ELENCO DELLE PUBBLICAZIONI PRESENTATE

1. Bellucci M.; Marazzi F.; Musatti A.; Fornaroli R.; Turolla A.; Visigalli S.; Bargna M.; Bergna G.; Canziani R.; Mezzanotte V.; Rollini M.; Ficara E. (2021).” Assessment of anammox, microalgae and white-rot fungi-based processes for the treatment of textile wastewater”. PLOS ONE, 16(3): e0247452. https://doi.org/10.1371/journal.pone.0247452

2. Bani A., Parati K., Pozzi A., Previtali C., Bongioni G., Pizzera A., Ficara E., and Bellucci M. (2020) “Comparison of the Performance and Microbial Community Structure of Two Outdoor Pilot-Scale Photobioreactors Treating Digestate”. Microorganisms, 8(11), 1754; https://doi.org/10.3390/microorganisms8111754.

3. M. Bellucci, L. Borruso , L.Brusetti, P. Russo, L. Beneduce (2020). “Microbial community dynamics and process performance of a full scale two-stage anaerobic digester under the replacement from energy crop to poultry manure”. Journal of Chemical Technology & Biotechnology. doi.org/10.1002/jctb.6286.

4. M. Mantovani, F. Marazzi, R. Fornaroli, M. Bellucci, E. Ficara and V. Mezzanotte (2019) “Outdoor pilot-scale raceway as a microalgae-bacteria sidestream treatment in a WWTP”. Science of the total environment. doi.org/10.1016/j.scitotenv.2019.135583.

5. Bellucci M.; Marazzi F.; Naddeo S.L.; Piergiacomo F.; Beneduce L.; Elena F. and Mezzanotte V. (2019) “Disinfection and nutrient removal in lab-scale photobioreactors for wastewater tertiary treatment”. Journal of Chemical Technology & Biotechnology. doi.org/10.1002/jctb.6010.

6. Ciccazzo S.; Borruso L.; Bellucci M.; Beneduce L., Borruso L. (2018). “Metataxonomy and functionality of wood-tar degrading microbial consortia”. J Hazard Mater. 2018 Jul 5;353:108-117. doi: 10.1016/j.jhazmat.2018.03.041.

7. Beneduce, L., Gatta, G., Bevilacqua, A., Libutti, A., Tarantino, E., Bellucci, M., Troiano, E., Spano, G. (2017), "Impact of the reusing of food manufacturing wastewater for irrigation in a closed system on the microbiological quality of the food crops”. International Journal of Food Microbiology. Volume 260, 2 November 2017, Pages 51-58.

8. Bellucci M., Botticella, G., Francavilla M., Beneduce L. (2016), "Inoculum Pretreatment Affects The Fermentative Activity Of Hydrogen Producing Communities In Presence Of 5-Hydroxymethylfurfural". Applied Microbiology and Biotechnology, Jan 100 (1):493-504.

9. Bellucci M., Bernet N., Harmand J., Godon JJ. and Milferstedt K (2015). “Invasibility of resident biofilms by allochthonous communities in bioreactors”. Water Research 81:232-239.

10. Bellucci M., I.D. Ofiţeru, L. Beneduce, I. M. Head, D.W. Graham, and T.P. Curtis (2015). “A preliminary and qualitative study of resource ratio theory to nitrifying lab-scale bioreactors”. Microbial Biotechnology, May;8(3):590-603.

11. Bellucci, M., Ofiţeru, I.D., Head, I. M., Curtis, T.P., and D.W. Graham (2013). “Nitrification in Hybrid Bioreactors Treating Simulated Domestic Wastewater”. Journal of Applied Microbiology, Aug; 115(2):621-30.

12. Bellucci M., Ofiţeru, I.D., Head, I. M., Graham, D.W., and T.P. Curtis. (2011). “Low Dissolved Oxygen Nitrifying Systems Exploit Ammonia-Oxidizing Bacteria With Unusually High Yield”. Applied and Environmental Microbiology”. Applied and Environmental Microbiology, 77: 7787-7796.

TESI DI DOTTORATO

EMPIRICAL AND THEORETICAL APPROACHES FOR ENGINEERING NITRIFICATION (2010), Micol Bellucci, PhD thesis at Newcastle University

Alif CHEBBI, PhD - *Elenco delle pubblicazioni e della di dottorato -Pubblicazioni Presentabili (12 oltre la tesi dottorato)-05/12 Microbiologia-BIO/19 Università degli Studi Roma Tre*

