



## CURRICULUM VITAE

### Paola Grenni

Researcher at Water Research Institute – National research Council (IRSA-CNR), Area della Ricerca di Roma 1 Montelibretti, Via Salaria Km 29,300 CP10 00016 Monterotondo (ROME) – ITALY; Tel: +39 06 90672785; Fax: +39 06 90672787 E-mail: [grenni@irsa.cnr.it](mailto:grenni@irsa.cnr.it)

Since 2000 her main field of interest has been microbial ecology in soil, sediments, surface and ground water. She has been involved in national and international projects on ecosystem contamination (pesticides, their transformation products and fertilizers; pharmaceuticals; PCB) and water quality models. Experimental activity has included the application of methods for assessing bacterial abundance, biomass and diversity, including molecular methods such as Fluorescent In Situ Hybridization (FISH). Recently, she has been involved in biocide risk assessment and ecotoxicological databases (<http://www.dsa.minambiente.it/sitodesc/>)

#### Employment history

2001-present Scientist, Water Research Institute – National research Council, Rome

2000-2001 Researcher, Istituto Superiore di Sanità, Rome

1993-1995 Researcher, ENEA CR-Casaccia

#### Education

2011 Ph.D. in Environmental Science, University of Milano-Bicocca (thesis: Effects of pesticides and pharmaceuticals on soil and water bacterial communities)

2008 - 2010 Doctorate Course in Environmental Science - University of Milano Bicocca, coordinator Prof. Vighi. Tutor: Dr. A. Finizio, University of Milano-Bicocca, external tutor Dr. Alberto Puddu, IRSA-CNR.

1992: Degree (M.Sc.) in Natural Science – Trieste University – (Italy) Grade: 110/110, cum laude

1986 - 1992 University course in Natural Science - University of Trieste. Two-year internship at the Laboratory of Marine Biology in Trieste for the preparation of an experimental thesis entitled: Microzooplankton of the Northern Tyrrhenian. Tutor: Prof. S. Fonda Umani. One-year internship at the Laboratory of Sedimentology, Geology faculty, Trieste, for the preparation of the experimental thesis entitled: Response to different methods of suspended sediment storage before the Coulter multisizer analysis, Tutor: Prof. Brambati, co-tutor Dr. G. Fontolan.

#### Selected National and International Projects

- 2017-2018 Progetto Autostrade-Pavimental “Incarico ad IRSA-CNR per l’espletamento di attività tecnico – scientifiche volte alla caratterizzazione ecotossicologica di corso d’opera dei materiali da scavo derivanti dallo scavo meccanizzato della galleria Santa Lucia”
- 2017 Incarico di Ricerca CNR-Itaferr “Protocollo operativo per la verifica dell’impatto ecotossicologico di terreni trattati con prodotti condizionanti per la realizzazione della galleria Torino – Lione mediante scavo meccanizzato con fresa TBM
- 2015-2016 Incarico di Ricerca CNR/Pavimental “Sperimentazione per verificare la qualificazione delle Terre e Rocce da scavo prodotte nella realizzazione della galleria S. Lucia dell’Autostrada A1 Barberino del Mugello-Calenzano”
- 2014-2015 Incarico di Ricerca CNR-Itaferr “Esecuzione delle attività di sperimentazione da eseguire sui terreni condizionati del passante AV del nodo ferroviario di Firenze”.

