

## 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** 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

-2001-2005 Post-doc "Marine bacteria of biotechnological interest" (UNIME)

-1992 Ph. D. in Environmental Sciences: Marine Environment and Resources (UNIME)

-1985 Specialization in Marine Biochemistry (UNIME)

-1982 Doctoral degree, Biological Sciences (UNIME)

## 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 and shallow hydrothermal vents
- Microbial quality of water, sediments and shellfish
- Relationships among planktonic organisms and bacterial pathogens
- Diversity of marine luminescent bacteria
- Marine microorganisms and macroalgae producing new biomolecules of biotechnological interest
- Microbial resistance to stresses and astrobiological implications

## RESEARCH ACTIVITY

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Her research is documented by **208** scientific papers:

- Scientific peer-reviewed international articles in Scopus/WOS **80**
- 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 86

### **Publication impact**

- H index: 28 (Scopus)
- N° of citations 2001

## TEACHING ACTIVITY

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**From 2021** Microbial Ecology and Biotechnologies for Environment and Human Health, CdL Magistrale di Biologia della Salute, delle Tecnologie Applicate e della Nutrizione

**2015 -2020** Microbial Ecology, CdL Magistrale in Biologia

**from 2015** Marine Biotechnologies, CdL Magistrale in Biologia ed Ecologia dell'ambiente Marino Costiero

**from 2016** Microbial Ecology and Protection of Marine Environment, CdL Triennale in Scienze Biologiche

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

**From 2013** Environmental Biotechnologies, CdL Magistrale di BIOLOGIA

**2014-2015** Microbial Ecology, CdL Triennale in Scienze dell'Ambiente e della Natura

**2009-2014** Geomicrobiology, CdL Magistrale in Tutela e Gestione dell'Ambiente

## MEMBER OF PH.D COURSES

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

**2012-2013** Environmental Sciences: Marine Environment and Resources

**2009-2012** Biology and Cellular Biotechnologies.

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

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

**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 NATIONAL AND INTERNATIONAL PROGRAMMES

## COMPONENT OF RESEARCH UNIT IN NATIONAL AND INTERNATIONAL PROGRAMMES

**2017-2022** International Programmes UniME-UdeC (Chile):

-2019 Program Erasmus + ICM Cile 2019 (UniMe-UdeC)

-2018-2019 Program UniME *Visiting Professor 2018*, Prof. Miguel Martinez, Microbiologia dell'Università di Concepción

-2017-2018 Program UniME *Visiting Professor 2017*, Prof. Miguel Martinez, Microbiologia dell'Università di Concepción

-**2018-2021** UniME-Lallemand Inc "Antibiofilm activity of the exopolysaccharide produced by *Bacillus licheniformis* T14 against pathogenic bacteria of the respiratory tract".

-**2018-2021** 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)

-**2018-2021** 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).

-**2007-2013** PON02 (00451-3362185) "Innovazione tecnologica a supporto dell'incremento della produttività e della competitività dell'acquacoltura siciliana" OR3, SA 3.1.2

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- from **2021** MISE ORTHOLINE POS 169 Prog. n. F/190169/01-03/X44 - Sviluppo linea di produzione per dispositivi medici impiantabili, Component OR4

- from **2021** 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, Component OR3 and OR4

-**2015-2022** PON2 "Marine Hazard "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

-**2013-2015** PNRA-MIUR linea A "Ecologia del permafrost a Victoria Land: passato, presente ed evoluzione futura in un contesto di Cambiamento Climatico" (UR3)

-**2011-2013** PNRA-MIUR "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"

-**1994** Testing and Measuring, European project "MICROBATH *Seawater microbiology: Measurement and Testing*" (V trial) dal titolo "Intercalibrazione dei metodi per la valutazione dell'inquinamento batterico marino per la messa a punto di metodi per la valutazione della qualità dell'acqua di mare e dolce", coordinated by Institute Pasteur, Lille (France).

