Systematic and Applied Microbiology, Current Microbiology, British Biotechnology Journal, Marine Drugs, Molecules, Microorganisms, Antibiotics, Diversity, Molecules, Marine Drugs

**PEER-REVIEWED  
ARTICLES (2018-2022)**

1. SPANÒ A, ZAMMUTO V, MACRÌ A, AGOSTINO E, NICOLÒ M S, SCALA A, TROMBETTA D, SMERIGLIO A, CACCAMO M T, MAGAZZÙ S, MARTINEZ M, GUGLIELMINO S, GUGLIANDOLO C (2023) Arsenic Adsorption and Toxicity Reduction of An Exopolysaccharide Produced by *Bacillus licheniformis* B3-15 of Shallow

2. CACCAMO, M.T., ZAMMUTO, V., SPANÒ, A., GUGLIANDOLO, C., MAGAZÙ, S. (2022) Hydrating Capabilities of the Biopolymers Produced by the Marine Thermophilic *Bacillus horneckiae* SBP3 as Evaluated by ATR-FTIR Spectroscopy. *Materials*, 15, 5988
3. ZAMMUTO, V, SPANO, A, NICOLO, MS, GRILLO, E, CACCAMO, MT, MAGAZU, S, CAPPELLO, S, GUGLIANDOLO, C (2022). Thermophilic Hydrocarbon-Utilizing Bacilli from Marine Shallow Hydrothermal Vents as Producers of Biosurfactants. *Journal of Marine Science and Engineering*, vol. 10, p. 1077, ISSN: 2077-1312, doi: 10.3390/jmse10081077
4. SPAGNUOLO D, DI MARTINO A, ZAMMUTO V, ARMELI MINICANTE S, SPANÒ A, MANGHISI A, GUGLIANDOLO C, MORABITO M, GENOVESE G (2022). CONVENTIONAL VS. Innovative Protocols For The Extraction Of Polysaccharides From Macroalgae. *Sustainability*, p. 1-15, ISSN: 2071-1050, doi: 10.3390/su14105750
5. ZAMMUTO V., RIZZO M. G., SPANO A., SPAGNUOLO D., DI MARTINO A., MORABITO M., MANGHISI A., GENOVESE G., GUGLIELMINO S., CALABRESE G., CAPPARUCCI F., GERVASI C., NICOLO M. S., GUGLIANDOLO C. (2022). Effects of crude polysaccharides from marine macroalgae on the adhesion and biofilm formation of *Pseudomonas aeruginosa* and *Staphylococcus aureus*. *Algal Research*, vol. 63, p. 1-11, ISSN: 2211-9264, doi: 10.1016/j.algal.2022.102646
6. ZAMMUTO, V., RIZZO, M.G., SPANÒ, A., GENOVESE G, MORABITO M, SPAGNUOLO D, CAPPARUCCI F, GERVASI C, SMERIGLIO A, TROMBETTA D, GUGLIELMINO S, NICOLO MS, GUGLIANDOLO C. (2022) *In vitro* evaluation of antibiofilm activity of crude extracts from macroalgae against pathogens relevant in aquaculture. *Aquaculture*, 549: 737729
7. Nicolò, M.S., Rizzo, M.G., Palermo, N., Gugliandolo, C., Cuzzocrea, S., Guglielmino, S.P.P. (2022) Evaluation of Betacoronavirus OC43 and SARS-CoV-2 Elimination by Zefero Air Sanitizer Device in a Novel Laboratory Recirculation System. *Pathogens* 11(2),221
8. DE PLANO LM, SILIPIGNI L, TORRISI L, TORRISI A, CUTRONEO M, HAVRANEK V, MACKOVA A, ZAMMUTO V, GUGLIANDOLO C, RIZZO MG, GUGLIELMINO SPP, FRANCO D (2022) Incidence of phage capsid organization on the resistance to high energy proton beams. *Applied Sciences* 12, 988. <https://doi.org/10.3390/app12030988>
9. NICOLO MS, GUGLIANDOLO, C., RIZZO MG, ZAMMUTO V, CICERO N, DUGO, G., GUGLIELMINO, S.P.P. (2022) Nutritional conditions of the novel freshwater *Coccomyxa* AP01 for versatile fatty acids composition. *Journal of Applied Microbiology*, 132: 401-412
10. ZAMMUTO V, CACCAMO MT, MAGAZÙ S, SPANÒ A, GUGLIELMINO S, GUGLIANDOLO C (2021) Hot resistance of spores from the thermophilic *Bacillus horneckiae* SBP3 of shallow hydrothermal vent origin elucidated by spectroscopic analyses. *Applied Sciences* 11:4256
11. DE PLANO LM, FRANCO D, RIZZO MG, ZAMMUTO V, GUGLIANDOLO C, SILIPIGNI L, TORRISI L, GUGLIELMINO S.P.P. (2021) Role of Phage Capsid in the Resistance to UV-C Radiations. *International Journal of Molecular Sciences*, 22:3408
12. RIZZO C., ZAMMUTO V., LO GIUDICE A, RIZZO MG, SPANO' A, LAGANÀ P, MARTINEZ M, GUGLIELMINO S, GUGLIANDOLO C. (2021) Antibiofilm activity of antarctic sponge-associated bacteria against *Pseudomonas aeruginosa* and *Staphylococcus aureus*. *Journal of Marine Science and Engineering*, 9, 243: 1-16
13. RIZZO MG, CARNAZZA S., DE PLANO L.M., FRANCO D, NICOLO MS, ZAMMUTO V, PETRALIA S, CALABRESE G, GUGLIANDOLO C., CONOCI S., GUGLIELMINO S.P.P. (2021) Rapid detection of bacterial pathogens in blood through engineered phages-beads and integrated Real-Time PCR into MicroChip. *Sensors and Actuators, B: Chemical* 329, 129227
14. TAPIA C, LÓPEZ B, ASTUYA A, BECERRA J, GUGLIANDOLO C, PARRA B, MARTÍNEZ M (2021). Antiproliferative activity of carotenoid pigments produced by extremophile bacteria. *Natural Product Research*, 35: 4638-4642
15. ZAMMUTO, V.; RIZZO, M.G.; DE PLANO, L.M.; FRANCO, D.; GUGLIELMINO, S.; CACCAMO, M.T.; MAGAZÙ, S.; FUJIMORI, A.; GIUDICE, A.L.; GUGLIELMIN, M.; MCALPIN, K.R.; MOELLER, R.; GUGLIANDOLO, C. Effects of Heavy Ion Particle Irradiation on Spore Germination of *Bacillus* spp. from Extremely Hot and Cold Environments. *Life* 2020, 10, 264.
16. RIZZO C., GUGLIANDOLO C., LO GIUDICE A. (2020) Exploring Mediterranean and Arctic environments as a novel source of bacteria producing antibacterial compounds to be applied in aquaculture. *Appl. Sci.*, 10, 4006; doi:10.3390/app10114006
17. CACCAMO M.T., GUGLIANDOLO C., VINCENZO ZAMMUTO, MAGAZÙ S (2020) Thermal properties of an exopolysaccharide produced by a marine thermotolerant *Bacillus licheniformis* by ATR-FTIR spectroscopy. *International Journal of Biological Macromolecules*, 145:77–83
18. LO GIUDICE A., GUGLIANDOLO C. (2020) A Special Issue on Microorganisms from Extreme Environments in Memory of Luigi Michaud (1974–2014) *Diversity*, 12, 2; doi:10.3390/d12010002
19. RIZZO MG, NICOLO MS, FRANCO D, DE PLANO LM, CHINES V, MOSCATO F, CREA G, GUGLIANDOLO C, GUGLIELMINO SPP (2019) Glutamine-induced filamentous cells of *Pseudomonas mediterranea* CFBP-5447T as