- 2013-2017 FP7 People-2012-IAPP European Project – Microbial Community-based sequencing analysis linked to anthropogenic pressures: MicroCoKit to address the water quality - IndustryAcademia Partnerships and Pathways - MicroCoKit, n° 324518
- 2014-2018 COST Action European Project BioLink: Linking belowground biodiversity and ecosystem function in European forests (COST Action number: FP1305, European Cooperation in Science and Technology), Assistant in the WG3 Action “Belowground biodiversity in plantations and tree crops”
- 2012–2014 Italian Research Project “Pioppi – Experimental application of phytoremediation techniques at ex-campo Cimino– Manganecchia site, Taranto, Italy”- funded by CISA SPA
- 2012-2013 Research Project SOS-(Save Our Soil): Monitoraggio e recupero di suoli degradati mediante tecnologie innovative: Studio e messa a punto di un servizio integrato prototipale finalizzato al recupero di suoli agrari degradati facilmente spendibile dalle aziende partner del raggruppamento.
- 2012-2014 “Bioremediation and Rhizoremediation of Polychlorinated Biphenyls (PCBs) Contaminated Soils”, IRSA-CNR-CSIR (National Environmental Engineering Research Institute, Nagpur, India) Bilateral Agreement
- Since 2012- Collaboration with Department of Soil and Water Conservation and Organic Waste Management, Murcia, and the Department of Agrochemistry and Environment, Miguel Hernandez University, Alicante, Spagna – for studying the compost application to soil in order to improve the quality of degraded soil
- 2012 National Project “Indagini per una caratterizzazione del sito di Cecchina (Albano)”, dell’Istituto di Ricerca sulle Acque- per l’analisi della falda sottostante la discarica di Roncigliano (Albano Laziale) per Pontina Ambiente s.r.l., gestore della discarica.
- 2011 - 2012 Collaboration with ENEA Casaccia (laboratorio l’Unità Tecnica Fonti Rinnovabili – Biomasse (UTRINN BIO, Dott. G. Izzo) for the identification of natural microbial communities able to produce H<sub>2</sub> by dark fermentation
- 2010-2012 Scientific responsible of the Project “Assessment of the natural capacity of soil and surface water ecosystems to degrade pharmaceutical” in collaboration with Prof. Edward - Topp dell’Agriculture and Agri-Food Canada - Southern Crop Protection and Food Research Center London, ON.
- 2005-2012 IRSA CNR-Complutense University of Madrid collaboration “Isolation and characterization of bacteria involved in pharmaceutical degradation using chemical and microbiological methods”
- 2008 - 2010 “Development of a database on the ecotoxicological properties of hazardous chemicals for the Reach regulation accomplishment” - funded by Italian Ministry for the Environment and Territory (available on line at: <http://www.dsa.minambiente.it/sitodesc/>).
- 2008 – 2009 Research Project “Study of the bacterial community involved in degradation of striazone herbicides in maize and cane sugar rhizosphere”, in cooperation with Prof. Luciane Sene, Università Estadual do Oeste do Parana di Cascavel – Brazil, funded by CNPq (CNPq Processo 473931/20087).
- 2007 – 2008 “Adsorption and degradation of pesticides in soils modified with low cost biomaterials: Study of the microbial communities responsible for the biodegradation” funded by the IRSA-CNR/IRNA-CSIC Bilateral Agreement ItalySpain.
- 2006 -2008 “Environmental Impact and Soil Remediation in Contaminated Areas – Evaluacion de Impacto Ambiental Y Recuperacion del Medio Natural en Emplazamientos Contaminados (EIADES)” – funded by “Comunidad de Madrid.”
- 2005 – 2006 “Molecular probes as biosensor of potential degrading microbial activity in contaminated agricultural and industrial soils” funded by IRSACNR/CENIMCSIC Bilateral Agreement Italy – Spain
- 2003 – 2005 “Evaluation and improvement of water quality models for application to temporary waters in Southern European catchments.” TempQsim - European Union Project 3
- 2000 – 2001 “The environmental and health problems caused by the presence in groundwater of pesticides and their transformation products” - Italian Environmental Ministry and

Health Institute. • 2000 – 2002 “Evaluation of herbicides and their main transformation product concentrations in groundwater and soil organisms”- CNR Strategic Project – Territory and Environment.

• 2000 – 2002 “Study of biodegradation of triazine herbicides in soil in the presence of nitrogenous fertilizers”. CNR Strategic Project – Territory and Environment.

Expert consultant in the evaluation of research projects and referee for various international scientific journals

Participating in an IRSA-CNR Working group for the priority substances in water of the EU Water Frame Directive (2000/60/EC e 2008/105/EC).

Participating in task-force of technical experts together with ISPRA, ISS, Environmental Ministry and Evaluation of Environmental Impact Commission (development of an operational Protocol to verify the qualification of debris produced during the excavation process of tunnels with TBM and its possible re-use as by-products).

Editorial board of various Journals and editor of books (*\*Soil biological communities and ecosystem resilience\**, Springer Series *\*Sustainability in Plant and Crop Protection\**; *'eBook: Soil Biological Communities and Aboveground Resilience. COST Action FP1305 BioLink-Linking belowground biodiversity and ecosystem function in European forests, Proceedings of the 3rd Annual Meeting - Rome, 17-19 November 2015. Publisher: Water Research institute, National Research Council)*

Tutor and co-tutor of students for master and PhD degree theses, tutor of research activity of grant holders.