## INVITED PRESENTATIONS

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**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**

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**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 and applicative perspectives* Diversity, MDPI  
**2017** -International Scholarly Research Notices - ISRN Microbiology, Hindawi Publishing Corporation ISSN: 2090-7486 (Online)  
**2016**-Chinese Journal of Biology Hindawi Publishing Corporation, Open Access

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**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;

-Member of Consorzio Nazionale Interuniversitario per le Scienze del Mare (CoNISMa)

-Member of the Italian Society of Ecology (SIte)

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

**PEER-REVIEWED  
ARTICLES (from 2016 to  
date)**

1. 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. *Appl. Sci.*, 12, 988. <https://doi.org/10.3390/app12030988>
2. ZAMMUTO, V., RIZZO, M.G., SPANÒ, A., GENOVESE G, MORABITO M, SPAGNUOLO D, CAPPARUCCI F, GERVASI C, SMERIGLIO A, TROMBETTA D, GUGLIELMINO S, NICOLÒ MS, GUGLIANDOLO C. (2022) *In vitro* evaluation of antibiofilm activity of crude extracts from macroalgae against pathogens relevant in aquaculture. *Aquaculture*, 549: 737729
3. NICOLÒ 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
4. 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
5. 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
6. RIZZO C., ZAMMUTO V., LO GIUDICE A, RIZZO MG, SPANÒ 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
7. RIZZO MG, CARNAZZA S., DE PLANO L.M., FRANCO D, NICOLÒ 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
8. 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
9. 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.
10. 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
11. 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
12. 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
13. RIZZO MG, NICOLÒ 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
  14. 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
  15. 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
  16. GUGLIANDOLO C, MAUGERI TL (2019) Phylogenetic diversity of Archaea in shallow hydrothermal vents of Eolian Islands, Italy. *Diversity*, 11(9),156, doi: 10.3390/d11090156
  17. 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: 10.1478/AAPP.97S2A28
  18. 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)
  19. 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
  20. 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: [doi.org/10.1016/j.ijbiomac.2018.03.160](https://doi.org/10.1016/j.ijbiomac.2018.03.160)
  21. 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.0195080](https://doi.org/10.1371/journal.pone.0195080)
  22. RIZZO C, GENOVESE G, MORABITO M, FAGGIO C, PAGANO M, SPANÒ A, ZAMMUTO V, ARMELI MINICANTE S, MANGHISI A, CIGALA RM, CREA F, MARINO F, GUGLIANDOLO C (2017) Potential Antibacterial Activity of Marine Macroalgae against Pathogens Relevant for Aquaculture and Human Health. *Journal of Pure and Applied Microbiology*, 11: 1695-1706, DOI: 10.22207/JPAM.11.4.07
  23. MARINO-MERLO, F., PAPAIAANNI, E., MAUGERI, T.L., ZAMMUTO, V., SPANÒ, A. NICOLAUS, B., POLI, A., DI DONATO, P., MOSCA, C. MASTINO, A. GUGLIANDOLO C. (2017) Anti-herpes simplex virus 1 and immunomodulatory activities of a poly- $\gamma$ - glutamic acid from *Bacillus horneckiae* strain APA of shallow vent origin. *Applied Microbiology and Biotechnology* 101, 7487-7496, DOI:10.1007/s00253-017-8472-5
  24. AGUAYO P., GONZÁLEZ P., CAMPOS V., MAUGERI T.L., PAPAIE M., GUGLIANDOLO C., MARTINEZ M.A. (2017) Comparison of Prokaryotic Diversity in Cold, Oligotrophic Remote Lakes of Chilean Patagonia. *Current Microbiology*, 74:598-613, DOI: 10.1007/s00284-017-1209-y
  25. MARINO F., DI CARO G., GUGLIANDOLO C., SPANÒ A., FAGGIO C., GENOVESE G., MORABITO M., RUSSO A., BARRECA D., FAZIO F., SANTULLI A. (2016) Preliminary Study on the *In vitro* and *In vivo* Effects of

- Asparagopsis taxiformis* Bioactive Phycoderivates on Teleosts *FRONT PHYSIOL.*; 7: 459, DOI: 10.3389/fphys.2016.00459
26. SPANO A., LAGANÀ P., VISALLI G., MAUGERI T.L., GUGLIANDOLO C. (2016) In vitro antibiofilm activity of an exopolysaccharide from the marine thermophilic *Bacillus licheniformis* T14. *CURRENT MICROBIOLOGY* 72:518–528, DOI: 10.1007/s00284-015-0981-9
27. GUGLIANDOLO, C., MICHAUD, L., LO GIUDICE, A., LENTINI, V., ROCHERA, C., CAMACHO, A., MAUGERI, T.L. (2016) Prokaryotic Community in Lacustrine Sediments of Byers Peninsula (Livingston Island, Maritime Antarctica. *MICROBIAL ECOLOGY* 71:387–400. DOI: 10.1007/s00248-015-0666-8

Messina, 26 January 2022

In faith,

A handwritten signature in blue ink, reading "Concetta Gugliandolo". The signature is written in a cursive style with a large initial 'C'.