

Carmen RIZZO.

PERSONAL DATA

Place of birth: Reggio Calabria, Italy
Date of Birth: 31 December 1985
Nationality: Italian
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LANGUAGES

Italian (mother language)
English (fluent- C1)
Basic knowledge of Spanish

COMPUTER SKILLS

ECDL. Windows XP, Vista. Office, Internet Explorer, Chromas Pro, BioEdit, Blast.

Institution Address: University of Messina, Dept. Chemical, Biological, Pharmaceutical and Environmental Sciences, Viale F. Stagno d'Alcontres, 31 – 98166 Messina (Italy)

PRESENT POSITION

Research assistant at the University of Messina.

ACADEMIC QUALIFICATIONS

- Fellowship contract with the National, Interuniversity Consortium for the Marine Sciences (CoNISMa), Project MARINE HAZARD “*Marine Hydrothermal environments, microbial diversity and new molecules of biotechnological interest*” (2016-2017).
- Expert in aquaculture. Advanced Training Course FORINNOVAQUA: Training for technology innovation in aquaculture. University of Messina. (June 2014-June 2015).
- Post-graduate Master degree in “*Law, Economics and Technology of Environmental Resources*” at the University “Dante Alighieri” Reggio Calabria (Italy), May 2014.
- Ph.D. in “*Environmental Sciences: Marine Environment and its Resources (XXV cycle)*” at the University of Messina (Italy). Thesis: *Biosurfactant bacterial producers from filter feeding organisms and their potential applications* (Supervisor: Prof. Emilio De Domenico; Co-Tutors: Dr. Angelina Lo Giudice and Dr. Ing. Rudolph Hausmann).
- Master Degree in Biology and Ecology of the Coastal Marine Environment at the University of Messina (Italy), July 2009. Thesis: *Biosurfactant production and potential application in bioremediation* – Supervisor: Prof. M. De Francesco.

RESEARCH FIELDS AND LABORATORY SKILLS

She is involved in research on microbial ecology field, with particular regards on marine and freshwater environments, with approaches on microbial diversity and biotechnological potential. She is particularly interested in the association of bacteria with filter-feeding organisms and specialized in both the application of traditional microbiological methods (isolation, cultivation, identification) and modern molecular and genetic techniques, in addition to the analysis of water quality (BOD measure, evaluation of bacterial fraction of heterotrophic, bioluminescent and hydrocarbonoclastic populations; search for Total Coliforms, Faecal Coliforms, Faecal Streptococci, *Salmonella*, Clostridia). Her research activities are mainly oriented to the study of biosurfactant production by hydrocarbon-oxidizing microorganisms and bioremediation processes applied to hydrocarbon degradation and heavy metal chelating activity. The most recent research activities have been focused on the study of Arctic and Antarctic environments, and of the microbial communities that inhabit them. In particular, she explored the distribution of *cold-adapted* bacteria in relation to the presence of contaminants (i.e. hydrocarbons and heavy metals), and their biotechnological potential, in terms of production of exopolysaccharides and biosurfactants production. She is actually exploring the biotechnological potentialities of bacteria associated to higher organisms. She investigated also the production of antimicrobial compounds by bacteria and algae against bacterial pathogens, relevant for aquaculture and human health.

EXPERIENCES and TRAINING COURSES

- Participation in the 34th Antarctic Campaign at the Italian Research Station Mario Zucchelli. December 2018-February 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).
- Several oceanographic campaigns in the Mediterranean Sea on board of the Research Vessels *Urania* and *Universitatis*.
- Attendance to the course “Risk and Safety in Scientific Laboratories” (2006-2007).

Involvement in research projects

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).

Peer-reviewed publications

1. 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. Heavy metal tolerance and polychlorinated biphenyl oxidation in bacterial communities inhabiting the Pasvik River and the Varanger Fjord area (Arctic Norway). Accepted for publication on *Marine Pollution Bulletin*.
2. 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*, 2019, 11, 37; doi:10.3390/d11030037.

3. 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* page 1 of 11. doi:10.1017/S0954102018000482.
4. 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*. *Mar. Drugs*, 16, 492; doi:10.3390/md16120492.
5. 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.
6. 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.
7. Lo Giudice A., Rizzo C. (2018). Bacteria Associated with Marine Benthic Invertebrates from Polar Environments: Unexplored Frontiers for Biodiscovery? *Diversity* 2018, 10:80.
8. **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.
9. **Rizzo, C.**, Lo Giudice, A. (2018). Marine invertebrates: underexplored sources of bacteria producing biologically active molecules. *Diversity*, 10:52.
10. 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.
11. 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.
12. 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.
13. 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.
14. **Rizzo, C.**, Sylødatk, 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.
15. **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.
16. 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.
17. **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.
18. Papale M., Rizzo C., Villescusa J.A., Rochera C., Camacho A., Michaud L., Lo Giudice A. (2017). Prokaryotic assemblages in the maritime Antarctic Lake Linnopolar (Byers Peninsula, South Shetland Islands). *Extremophiles*, 21:947-961.
19. 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.
20. 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.
21. **Rizzo C.**, Michaud L., Graziano M., De Domenico E., Sylødatk 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.
22. Malavenda R., Rizzo C., Michaud L., Gerçe B., Bruni V., Sylødatk C., Hausmann R., Lo Giudice A. (2015). Biosurfactant production by Arctic and Antarctic bacteria growing on hydrocarbons. *Polar Biology*, 38:1565–1574.
23. **Rizzo C.**, Michaud L., Sylødatk 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.
24. **Rizzo C.**, Michaud L., Hörmann B., Gerçe B., Sylødatk 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.

Book Chapter

1. Floris, R., Rizzo, C., Lo Giudice, A. (2018). Biosurfactants from marine microorganisms. *Bacteriology*, 2-18.
2. Lo Giudice A., **Rizzo C.** (2015). Protocols for Investigating Hydrocarbon-Oxidizing Bacterial Communities in Polar Seas and Ice. In: T.J. McGenity et al. (eds.), *Hydrocarbon and Lipid Microbiology Protocols*, Springer Protocols Handbooks, DOI 10.1007/8623_2015_147.

She is also author and coauthor of more than 20 contributions at International and National Conferences.

Messina, 04/03/2019

Jürgen Ritz