1. PhD thesis: Alif CHEBBI_ National Engineering School of Sfax, University of Sfax, Tunisia **(2017)**
2. *Burkholderia thailandensis* E264 as a promising safe rhamnolipids' producer towards a sustainable valorization of grape marcs and olive mill pomace **(2021)**.
   Alif Chebbi, Massimiliano Tazzari, Cristiana Rizzi, Franco Hernan Gomez Tovar, Sara Villa, Silvia Sbaffoni, Mentore Vaccari, Andrea Franzetti, ***Applied Microbiology and Biotechnology***, 105:3825-3842 **(IF: 4.8)**
3. Potentials of winery and olive oil residues for the production of rhamnolipids and other biosurfactants: A step towards achieving a circular economy model **(2021)**.
   Alif Chebbi, Andrea Franzetti, Francine Duarte Castro, Franco Hernan Gomez Tovar, Massimiliano Tazzari, Silvia Sbaffoni, Mentore Vaccari, ***Waste and Biomass Valorization***, 12:4733–4743 **(IF: 3.8)**
4. Isolation and characterization of a novel rhamnolipid producer *Pseudomonas* sp. LGMS7 from a highly contaminated site in Ain El Arbaa region of Ain Temouchent, Algeria **(2021).**
   Abdelkrim Chaida, **Alif Chebbi**, Farid Bensalah, Andrea Franzetti, ***3 Biotech*** 11:200 **(IF: 2.4)**
5. Biodegradation of hydrocarbons and biosurfactants production by a newly halotolerant *Pseudomonas* sp. strain isolated from contaminated seawater **(2021).**
   Dorra Hentati, **Alif Chebbi**, Asma Mahmoudi, Fatma Hadrich, Meriam Cheffi, Ilhem Frikha, Sami Sayadi, Mohamed Chamkha, ***Biochemical Engineering Journal***, 107861: 166 **(IF: 3.97).**
6. A non-toxic microbial surfactant from *Marinobacter hydrocarbonoclasticus* SdK644 for crude oil solubilization enhancement **(2018)**.
   Billal Zenati**, Alif Chebbi**, Abdelmalek Badis, Kamel douaouda, Hocin Boutoumi, Mohamed El Hattab, Dorra Hentati, Manel Chelbi, SamiSayadi, Mohamed Chamkha & Andrea Franzetti, ***Ecotoxicology and environmental safety*** 154: 100-107. (**IF: 3.97**)
7. Polycyclic aromatic hydrocarbon degradation and biosurfactant production by a newly isolated *Pseudomonas* sp. strain from used motor oil-contaminated soil **(2017)**.
   Alif Chebbi, Dorra Hentati, Hatem Zaghden, Nidhal, Baccar, Fatma Rezgui, Manel Chalbi, Sami Sayadi & Mohamed Chamkha. ***International Biodeterioration and Biodegradation*** 122: 128-140. **(IF= 2,962)**.
8. Rhamnolipids from non-pathogenic *Burkholderia thailandensis* E264: Physicochemical characterization, antimicrobial and antibiofilm efficacy against oral hygiene related pathogens **(2017)**. Mohamed Elshikh, Scott Funston, **Alif Chebbi**, Syed Ahmed, Roger Marchant & Ibrahim M. Banat. ***New Biotechnology*** 36: 26-36. **(IF= 3,813).**
9. Rhamnolipids from *Pseudomonas aeruginosa* strain W10: As antibiofilm/antibiofouling products for metal protection (2**017**).
   Alif Chebbi, Mohamed Elshikh, Farazul Haque, Sayed Ahmed, Sara Dobbin, Roger Marchant, Sami Sayadi, Mohamed Chamkha & Ibrahim M. Banat **(2017)**. ***Journal of Basic Microbiology*** 57: 364-375. **(IF=1,585).**
10. Biodegradation of malodorous thiols by a *Brevibacillus* sp. strain isolated from a Tunisian phosphate factory. **(2015)**.
    Alif Chebbi, Najla Mhiri, Fatma Rezgui, Najoua Ammar, Amina Maalej, Sami Sayadi & Mohamed Chamkha. ***FEMS Microbiology Letters***. 362 (14): fnv097. **(IF=2,121)**.
11. A moderately thermophilic and mercaptan-degrading *Bacillus licheniformis* strain CAN55 isolated from gas-washing wastewaters of the phosphate industry, Tunisia. (**2014**).
    Alif Chebbi, Sami Mnif, Najla Mhiri, Lobna Jlaiel, Sami Sayadi & Mohamed Chamkha**. *International Biodeterioration and Biodegradation*** 94: 207-213. **(IF=2,235)**.
12. Production, characterization and biotechnological potential of lipopeptide biosurfactants from a novel marine Bacillus stratosphericus strain FLU5 **(2019)**.
    Hentati Dorra, **Alif Chebbi**, Hadrich Fatma, Ines Frikha, Rabanal Francesc, Sami Sayadi, Angeles Manresa, and Mohamed Chamkha, ***Ecotoxicology and environmental safety*** 167:441-449. **(IF: 3.97)**.
13. Promising abilities of mercapto-degrading *Staphylococcus capitis* strain SH6 in both crude oil and waste motor oil as sole carbon and energy sources: its biosurfactant production and preliminary characterization **(2017)**.
    Alif Chebbi, Rihab Bouabdallah, Dorra Hentati, Meriam Cheffi, Sami Sayadi & Mohamed Chamkha. ***Journal of Chemical Technology and Biotechnology*** **(IF=3,15)**.

Elenco pubblicazioni e tesi di dottorato – Daniele Ghezzi

- Articolo #1:
  Cappelletti M, **Ghezzi D**, Zannoni D, Capaccioni B, Fedi S. 2016. Diversity of methane-oxidizing bacteria in soils from "Hot Lands of Medolla" (Italy) featured by anomalous high-temperatures and biogenic CO_2 emission. *Microbes and Environments.* doi: 10.1264/jsme2.ME16087

- Articolo #2:
  Sauro F, Cappelletti M, **Ghezzi D**, Columbu A, Hong P, Zowawi H, Carbone C, Piccini L, Vergara F, Zannoni D, De Waele J. 2018. Microbial diversity and biosignatures of amorphous silica deposits in orthoquartzite caves. *Scientific Reports.* doi: 10.1038/s41598-018-35532-y

- Articolo #3:
  D'Angeli IM, **Ghezzi D**, Leuko S, Firrincieli A, Parise M, Fiorucci A, Vigna B, Addesso R, Baldantoni D, Carbone C, Miller AZ, Jurado V, Saiz-Jimenez C, De Waele J, Cappelletti M. 2019. Geomicrobiology of a seawater-influenced active sulfuric acid cave. *Plos One.* doi: 10.1371/journal.pone.0220706 **(co-first author)**

- Articolo #4:
  Ghezzi D, Filippini M, Cappelletti M, Firrincieli A, Zannoni D, Gargini A, Fedi S. 2021. Molecular characterization of microbial communities in a peat-rich aquifer system contaminated with chlorinated aliphatic compounds. *Environmental Science and Pollution Research*. doi: 10.1007/s11356-020-12236-3

- Articolo #5:
  Ghezzi D, Sauro F, Columbu A, Carbone C, Hong P, Vergara F, De Waele J, Cappelletti M. 2021. Transition from unclassified *Ktedonobacterales* to *Actinobacteria* during amorphous silica precipitation in a quartzite cave environment. *Scientific Reports.* doi: 10.1038/s41598-021-83416-5