producers of PHAs. *Applied Microbiology and Biotechnology* 103(21-22), pp. 9057-9066, doi: 10.1007/s00253-019-10144-2

20. ESPINOSA RUIZ C, MORGHESE M, RENDA G, GUGLIANDOLO C, ESTEBAN MA, SANTULLI A MESSINA CM (2019) Effects of BDE-47 exposure on immune-related parameters of *Mytilus galloprovincialis*. *Aquatic Toxicology*, 215, doi.org/10.1016/j.aquatox.2019.105266
21. PAPAIE M, LO GIUDICE A, CONTE A, RIZZO C, RAPPAZZO AC, MAIMONE G, CARUSO G, LA FERLA R, AZZARO M, GUGLIANDOLO C, PARANHOS R, CABRAL AS, SPICA RV, GUGLIELMIN M (2019) Microbial assemblages in pressurized Antarctic brine pockets (Tarn flat, northern Victoria land): A hotspot of biodiversity and activity. *Microorganisms* 7,333, doi: 10.3390/microorganisms7090333
22. GUGLIANDOLO C, MAUGERI TL (2019) Phylogenetic diversity of Archaea in shallow hydrothermal vents of Eolian Islands, Italy. *Diversity*, 11(9),156, doi.org/10.3390/d11090156
23. ZAMMUTO V., GUGLIANDOLO C. (2019) Resistance to high temperatures of spores from bacilli of shallow hydrothermal vents origins. *Atti Accademia Peloritana dei Pericolanti, Classe di Scienze Fisiche, Matematiche e Naturali*, Vol. 97, No. S2, A28 doi.org/10.1478/AAPP.97S2A28
24. SCALA A, PIPERNO A, HADA A, ASTILEAN S, VULPOI A, GINESTRA G, MARINO A, NOSTRO A, ZAMMUTO V, GUGLIANDOLO C (2019) Marine bacterial exopolymers-mediated green synthesis of noble metal nanoparticles with antimicrobial properties *Polymers*, 11, 1157; doi.org/10.3390/polym11071157 (Special Issue Polymeric Nanoparticles for Drug Delivery and Diagnostics)
25. ZAMMUTO V, FUCHS FM, FIEBRANDT M, STAPELMANN K, ULRICH NJ., MAUGERI TL, PUKALL R, GUGLIANDOLO C, MOELLER R (2018) Comparing spore resistance of *Bacillus* strains isolated from hydrothermal vents and spacecraft assembly facilities to environmental stressors and decontamination treatments. *Astrobiology*, 18 1425-1434, DOI: 10.1089/ast.2017.1715
26. CACCAMO MT, ZAMMUTO V, GUGLIANDOLO C, MADELEINE-PERDRILLAT C, SPANÒ A, MAGAZÙ S. (2018) Thermal restraint of a bacterial exopolysaccharide of shallow vent origin. *International Journal of Biological Macromolecules*, 114: 649-655, doi.org/10.1016/j.ijbiomac.2018.03.160
27. LEON CG, MORAGA R, VALENZUELA C, GUGLIANDOLO C, LO GIUDICE A, PAPAIE M, VILO C, DONG Q, SMITH C T, ROSSELLO-MORA R, YAÑEZ J, CAMPOS VL (2018) Effect of the Natural Arsenic Gradient on the Diversity and Arsenic Resistance of Bacterial Communities of the Sediments of Camarones River (Atacama Desert, Chile) *PlosOne* 13(5):e0195080, doi.org/10.1371/journal.pone.019508

"According to law 679/2016 of the Regulation of the European Parliament of 27th April 2016, I hereby express my consent to process and use my data provided in this CV"

Messina, 6 March 2023

In faith,

