

## Carmen Rizzo



Born in Reggio Calabria (Italy) on 31/12/1985

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**Current Position:** Researcher

**Current Affiliation:**

BlueBiotec Department, Stazione Zoologica Anton Dohrn, Napoli (Italy)

### **Education/Training/Experience**

<b>Institute and Location</b>	<b>Degree / Function</b>	<b>Year</b>	<b>Field of Study</b>
University of Messina Dept. Chemical, Biological, Pharmaceutical and Environmental Sciences	Magistral Degree <i>Biology and Ecology of the Coastal Marine Environment</i>	2009	Microbial Ecology and Biotechnology
University of Messina Dept. Chemical, Biological, Pharmaceutical and Environmental Sciences	Ph.D. <i>Environmental Sciences: Marine Environment and its Resources</i>	2010-2013	Microbial Ecology Biotechnology
University “Dante Alighieri”, Reggio Calabria	Post-graduate Master degree <i>Law, Economics and Technology of Environmental Resources</i>	2014	Microbial Ecology Biotechnology
University of Messina	Advanced Training Course FORINNOVAQUA	2014-2015	Training for technology innovation in aquaculture.
National, Interuniversity Consortium for the Marine Sciences (CoNISMa)	Post-doc	2016-2017	Marine Hydrothermal environments, microbial diversity and new molecules of biotechnological interest (Project

			MARINE HAZARD)
University of Messina, Dept. Chemical, Biological, Pharmaceutical and Environmental Sciences	Post-doc	2019	Project “CT_LALLEMAND_2018” about “Antibiofilm activity of bacterial exopolysaccharides: activity against pathogen bacteria”
Stazione Zoologica Anton Dohrn, Napoli, Italy	Researcher	2018-present	Blu Biotechnology

### **Appointments and awards**

2018-present: member of the Editorial Board SF Journal of Environmental and Earth Science

2020 - Dr. Carmen Rizzo is reviewers for the following peer reviewed journal:

Molecules, Marine Drugs, Diversity, Science of The Total Environment, Toxins, Colloids, Crystals, Genes, International Journal of Molecular Sciences, Sustainability.

2019-2020 - Guest Editor for the Special Issue of **Microorganisms**, *Polar microbial ecology: the role of microbes in the functioning of extremely cold ecosystems*.

### **Scientific expeditions:**

- Oceanographic campaign in the Mediterranean Sea on board of the Research Vessels Universitatis for monitoring of physical-chemical characteristic in the Straits of Messina waters and possible relations with migratory fluxes of cetaceans between meridional Tyrrhenian and Ionian.
- Oceanographic campaign in the Mediterranean Sea on board of the Research Vessels Urania.
- Participation in the 34th Antarctic Campaign at the Italian Research Station Mario Zucchelli. December 2018-February 2019.

### **Experiences and Training Courses**

- Liquid Chromatography and Mass Spectrometry Methods in Marine Science. CCMAR, Advanced Training, Gambelas Campus, Faro - Portugal. (28-30 October 2019)
- Course “Bioinformatics for Next-Generation Sequencing”, Hyblea Training, 26-30 August 2019.
- Course “Introduction to R software”, XIX edition, University of Roma La Sapienza, Dept. Statistic Sciences (29 May-31 May 2019).
- Course “Microbial Metagenome Analysis: Hands-On Training”. Verbania, 13- 16 June 2017.
- Course “Publishing dos and don’ts for Microbial Ecologists” in 2016 (Catania, Italy).
- 3rd Course in Microbial Ecology “From cultivation to New-Generation Molecular Methods” in 2011 (Messina, Italy).
- Internships at the Karlsruher Institut für Technologie (KIT), Karlsruhe – Germany (2010 and 2011).

## Involvement in research projects

MicroPolArS: Microbial response to human Pollutants in polAr lakeS. PNRA18\_00194

Antarctic Porifera: hot-spots for Prokaryotic diversity and biotechnological Potentialities - P3 National Antarctic Research Program (PNRA) (2018-2019).

Project MARINE HAZARD Marine Hydrothermal environments, microbial diversity and new molecules of biotechnological interest. PON03PE\_00203 (2016-2017).

Microbial Communities along Arctic Fjords: Biodiversity and Removal of Polychlorinated Biphenyls (MICROREM), INTER-ACT (FP7) (2012-2013).

## Publications (ISI):

Rizzo C., Malavenda R., Gerçe B., Papale M., Sylđatk C., Hausmann R., Bruni V., Michaud L., Lo Giudice A., Amalfitano S. (2019). Effects of a simulated acute oil spillage on bacterial communities from Arctic and Antarctic marine sediments. *Microorganisms* 7:632.

Savoca, S., Lo Giudice, A., Papale, M., Mangano, S., Caruso, C., Spanò, N., Michaud, L., Rizzo, C. (2019). Antarctic sponges from the Terra Nova Bay (Ross Sea) host a diversified bacterial community. *Scientific Reports* 9:16135.