- Articolo #6:
  Graziani G, Barbaro K, Fadeeva IV, **Ghezzi D**, Fosca M, Sassoni E, Vadalà G, Cappelletti M, Valle F, Baldini N, Rau JV. 2021. Ionized jet deposition of antimicrobial and stem cell friendly silver-substituted tricalcium phosphate nanocoatings on titanium alloy. *Bioactive Materials*. doi: 10.1016/j.bioactmat.2020.12.019

- Articolo #7:
  Jurado V, D'Angeli I, Martin-Pozas T, Cappelletti M, **Ghezzi D**, Gonzales-Pimentel JL, Cuezva S, Miller AZ, Fernandez-Cortes A, De Waele J, Sanchez-Moral S, Saiz-Jimenez C. 2021. Dominance of *Arcobacter* in the white filaments from the thermal sulfidic spring of Fetida Cave (Apulia, southern Italy). *Science of The Total Environment*. doi: 10.1016/j.scitotenv.2021.149465

- Tesi di dottorato:
  Microbial diversity and metabolic potential in caves.

19th October 2021

List of publications

- Borruso L, Bani A, **Pioli S**, Ventura M, Panzacchi P, Antonielli L, Giammarchi F, Polo A, Tonon G and Brusetti L. 2021. Do aerial nitrogen depositions affect fungal and bacterial communities of oak leaves? Front. Microbiol. 12:633535. doi: 10.3389/fmicb.2021.633535

- Ceci, A., Angelini, P., Iotti, M., Lalli, G., Leonardi, M., Pacioni, G., Perrone, L., **Pioli, S**., .. & Persiani, A.M. 2020*. Values and challenges in the assessment of coprophilous fungi according to the IUCN red list criteria: The case study of Poronia punctata (Xylariales, Ascomycota)*. Plant Biosystems-An International Journal Dealing with all Aspects of Plant Biology, 1-5.

- **Pioli, S.,** Sarneel, J., Thomas, H. J., Domene, X., Andrés, P., Hefting, M., ... & Brusetti, L. 2020. *Linking plant litter microbial diversity to microhabitat conditions, environmental gradients and litter mass loss: Insights from a European study using standard litter bags*. Soil Biology and Biochemistry, 107778.

- Bani, A., Borruso, L., Matthews Nicholass, K. J., Bardelli, T., Polo, A., **Pioli, S.**, ... & Brusetti, L. 2019. *Site-Specific Microbial Decomposer Communities Do Not Imply Faster Decomposition: Results from a Litter Transplantation Experiment*. Microorganisms, 7(9), 349.

- **Pioli, S.**, Antonucci, S., Giovannelli, A., Traversi, M. L., Borruso, L., Bani, A., ... & Tognetti, R. 2018. *Community fingerprinting reveals increasing wood-inhabiting fungal diversity in unmanaged Mediterranean forests*. Forest Ecology and Management, 408, 202-210. doi: 10.1016/j.foreco.2017.10.052

- Bani, A.*, **Pioli, S.***, Ventura, M., Panzacchi, P., Borruso, L., Tognetti, R., ... & Brusetti, L. 2018. *The role of microbial community in the decomposition of leaf litter and deadwood*. Applied Soil Ecology, 126, 75-84. doi: 10.1016/j.apsoil.2018.02.017

- Parisi, F.*, **Pioli, S.***, Lombardi, F., Fravolini, G., Marchetti, M., & Tognetti, R. 2018. *Linking deadwood traits with saproxylic invertebrates and fungi in European forests-a review.* iForest-Biogeosciences and Forestry, 11(3), 423. doi: 10.3832/ifor2670-011

- Bani, A., Borruso, L., Fornasier, F., **Pioli, S.**, Wellstein, C., & Brusetti, L. 2018. *Microbial Decomposer Dynamics: Diversity and Functionality Investigated through a Transplantation Experiment in Boreal Forests.* Microbial ecology, 1-11. doi: 10.1007/s00248-018-1181-5

- Persiani, A.M., Lombardi, F., Lunghini, D., Granito, V., Tognetti, R., Maggi, O., **Pioli,** S., & Marchetti M. 2015. *Stand structure and deadwood amount influences saproxylic fungal biodiversity in Mediterranean mountain unmanaged forests.* iForest-Biogeosciences and Forestry, 9, 15-124 doi: 10.3832/ifor1304-008

* These authors equally contributed to the work

Doctoral thesis:

- Habitat preferences of wood-inhabiting fungal communities across different biomes: a conservation perspective. 2017. PhD in Mountain Environment and Agriculture (XXXth cycle). PhD Coordinator: Prof. Giustino Tonon Supervisor: Prof. Roberto Tognetti Co-Supervisor: Dr. Lorenzo Brusetti. Candidate: **Silvia Pioli**

INFORMAZIONI PERSONALI

Micol Bellucci

RICERCATRICE IN BIOTECNOLOGIE AMBIENTALI CON ESPERIENZA PLURIENNALE NEL CAMPO DEL TRATTAMENTO DELLE ACQUE REFLUE

ESPERIENZA PROFESSIONALE

1/02/2020–Oggi

Ricercatore a tempo determinato (prot n. 2021/4177 del 01/02/2021)

ISPRA, Istituto Superiore per la Protezione e la Ricerca Ambientale, Roma (Italia)

Ricerca nell'ambito della convenzione ISPRA-MATTM (progetto S000RIN1) sullo studio degli effetti biologici su suoli agricoli derivanti dal riutilizzo dei fanghi da depurazione di acque reflue.

Attività:

- Saggi ecotossicologici basati su crostacei, piante e microalghe;
- Analisi e creazione di database per la definizione di soglie di tossicità specifica per varie tipologie di sostanze chimiche;
- Analisi del pericolo ecotossicologico e analisi di rischio ambientale;
- Definizione di criteri per la cessazione di qualifica di rifiuto.