2013 – Organizing and Teaching and Scientific Committee of the International Training Course Contaminated site remediation: Application of advanced tools to control biological processes – organized by IRSA-CNR, SETAC IB and EU Project Minotaurus, Rome 27 – 29 May

2015 Organizing and Scientific Committee of the 3th International Meeting of the COST Action Biolink FP1305 in Rome, 17-19 November

From 2004 Member of the European Society of Environmental Toxicology and Chemistry, <https://www.setac.org/>

2014 Vice-President Italian Branch of the European Society for Environmental Toxicology and Chemistry- SETAC ILB

2014 - 2017 President SETAC ILB <http://italianbranch.setac.org/>

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### Selected Publications

Volpe A., Pagano M., Mascolo G., Grenni P. Rossetti S., **2016**. Biodegradation of UV-filters in marine sediments. *Science of the Total Environment* 14, 575:448-457.

Ancona V, Barra Caracciolo A, **Grenni P**, Di Lenola M, Campanale C, Calabrese A, Uricchio VF, Mascolo G, Massacci A, **2016**. Plant-assisted bioremediation of a historically PCB and heavy metal-contaminated area in Southern Italy. *New Biotechnology Journal*, Special Issue: S1 Bioremediation Advances. DOI 10.1016/j.nbt.2016.09.006

**Grenni P**, Patrolecco L, Ademollo N, Di Lenola M, Barra Caracciolo A, **2016**. Seasonal persistence of Gemfibrozil in a river ecosystem. *Microchem J* <http://dx.doi.org/10.1016/j.microc.2016.11.018>

Barra Caracciolo A, **Grenni P**, Rauseo J, Ademollo N, Cardoni M, Patrolecco L, **2016**. Effects on the natural microbial community of the antibiotic Ciprofloxacin in an urbanized stretch of the river Tiber *Microchem J*. doi: 10.1016/j.microc.2016.12.008

- Grenni P**, Ancona V, Cardoni M, Barra Caracciolo A, **2016**. Ecological effects of antibiotics on natural ecosystems *Microchem J*
- Matturro B, Ubaldi C, **Grenni P**, Barra Caracciolo A, Rossetti S, **2016**. Polychlorinated biphenyl (PCBs) anaerobic degradation in marine sediments: microcosm study and role of the autochthonous microbial communities. *Environmental Science and Pollution Research*, Special Issue: Integrated environmental characterization of the contaminated marine coastal area of Taranto, Ionian Sea (southern Italy) - the RITMARE Project, 23 (13) 12613–12623. DOI: 10.1007/s11356-015-4960-2
- Barra Caracciolo A, Bustamante MA, Nogues I, Di Lenola M, Luprano ML, **Grenni P**, **2015**. Changes in microbial community structure and functioning of a semiarid soil due to the use of anaerobic digestate derived composts and rosemary plants. *Geoderma* 245–246:89-97.
- Barra Caracciolo A, Topp E, **Grenni P**, **2014**. Pharmaceuticals in the environment: Biodegradation and effects on natural microbial communities. A review. *Journal of Pharmaceutical and Biomedical Analysis*, Special Issue Analytical Approaches 106: 25-36.
- Grenni P**, Patrolecco L, Ademollo N, Di Lenola M, Barra Caracciolo A, **2014**. Capability of the natural microbial community in a river water ecosystem to degrade the drug Naproxen. *Environmental Science and Pollution Research*, 21 (23): 13470-13479
- Di Lenola M, Barra Caracciolo A, Falconi F, Cinicia M, **Grenni P**, **2013**. Bacterial community structure and their changes in contaminated ecosystems. *Environmental Engineering and Management Journal*, 12 (S11): 161-164.
- Barra Caracciolo A, De Donato G, Finizio A, Grenni P, Santoro S, Petrangeli AB, **2013**. A New Online Database on Chemicals in Accordance with REACH Regulation. *Human and Ecological Risk Assessment* 19: 1682-1699.
- Barra Caracciolo A, Bottoni P, **Grenni P**, **2013**. Microcosms studies to evaluate microbial potential to degrade pollutants in soil and water ecosystems. *Microchemical Journal* 107: 126-130.
- Grenni P**, Patrolecco L, Ademollo N, Tolomei A, Barra Caracciolo A, **2013**. Degradation of gemfibrozil and naproxen in a river water ecosystem. *Microchemical Journal* 107: 158-164.
- Bottoni P, **Grenni P**, Lucentini L, Barra Caracciolo A, **2013**. Terbutylazine and other triazines in Italian water resources. *Microchemical Journal* 107: 136-142.
- Patrolecco L, Ademollo N, **Grenni P**, Tolomei A, Barra Caracciolo A, Capri S, **2013**. Simultaneous determination of human pharmaceuticals in water samples by solid phase extraction and HPLC with UV-Fluorescence detection. *Microchemical Journal* 107: 165-171.
- Grenni P**, Rodríguez-Cruz MS, Herrero-Hernández E, Marín-Benito JM, Sánchez-Martín MJ, Barra Caracciolo A, **2012**. Effects of Wood Amendments on the Degradation of Terbutylazine and on Soil Microbial Community Activity in a Clay Loam Soil. *Water Soil & Air Pollution* 223: 5401-5412.
- Barra Caracciolo A, **Grenni P**, Mascolo G, Caputo MC, Uricchio V, **2011**. Pharmaceutical waste disposal in a disused open quarry: assessment of its effects on bacterial communities in soil and groundwater. *Chemistry and Ecology* 27: 43-51
- Barra Caracciolo A, **Grenni P**, Saccà ML, **2010**. Effect of the Antiviral Drug Oseltamivir (Tamiflu) on the Bacterial Community Structure of a Surface Water Ecosystem Analyzed using Fluorescence *In Situ* Hybridization. *Bulletin of Environmental Contamination and Toxicology* 85: 443-446
- Barra Caracciolo A, **Grenni P**, **2010**. Microbial ecology methods for assessing the effects of xenobiotics in water and soil ecosystems. *Comparative Biochemistry and Physiology Part A Molecular & Integrative Physiology* 157, S1–S2: S56