Caputo S., Papale, M., Rizzo, C., Giannarelli, S., Conte, A., Moscheo, F., Graziano, M., Aspholm, P.E., Onor, M., De Domenico, E., Misericocchi, S., Michaud, L., Azzaro, L., Lo Giudice, A. (2019). Metal Resistance in Bacteria from Contaminated Arctic Sediment is Driven by Metal Local Inputs. *Archives of environmental contamination and toxicology* 77(2):291-307.

Papale, M., Lo Giudice, A., Conte, A., Rizzo, C., Rappazzo, A.C., Maimone, G., Caruso, G., La Ferla, R., Azzaro, M., Gugliandolo, C., Paranhos, R., Cabral, A.S., Spica, V.R., Guglielmin, M. (2019). Microbial Assemblages in Pressurized Antarctic Brine Pockets (Tarn Flat, Northern Victoria Land): A Hotspot of Biodiversity and Activity. *Microorganisms* 7:333.

Lo Giudice, A., Caruso, G., Rizzo, C., Papale, M., Azzaro, M. (2019). Bacterial communities versus anthropogenic disturbances in the Antarctic coastal marine environment. *Environmental Sustainability* 2:297–310.

Rappazzo, A.C., Papale, M., Rizzo, C., Conte, A., Giannarelli, S., Onor, M., Abete, C., Cefali, P., De Domenico, E., Michaud, L., Lo Giudice, A. (2019). Heavy metal tolerance and polychlorinated biphenyl oxidation in bacterial communities inhabiting the Pasvik River and the Varanger Fjord area (Arctic Norway). *Marine Pollution Bulletin* 141:535-549.

Raffa C., Rizzo C., Strous M., De Domenico E., Sanfilippo M., Michaud L., Lo Giudice A. (2019). Prokaryotic Dynamics in the Meromictic Coastal Lake Faro (Sicily, Italy). *Diversity* 11: 37; doi:10.3390/d11030037.

Caruso, C., Rizzo, C., Mangano, S., Poli, A., Di Donato, P., Nicolaus, B., Finore, I., Di Marco, G., Michaud, L., Lo Giudice, A. (2019). Isolation, characterization and optimization of EPSs produced by a cold-adapted *Marinobacter* isolate from Antarctic seawater. *Antarctic Science* 1-11. doi:10.1017/S0954102018000482.

Capillo, G., Savoca, S., Costa, R., Sanfilippo, M., Rizzo, C., Lo Giudice, A.L., Albergamo, A., Rando, R., Bartolomeo, G., Spanò, N., Faggio, C. (2018). New insights into the culture method and antibacterial potential of *Gracilaria gracilis*. *Marine Drugs* 16:492; doi:10.3390/md16120492.

Papale, M., Conte, A., Del Core M., Zito, E., Sprovieri, M., De Leo, F., Rizzo, C., Urzi, C., De Domenico, E., Luna, G.M., Michaud, L., Lo Giudice, A. (2018). Heavy-metal tolerant microorganisms in sediments from submarine canyons and the adjacent continental slope in the northeastern Ligurian margin (Western Mediterranean Sea). *Progress in Oceanography* 168: 155–168.

Caruso, G., Pedà, C., Cappello, S., Leonardi, M., La Ferla, R., Lo Giudice, A., Maricchiolo, G., Rizzo, C., Maimone, G., Rappazzo, A.C., Genovese, L., Romeo T. (2018). Microplastics in the marine environment: effects on trophic parameters and abundance, taxonomy and metabolic activities of seawater and fish intestinal bacteria. *Environmental Science and Pollution Research* 25(30):30067–30083.

Lo Giudice A., Rizzo C. (2018). Bacteria Associated with Marine Benthic Invertebrates from Polar Environments: Unexplored Frontiers for Biodiscovery? *Diversity* 10:80.

Rizzo, C., Lo Giudice, A. (2018). Marine invertebrates: underexplored sources of bacteria producing biologically active molecules. *Diversity* 10:52.

Papale, M., Conte, A., Mikkonen, A., Michaud, L., La Ferla, R., Azzaro, M., Caruso, G., Paranhos, R., Anderson, S.C., Maimone, G., Rappazzo, A.C., Rizzo, C., Spanò, N., Lo Giudice, A., Guglielmin, M. (2018). Prokaryotic assemblages within permafrost active layer at Edmonson Point (Northern Victoria Land, Antarctica). *Soil Biology and Biochemistry* 123:165–179.

Conte, A., Papale, M., Amalfitano, S., Mikkonen, A., Rizzo, C., De Domenico, E., Michaud, L., Lo Giudice, A. (2018). Bacterial community structure along the subtidal sandy sediment belt of a high Arctic fjord (Kongsfjorden, Svalbard Islands). *Science of the Total Environment* 619-620:203-211.

Caruso, C., Rizzo, C., Mangano, S., Poli, A., Di Donato, P., Nicolaus, B., Di Marco, G., Michaud, L., Lo Giudice, A. (2018). Extracellular polymeric substances with metal adsorption capacity produced by *Pseudoalteromonas* sp. MER144 from Antarctic seawater. *Environmental Science and Pollution Research* 25:4667.