16/03/2020–31/01/2021

Assegnista di ricerca (prot. N. 38630 del 04/03/2020)

Dipartimento di Ingegneria Civile e Ambientale, Politecnico di Milano, Milano (Italia)

Ricerca nell'ambito del progetto WAST4BIOPLAST (turning wastewater into valuable bioplastics) per lo sviluppo di filiere di trattamento innovative da integrare negli impianti di depurazione delle acque reflue per il recupero di nutrienti e la valorizzazione (bioplastiche) della sostanza organica concentrata nei fanghi di depurazione e/o prodotta attraverso la coltivazione di microalghe all'interno del depuratore stesso.

Attività:

- Analisi chimico-fisico di reflui civili e industriali, fanghi di depurazione e sospensioni microalgali (composti azotati, solidi totali e sospesi, COD, BOD, pH, torbidità);
- Gestione e monitoraggio di impianti pilota per la coltivazione delle microalghe.

21/09/2020–20/10/2020

Contratto di lavoro autonomo di natura occasionale (prot n. 108123 del 21/07/2020)

Dipartimento di Ingegneria Civile e Ambientale, Politecnico di Milano, Milano (Italia)

IDENTIFICAZIONE E QUANTIFICAZIONE DI BATTERI AMMONIO OSSIDANTI IN CAMPIONI DI FANGO ATTIVO TRAMITE ANALISI FISH.

11/2016-1/2021

Didattica integrativa

Dipartimento di Ingegneria Civile e Ambientale, Politecnico di Milano, Milano (Italia)

Esercitatore del corso di "Valutazione d'Impatto Ambientale dell'Inquinamento". Attività: Esercitazioni frontali sull'utilizzo di software per i modelli di screening utilizzati negli studi d'impatto, organizzazione e assistenza ai gruppi di lavoro.

01/05/2018–29/02/2020

Assegnista di ricerca (N. prot. 2018 III/13 N. 0042013)

Dipartimento di Ingegneria Civile e Ambientale, Politecnico di Milano, Milano (Italia)

Responsabile scientifico del progetto TRETILE (A microbe-based value chain: TREatment and valorisation of texTILE wastewater) finanziato dalla Fondazione Cariplo e Innovhub (Num. Prog. 2017-

1009) (Importo totale finanziamento: 500.000 Euro).

Il progetto ha lo scopo di sviluppare tecnologie innovative basate su tre tipologie di microrganismi per il trattamento (rimozione dell'azoto e composti recalcitranti) e valorizzazione (produzione di pigmenti, enzimi e bioenergia) di reflui generati dall'industria tessile al fine di soddisfare i principi dell'economia circolare.

Attività:

- Caratterizzazione degli scarichi di una stamperia tessile e identificazione dei reflui più adeguati da utilizzare nel corso della sperimentazione;
- Valutazione chimico-fisica, microbiologica ed ecotossicologica di reflui di origine industriale (tessile);
- Gestione e monitoraggio di impianti pilota per la coltivazione delle microalghe e per la rimozione dell'azoto tramite il processo PN-Anammox;
- Determinazione delle cinetiche di decolorazione dei reflui tessili di funghi *white-rot*;
- Monitoraggio molecolare (next generation sequencing) e/o identificazione tramite microscopio delle popolazioni microbiche (batteri e microalghe) coinvolte;
- Valutazione e quantificazione delle molecole di pregio prodotte dalle microalghe (pigmenti);
- Determinazione del potenziale metanigeno della biomassa microalgale;
- Cordinamento delle attività d ricerca dei vari partner di progetto;
- Gestione del progetto e archiviazione dei documenti necessari alla rendicontazione;
- Analisi e interpretazione dei dati e loro divulgazione;
- Partecipazione alla stesura di progetti per opportunità di finanziamento di fondi nazionali ed europei;
- Co-supervisione di tesisti.

27/03/2017–26/04/2017

Contratto di lavoro autonomo di natura occasionale

Dipartimento di Ingegneria Civile e Ambientale, Politecnico di Milano, Milano (Italia)

Quantificazione dei microrganismi fosforo accumulanti (PAO) in campioni di fango attivo tramite tecniche di biologia classica e molecolare (FISH).

01/03/2016–30/04/2018

Assegnista di ricerca - International Fellowship of Politecnico di Milano (N. prot. 15370 del 29-2-16)

Dipartimento di Ingegneria Civile e Ambientale, Politecnico di Milano, Milano (Italia)

Vincitrice della International Fellowship of Politecnico di Milano (edizione 2015)

Attività di ricerca:

- Trattamento e valorizzazione di acque reflue municipali e industriali tramite l'utilizzo di tecnologie basate sulle microalghe;
- Produzione di bioenergie (metano e idrogeno) da residui agroindustriali (siero di latte) tramite il processo di digestione anaerobica e dark fermentation;
- Operazione e gestione di reattori batch, semi-comtinui e continui in scala di laboratorio e pilota;
- Caratterizzazione comunità microalgale e batterica tramite tecniche di biologia molecolare e microbiologia classica;
- Analisi chimico-fisico di matrici ambientali (composti azotati, solidi totali e sospesi, COD, BOD, pH, torbidità, Jar tests, Indice SVI, alcalinità, BMP e BHP);
- Analisi statistica e interpretazione dati;
- Analisi dati metagenomici prodotti dalle piattaforme NGS;
- Co-supervisione di tesisti e dottorandi;
- Partecipazione alla scrittura di progetti nazionali e internazionali.

09/2015

Docente (20 ore)

Dipartimento di Scienze Agrarie, degli Alimenti e dell'Ambiente, Università degli Studi di Foggia, Foggia (Italia)

Docente del Master Universitario di I Livello in: PROGETTAZIONE E GESTIONE DI SISTEMI AGROENERGETICI A BIOMASSE. Materia d'insegnamento: Digestione anaerobica e parametri tecnici.

01/06/2015–29/02/2016

Borsista L'Oréal-UNESCO For Women in Science

Dipartimento di Scienze Agrarie, degli Alimenti e dell'Ambiente, Università degli Studi di Foggia, Foggia (Italia)

Vincitrice borsa L'ORÉAL Italia Per le Donne e la Scienza (Italia)

Riferimento: XIII Edizione (2015)

Importo totale finanziamento: 15.000 Euro.