- Barra Caracciolo A, **Grenni P**, Saccà ML, Amalfitano S, Martin M, Gibello A, **2010**. The role of a groundwater bacterial community in the degradation of the herbicide terbuthylazine. *FEMS Microbiology Ecology* 71:127-136
- Barra Caracciolo A, Bottoni P, **Grenni P**, **2010**. The use of the Fluorescence *In Situ* Hybridization method in soil and water ecosystems: a new approach for studying the effect of xenobiotics on bacterial community structure. *Toxicological & Environmental Chemistry* 92: 567-579
- Gibello A, Vela AI, Martin M, Barra Caracciolo A, **Grenni P**, Fernandez Garayzabal JF, **2009**. Proposal for the classification the genus *Tetrathiobacter* Ghosh et al. 2005 to the genus *Advenella* Coenye et al 2005. *International Journal of Systematic and Evolutionary Microbiology* 59: 1914-1918
- Grenni P**, Barra Caracciolo A, Rodriguez-Cruz M.S, Sanchez-Martin M.J. **2009**. Changes in the microbial activity in a soil amended with oak and pine residues and treated with linuron herbicide. *Applied Soil and Ecology* 41: 2-7.
- Grenni P**, Gibello A, Barra Caracciolo A, Fajardo C, Nande M, Sacca ML, Martinez Inigo MJ, Ciccoli R, Martin M, **2009**. A new fluorescent oligonucleotide probe for *in situ* detection of s-triazine-degrading *Rhodococcus wratislaviensis* in contaminated groundwater and soil samples. *Water Research* 43: 2999-3008
- Amalfitano S, Fazi S, Zoppini A, Barra Caracciolo A, **Grenni P**, Puddu A. **2008**. Responses of benthic bacteria to experimental drying in sediments from Mediterranean temporary rivers. *Microbial Ecology* 55: 270-279
- Martín M, Gibello A, Lobo C, Nande M, Garbi C, Fajardo C, Barra Caracciolo A, **Grenni P**, Martínez-Iñigo MJ, **2008**. Application of fluorescence *in situ* hybridization technique to detect simazine-degrading bacteria in soil samples. *Chemosphere* 71: 703-710
- Accinelli C, Barra Caracciolo A, **Grenni P**, **2007**. Degradation of the antiviral drug oseltamivir carboxylate in surface water samples. *International Journal of Environmental Analytical Chemistry* 87: 579-587
- Barra Caracciolo A, Giuliano G, **Grenni P**, Cremisini C, Ciccoli R, Carla U, **2005**. Effect of urea on degradation of terbuthylazine in soil. *Environmental Toxicology and Chemistry* 24: 1035-1040
- Barra Caracciolo A, Giuliano G, **Grenni P**, Guzzella L, Pozzoni F, Bottoni P, Fava L, Crobe A, Orrù M, Funari E. **2005**. Degradation and leaching of the herbicides metolachlor and diuron: a case study in an area of Northern Italy. *Environmental Pollution* 134: 525-534
- Barra Caracciolo A, **Grenni P**, Ciccoli R, Di Landa G, Cremisini C, **2005**. Simazine biodegradation in soil: analysis of bacterial community structure by *in situ* hybridization. *Pest Management Science* 61: 863-869
- Barra Caracciolo A, **Grenni P**, Cupo C, Rossetti S, **2005**. In Situ Analysis of native microbial communities in complex samples with high particulate loads. *FEMS Microbiology Letters* 253: 55-58.