Caruso, C., Rizzo, C., Mangano, S., Poli, A., Di Donato, P., Finore, I., Nicolaus, B., Di Marco, G., Michaud, L., Lo Giudice, A. (2018). Production and biotechnological potentialities of extracellular polymeric substances from sponge-associated Antarctic bacteria. *Applied and Environmental Microbiology* 84: e01624-17.

Rizzo, C., Sylđatk, C., Hausmann, R., Gerçe, B., Longo, C., Papale, M., Conte, A., De Domenico, E., Michaud, L., Lo Giudice, A. (2018). The demosponge *Halichondria* (*Halichondria*) *panicea* (Pallas, 1766) as a novel source of biosurfactant-producing bacteria. *Journal of Basic Microbiology* 1-11.

Rizzo, C., Rappazzo, A.C., Michaud, L., De Domenico, E., Rochera, C., Camacho, A., Lo Giudice, A. (2018). Efficiency in hydrocarbon degradation and biosurfactant production by

*Joostella* sp. A8 when grown in pure culture and consortia. Journal of Environmental Sciences 67:115-126.

Floris, R., Scanu, G., Fois, N., Rizzo, C., Malavenda, R., Spanò, N., Lo Giudice, A. (2017). Intestinal bacterial flora of Mediterranean gilthead seabream (*Sparus aurata*, L.) as a novel source of natural surface active compounds. Aquaculture Research 1-12. DOI: 10.1111/are.13580.

Rizzo, C., Genovese, G., Morabito, M., Faggio, C., Pagano, M., Spanò, A., Zammuto, V., Armeli Minicante, S., Manghisi, A., Cigala, R.S., 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(4):1695-1706.

Papale, M., Rizzo, C., Villescusa, J.A., Rochera, C., Camacho, A., Michaud, L., Lo Giudice, A. (2017). Prokaryotic assemblages in the maritime Antarctic Lake Limnopolar (Byers Peninsula, South Shetland Islands). Extremophiles 21:947-961.

Papale, M., Giannarelli, S., Francesconi, S., Di Marco, G., Mikkonen, A., Conte, A., Rizzo, C., De Domenico, E., Michaud, L., Lo Giudice, A. (2017). Enrichment, isolation and biodegradation potential of psychrotolerant polychlorinated-biphenyl degrading bacteria from the Kongsfjorden (Svalbard Islands, High Arctic Norway). Marine Pollution Bulletin 114:849–859.

Graziano, M., Rizzo, C., Michaud, L., Porporato, E.M.D., De Domenico, E., Spanò, N., Lo Giudice, A. (2016). Biosurfactant production by hydrocarbon-degrading *Brevibacterium* and *Vibrio* isolates from the sea pen *Pteroeides spinosum* (Ellis, 1764). Journal of Basic Microbiology 56:963–974.

Rizzo, C., Michaud, L., Graziano, M., De Domenico, E., Sylđatk, C., Hausmann, R., Lo Giudice, A. (2015). Biosurfactant activity, heavy metal tolerance and characterization of *Joostella* strain A8 from the Mediterranean polychaete *Megalomma claparedei* (Gravier, 1906). Ecotoxicology 24:1294–1304.

Malavenda, R., Rizzo, C., Michaud, L., Gerçe, B., Bruni, V., Sylđatk, C., Hausmann, R., Lo Giudice, A. (2015). Biosurfactant production by Arctic and Antarctic bacteria growing on hydrocarbons. Polar Biology 38:1565–1574.

Rizzo, C., Michaud, L., Sylđatk, C., Hausmann, R., De Domenico, E., Lo Giudice, A. (2014). Influence of salinity and temperature on the activity of biosurfactants by polychaete-associated isolates. Environmental Science and Pollution Research 21: 2988–3004.

Rizzo, C., Michaud, L., Hörmann, B., Gerçe, B., Sylđatk, C., Hausmann, R., De Domenico, E., Lo Giudice, A. (2013). Bacteria associated with Sabellids (Polychaeta: Annelida) as a novel source of surface active compounds. Marine Pollution Bulletin 70: 125-133.

### **Other Publications (non ISI)**

Rizzo C., Lo Giudice, A. (2018). Heavy Metal Tolerance and Chelating Activity of Bacteria Associated with Mediterranean Polychaetes. SF Journal of Environmental and Earth Science 1(2):1015.

**Book Chapters:**

Floris R., Rizzo C., Lo Giudice A. (2018). Biosurfactants from marine microorganisms. *Bacteriology*, 2-18.

Lo Giudice A. Rizzo C. (2015). Protocols for Investigating Hydrocarbon-Oxidizing Bacterial Communities in Polar Seas and Ice. In: McGenity T.J. et al. (Eds.), *Hydrocarbon and Lipid Microbiology Protocols*, Springer Protocols Handbooks, DOI 10.1007/8623\_2015\_147.