Titolo del progetto: “Processi microbici innovativi per ottimizzare la produzione di bio-energia da scarti agroindustriali in digestori anaerobici a basso impatto ambientale”.

Attività di ricerca:

- Operazione e gestione di chemostati in scala di laboratorio per la selezione di comunità microbiche miste di batteri nitrificanti e batteri produttori di idrogeno;
- Monitoraggio dei parametri chimico-fisici dei chemostati (composti azotati, acidi grassi volatili e biogas);
- Caratterizzazione della struttura della comunità microbica selezionata tramite tecniche di biologia molecolare;
- Co-supervisione di tesisti.

20/04/2015–19/05/2015

Contratto di lavoro autonomo di natura occasionale (N. prot. 7832 data 25_3_15)

Dipartimento di Scienze Agrarie, degli Alimenti e dell’Ambiente, Università degli Studi di Foggia, Foggia (Italia)

Analisi di dati ARISA e t-RFLP su campioni DNA estratto da suolo trattato con differenti concentrazioni di biochar.

15/01/2015–14/02/2015

Contratto di lavoro autonomo di natura occasionale presso (N. prot. 763 data 15_1_15)

Dipartimento di Scienze Agrarie, degli Alimenti e dell’Ambiente, Università degli Studi di Foggia, Foggia (Italia)

Analisi della diversità microbica in digestori anaerobici tramite PCR-DGGE.

16/09/2014–15/12/2014

Borsista (Bando protocollato il 09/07/2014 numero 17624 – VII/1)

Dipartimento di Scienze Agrarie, degli Alimenti e dell’Ambiente, Università degli Studi di Foggia, Foggia (Italia)

Analisi di biofilm microbici di *Listeria monocytogenes* nell’ambito del progetto “QUAFETY - COMPREHENSIVE APPROACH TO ENHANCE QUALITY AND SAFETY OF READY TO EAT FRESH PRODUCTS” finanziato dalla Comunità Europea:

02/09/2013–01/09/2014

Assegnista di ricerca (n. prot. III/3 del 2013)

Dipartimento di Scienze Agrarie, Alimenti, Risorse Naturali e Ingegneria, Università degli Studi di Foggia, Foggia (Italia)

Ottimizzazione dell’efficienza e stabilità di digestori anaerobici tramite la manipolazione della diversità e composizione delle comunità microbiche miste produttrici di metano e idrogeno nell’ambito del progetto “STAR*AgroEnergy- Scientific & Technological Advancement in Research on Agro-Energy” finanziato dalla Comunità Europea (settimo programma quadro).

Attività di ricerca:

- Test di produzione di bioidrogeno (BHP) e biometano (BMP) da residui agro-zootecnici;
- Studio delle dinamiche di popolazione delle comunità microbiche in digestori anaerobici “one-stage” e “two-stage” tramite tecniche di biologia molecolare (PCR quantitativa e PCR-DGGE);
- Caratterizzazione delle comunità microbiche produttrici di idrogeno selezionate in reattori batch;
- Test di produzione di bioidrogeno (BHP) e biometano (BMP) da residui agro-zootecnici;
- Monitoraggio e controllo digestori anaerobici in scala pilota e reale;
- Studio delle dinamiche di popolazione delle comunità microbiche in digestori anaerobici “one-stage” e “two-stage”;
- Caratterizzazione chimico-fisica delle biomasse utilizzate per la produzione di metano e idrogeno, della frazione liquida e solida prodotta dai digestori anaerobici e fermentatori e del digestato;
- Co-supervisione di tesisti.

16/09/2013–27/09/2013

Docente (36 ore)

EIDENAR, Universidad del Valle, Santiago de Cali (Colombia)

Docente del corso di specializzazione per dottorandi in tecniche di biologia molecolare utilizzate in ingegneria ambientale (2nd workshop on “Application of Molecular Techniques in Environmental Samples and Bioreactors”).

Riferimento: https://wamtesb.wordpress.com/

15/09/2011–14/03/2013

Ricercatrice a tempo determinato

Laboratoire de Biotechnologie de l'Environnement, INRA, Narbonne (Francia)

Attività di ricerca nell'ambito del progetto "DISCO - Multi-scale modelling bioDIversity Structure Coupling in biofilms" finanziata da French Research Agency. Titolo del 4rogetto "Interactions between native biofilm communities and allochthonous microbial strains/consortia".

Attività di ricerca:

- Studio sulla capacità invasiva di ceppi batterici alloctoni e colture miste in biofilm;
- Caratterizzazione delle comunità microbiche in biofilm tramite tecniche di biologia molecolare (PCR quantitativa e PCR-SSCP);
- Isolamento e caratterizzazione di nuovi ceppi batterici da campioni di biofilm;
- Operazione di reattori biologici per la crescita di biofilm multi-specie;
- Mantenimento e crescita di culture pure;
- Analisi statistiche delle dinamiche di popolazioni batteriche (ANOSIM, PCA, PcoA).

30/11/2010–31/08/2011

Ricercatrice Internazionale JSPS

Department of Chemical Engineering, Tokyo University of Agriculture and Technology, Tokyo (Giappone)

Vincitrice JSPS Postdoctoral Fellowship for Foreign Researcher (project number P10781).

Titolo 4rogetto: "Are low energy nitrogen removal systems stable and environmental friendly?" (project number P10781).

Importo totale finanziamento: ca. 100.000 Euro in Yen Giapponesi.

Il progetto aveva lo scopo di sviluppare delle tecnologie economiche e a basso impatto ambientale per il trattamento dell'azoto in acque reflue civili.

Attività di ricerca:

- Operazione e gestione di chemostati in scala di laboratorio;
- Monitoraggio della rimozione del COD e azoto in reattori biologici tramite analisi chimiche e fisiche;
- Monitoraggio del rilascio di NO e N_2O da parte delle comunità batteriche nitrificanti in ambienti anossici o con carenza di ossigeno;
- Applicazione di teorie ecologiche per la manipolazione delle comunità batteriche ammonio-ossidanti e nitrito-ossidanti;
- Caratterizzazione delle comunità batteriche nitrificanti tramite l'applicazione di tecniche di biologia molecolare;
- Studio del metabolismo dei batteri ammonio-ossidanti selezionati in ambienti con carenza di ossigeno;
- Correlazione tra comunità batteriche e concentrazione delle risorse nell'ecosistema.

01/10/2009–30/06/2010

Ricercatrice a tempo determinato

School of Civil Engineering and Geosciences, Newcastle University, Newcastle upon Tyne (Regno Unito)

Attività di ricerca dell'ambito del progetto "PLATFORM - General and Unifying Concepts for Wastewater Treatment Plant Design" finanziato da EPSRC. Titolo del 4rogetto "Calibration and further development of a rapid quantification method for bacteria".

Attività di ricerca:

- Sviluppo di tecniche quantitative per il monitoraggio di popolazioni batteriche in matrici ambientali;
- Monitoraggio della rimozione del COD, fosforo e azoto in impianti di depurazione di acque reflue;
- Identificazione di microrganismi responsabili della rimozione del fosforo (PAO) tramite la FISH in liquido e lo spettrofluorimetro;
- Realizzazione di curve di calibrazione per la quantificazione di PAO;
- Correlazione tra quantità di PAO e tasso di rimozione del fosforo.

14/06/2010–25/06/2010

Docente (36 ore)

EIDENAR, Universidad del Valle, Santiago de Cali (Colombia)

Docente nel corso di specializzazione per dottorandi in tecniche di biologia molecolare utilizzate in ingegneria ambientale (1st workshop on "Application of Molecular Techniques in Environmental Samples and Bioreactors").

01/09/2006–31/08/2009

Marie Curie Junior Researcher

School of Civil Engineering and Geosciences, Newcastle University, Newcastle upon Tyne (Regno Unito)

Attività di ricerca nell'ambito del progetto "ECOSERV – designed ecosystem services for biological treatment" finanziato Comunità Europea (Marie Curie Program). La ricerca svolta e' parte integrante del dottorato di ricerca il cui titolo è "Empirical and Theoretical Approaches for Engineering Nitrification".

19/02/2009–02/03/2009

Docente (36 ore)

Department of Biochemical Eng. & Biotechnology, IIT Delhi, New Delhi (India)

Docente nel corso di specializzazione per dottorandi in tecniche di biologica molecolare utilizzate in ingegneria ambientale ("A Molecular Biology Approach for Environmental Engineering").

19/01/2009–05/02/2009

Tirocinio

Department of Microbial Ecology, University of Vienna, Vienna (Austria)

Attività:

- Applicazione della tecnica FISH in campioni ambientali con popolazioni microbiche miste;
- Utilizzo del microscopio confocale per la caratterizzazione e la quantificazione di popolazioni batteriche nitrificanti ibridate con sonde molecolari fluorescenti.

01/09/2004–27/10/2005

Tirocinio

CNR- Istituto di Ricerca Sulle Acque, Roma (Italia)

Svolgimento della tesi di laurea.

16/02/2004–31/07/2004

Tirocinio

Bretagne Biotechnologie Végétale (BBV), Saint-Pol-de-Léon (Francia)

Programma Europeo "Leonardo".

Attività di ricerca:

- Applicazione di tecniche di biologia molecolare per la mappatura genetica di marcatori a DNA (microsatelliti) correlati al gene della sterilità maschile del cavolfiore (*Brassica oleracea* var. *botrytis*);
- Realizzazione di un database di microsatelliti per il controllo di qualità del cavolfiore;
- Applicazione di tecniche di biologia molecolare vegetale: estrazione del DNA, PCR, PCR-RLFP, RAPD;
- Utilizzo di software specifici per mappatura genetica.

Premi e riconoscimenti scientifici

06/2015

Descrizione premio: Giovani innovatori in azienda

Assegnato da ARTI - Agenzia Regionale per la Tecnologia e l'Innovazione, S.P. Casamassima km, 3 - 70010 Valenzano (BA)

Altre informazioni: Progetto 134 – "H2-ready"

ISTRUZIONE E FORMAZIONE

01/09/2006–11/11/2010

Ph.D in Scienze Ambientali

Newcastle University, Newcastle Upon Tyne (Regno Unito)

Titolo "**Empirical and Theoretical Approaches for Engineering Nitrification"**

- Definizione di criteri di progettazione per sistemi biologici nitrificanti, con particolare riguardo alla riduzione di aerazione e emissione di CO_2 associati al processo;
- Monitoraggio della rimozione del COD e azoto in bioreattori nitrificanti operati in condizioni controllate;

- Applicazione di teorie ecologiche per la manipolazione di comunità batteriche ammonio-ossidanti (AOB) e nitrito-ossidanti (NOB);
- Caratterizzazione delle comunità batteriche AOB e NOB selezionate in ambienti acquatici con carenza di ossigeno;
- Identificazione e quantificazione di batteri AOB e NOB tramite PCR, PCR quantitativa e FISH;
- Analisi della biodiversità e delle dinamiche di popolazione di AOB e NOB tramite DGGE, clonaggio e sequenziamento;
- Sviluppo di modelli matematici per la simulazione delle dinamiche di popolazione batteriche.

01/09/1999–27/10/2005

Laurea in Scienze Biologiche (indirizzo Biotecnologico) 110/110 con Lode

Università di Roma "La Sapienza", Roma (Italia)

Titolo della tesi di laurea **"Studio *in situ* di microrganismi coinvolti nei sistemi di depurazione biologica tramite ibridazione con sonde molecolari fluorescenti".**

- Sviluppo di un metodo, basato sulla FISH e spettrofluorimetria, per la stima della concentrazione cellulare di microrganismi presenti in matrici ambientali;
- Taratura della tecnica con culture pure del batterio filamentoso *Acinetobacter johnsonii;*
- Applicazioni di sonde molecolari fluorescenti specifiche per rRNA 16S e per il pre-rRNA 16S.

COMPETENZE PERSONALI

Competenza digitale

Ottime conoscenza del pacchetto Office (Word, Power Point, Excel); software grafici (Adobe Illustrator™, PhotoShop™, Inkscape, ImageJ); software per la valutazione d'impatto ambientale (AerscreenEZ, Caline, QGIS); software/database scientifici in campo biologico e software statistici e di analisi dei dati (R, R studio, Minitab, PAST, Mega4, QIIME, SILVA, GenBank); software di archiviazione materiale bibbliografico e non (Mendeley, Google Drive, DropBox, Onedrive); ottima conoscenza piattaforme on line per videoconferenze, riunioni online e didattica a distanza (CISCO Webex, Teams, ZOOM, Skype).

Competenza tecnico-scientifiche

Analisi chimico-fisiche matrici ambientali: Domanda Chimica d'Ossigeno (COD), Solidi Sospesi Totali (TSS) e Volatili (VSS), alcalinità, pH, torbidità, Total Kiendal Nitrogen (TKN), determinazionel azoto totale, azoto ammoniacale, nitritii e nitrati tramite kit commerciali o metodi standard, cromatografia di scambio ionico per la determinazione dei nitriti, nitrati, fosfati e solfati (HPLC), determinazione composizione biogas e acidi volatili tramite gas cromatografia (GC e microGC), analisi metalli e composizione elementare biomassa, jar tests, indice SVI, concentrazione pigmenti in biomassa algale (clorofilla e carotenoidi), Biochemical Methane and Hydrogen production (BMP e BHP).

Analisi microbiologiche: isolamento di microrganismi e colture batteriche; conta batterica; curve di crescita e spettrofotometria, microscopia ottica e a contrasto di fase; allestimento e mantenimento di colture pure, in batch e in continuo; colorazione GRAM, Neisser e Nilo Blue, determinazione carica batteria (enterobatteri ed indicatori di contaminazione fecale (es. *Escherichia coli*), *Salmonella*, *Listeria monocytogenes*, *Pseudomonas aeruginosa*).

Analisi biologia molecolare: estrazione del DNA, PCR, PCR quantitativa (real-time PCR), PCR-DGGE, PCR-RFLP, CE-SSCP, NGS, elettroforesi in gel di agarosio e acrilamide, RAPD, marcatori genetici a DNA, clonaggio, costruzione di librerie per sequenziamento avanzato, analisi filogenetiche, design di primers e sonde molecolari, FISH (su vetrino e in campioni liquidi) e sue applicazioni per l'identificazione e quantificazione di microrganismi in campioni ambientali, microscopia a fluorescenza, microscopia a scansione laser confocale (CLSM) e relativi software (Leica, Zeiss), spettrofluorimetria.

Bioreattori: implementazione, controllo e gestione di bioreattori batch, continuo, semi-continuo e sequenziali in scala lab e pilota per la rimozione dei nutrienti (azoto e fosforo) in reflui municiplali e industriali tramite processi di nitrificazione, PN-anammox e microalghe, e per la produzione di bioenergia da scarti agro-industriali.

Competenze communicative, interpersonali e organizzative

Problem solving: ottima capacità di risolvere situazioni non prevedibili come spesso accade nelle attività di ricerca

Gestione delle relazioni e networking: eccellente capacità di intraprendere nuove relazioni e mantenere contatti professionali, fondamentali per la presentazione di progetti multidisciplinari congiunti ad enti nazionali ed europei per finanziamenti.

Leadership: capacità di gestire una squadra di lavoro, motivarla e supportarla per il raggiungimento degli

obiettivi sviluppata grazie alla responsabilità scientifica del progetto TRETILE.

Lavoro in team e autonomia: ottima capacità di lavorare in gruppo, nella gestione del lavoro di squadra e nel rispetto delle esigenze dei singoli acquisita grazie al coinvolgimento in progetti già implementati in varie università e centri di ricerca, dove l'unico modo per conseguire gli obiettivi era interagire con collaboratori con competenze complementari. Sono comunque responsabile, orientata all'obiettivo e in grado di lavorare in modo autonomo senza supervisione.

Team building: la mia indole positiva, costruttiva e di mediazione ha consentito spesso di mantenere l'ambiente di lavoro sereno e il gruppo coeso.

Empatia e capacità di ascolto: eccellente predisposizione ai rapporti con gli altri e comprensione degli stati d'animo delle persone acquisita facendo parte di gruppi di lavoro con background culturali diversi e alla supervisione di dottorandi e tesisti.

Spirito di adattamento: Eccellente capacità nella gestione di mansioni, che richiedono competenze differenti, flessibilità ed eccellente senso di adattamento sviluppate grazie ad esperienze lavorative in campi multidisciplinari in contesti universitari internazionali.

Public Speaking: ottime capacità comunicative e relazionali sviluppate durante le esperienze di docenza, la partecipazione a convegni internazionali e riunioni di progetto.

Competenze linguistiche

Lingua madre: ITALIANO

	Ascolto	Lettura	Produzione orale		Interazione orale
INGLESE	C2	C2	C1	C1	C2
FRANCESE	B2	B2	A2	A2	A1
SPAGNOLO	B2	B2	A1	A1	A1

Livelli: A1 e A2: Livello elementare B1 e B2: Livello intermedio C1 e C2: Livello avanzato

ULTERIORI INFORMAZIONI

Abilitazione scientifica nazionale

Settore Concorsuale 07/I1-Microbiologia Agraria - II Fascia- dal 12/04/2021
Settore Concorsuale 05/I2-Microbiologia - II Fascia- dal 15/09/2021

Affiliazioni

IWA (International Water Association)
AISAM (Associazione Italiana per lo Studio e le Applicazioni delle Microalghe)
ONB (Ordine Nazionale dei Biologi, iscrizione dal 14/01/2021 numero d'ordine: AA_08755)

Referenze

Prof. Thomas P. Curtis:
School of Civil Engineering and Geosciences, Cassie Building, room 1.10, Newcastle University, Newcastle upon Tyne, NE1 7RU, UK.
tom.curtis@ncl.ac.uk

Prof. Elena Ficara
Politecnico di Milano, DICA, Piazza Leonardo da Vinci 32, 20133, Milan, Italy
elena.ficara@polimi.it

Prof. Luciano Beneduce:
Dipartimento di Scienze Agrarie, Alimentari ed Ambientali, Università degli Studi di Foggia, Via Napoli 25, 71122, Foggia, Italy
luciano.beneduce@unifg.it

Patente

Tipo B Rliasciata dalla motorizzazione di Roma il 12/2/1999

Pubblicazioni

1. Bellucci M.; Marazzi F.; Musatti A.; Fornaroli R.; Turolla A.; Visigalli S.; Bargna M.; Bergna G.; Canziani R.; Mezzanotte V.; Rollini M.; Ficara E.(2021).” Assessment of anammox, microalgae and white-rot fungi-based processes for the treatment of textile wastewater”. *PLOS ONE*, 16(3): e0247452. https://doi.org/10.1371/journal.pone.0247452
2. Corbellini V.; Feng C.; Bellucci M.; Catenacci A.; Stella T.; Espinoza-Tofalos A.; Malpei F. (2021) “Performance Analysis and Microbial Community Evolution of In Situ Biological Biogas Upgrading with Increasing H 2/CO2 Ratio”. *Archaea*, Volume 2021, https://doi.org/10.1155/2021/8894455
3. Bani A., Parati K., Pozzi A., Previtali C., Bongioni G., Pizzera A., Ficara E., and Bellucci M. (2020) “Comparison of the Performance and Microbial Community Structure of Two Outdoor Pilot-Scale Photobioreactors Treating Digestate”. *Microorganisms, 8(11), 1754; https://doi.org/10.3390/microorganisms8111754*.
4. Visigalli, S.; Turolla, A.; Bellandi, G.; Bellucci, M; Clagnan, E.; Brusetti, L.; Jia, M.; Di Cosmo, R.; Menin, G.; Bargna, M.; Bergna, G.; Canziani, R. (2020). “Autotrophic nitrogen removal for decentralized treatment of ammonia-rich industrial textile wastewater: process assessment, stabilization and modelling”. *Environmental Science and Pollution Research,* https://doi.org/10.1007/s11356-020-11231-y
5. M. Bellucci, F. Marazzi, E. Ficara, V. Mezzanotte (2020). “Effect of N:P ratio on microalgae/nitrifying bacteria community in agro-digestate treatment”. *Environmental and Climate Technologies*, 2 (1), pp 136-148.
6. F. Marazzi, M. Bellucci, T. Fantasia, E. Ficara and V. Mezzanotte (2020). “ Interactions between Microalgae and Bacteria in the Treatment of Wastewater from Milk Whey Processing”. *Water*, *12* (1), 297; https://doi.org/10.3390/w12010297.
7. Rossi S., Sforza E., Pastore M., Bellucci M., Casagli, F, Marazzi, F, Ficara E. (2020). “Photo-respirometry to shed light on microalgae-bacteria consortia—a review”. Reviews in Environmental Science and Biotechnology, Volume 19, Issue 1, 1 March 2020, Pages 43-72.
8. M. Bellucci, L. Borruso , L.Brusetti, P. Russo, L. Beneduce (2020). “Microbial community dynamics and process performance of a full scale two-stage anaerobic digester under the replacement from energy crop to poultry manure”. Journal of Chemical Technology & Biotechnology. doi.org/10.1002/jctb.6286.
9. M. Mantovani, F. Marazzi, R. Fornaroli, M. Bellucci, E. Ficara and V. Mezzanotte (2019) “Outdoor pilot-scale raceway as a microalgae-bacteria sidestream treatment in a WWTP”. Science of the total environment. doi.org/10.1016/j.scitotenv.2019.135583.
10. Bellucci M.; Marazzi F.; Naddeo S.L.; Piergiacomo F.; Beneduce L.; Elena F. and Mezzanotte V. (2019) “Disinfection and nutrient removal in lab-scale photobioreactors for wastewater tertiary treatment”. *Journal of Chemical Technology & Biotechnology.* doi.org/10.1002/jctb.6010.
11. Marazzi F., Bellucci M., Fornaroli R., Bani A., Ficara E. and Mezzanotte V. (2019) “Lab-scale testing of operation parameters for algae based treatment of piggery wastewater”. *Journal of Chemical Technology & Biotechnology.* doi.org/10.1002/jctb.5972.
12. Marazzi F., Bellucci M., Rossi S., Fornaroli R., Ficara E. and V. Mezzanotte V. (2019) “Outdoor pilot trial integrating a side stream microalgae process for the treatment of centrate under non optimal climate conditions” *Algal research.* Volume 39, May 2019, 101430.
13. Pizzera A., Scaglione D., Bellucci M., Marazzi F., Mezzanotte V., Parati K., Ficara E. (2019). “Digestate treatment with algae-bacteria consortia: A field pilot-scale experimentation in a sub-optimal climate area”, Bioresource Technology, Volume 274, February 2019, Pages 232-243. (https://doi.org/10.1016/j.biortech.2018.11.067).
14. Mezzanotte V., Marazzi F., Sá Mesquita da Silva Cristóvão M. B., Bellucci M., Ficara, E. (2018). “Using microalgae to reduce the pollution load of piggery wastewater: results of semi-continuous tests using Chlorella and Scenedesmus spp.” Chemical Engineering Transactions, Volume 64, DOI:10.3303/CET1864114.
15. Ciccazzo S.; Borruso L.; Bellucci M.; Beneduce L., Borruso L. (2018). “Metataxonomy and functionality of wood-tar degrading microbial consortia”. J Hazard Mater. 2018 Jul 5;353:108-117. doi: 10.1016/j.jhazmat.2018.03.041.
16. S. Rossi, M. Bellucci, F. Marazzi, V. Mezzanotte, E. Ficara (2018). “Activity assessment of microalgal-bacterial consortia based on respirometric tests”. Water Science and Technology, DOI: 10.2166/wst.2018.078
17. Beneduce, L., Gatta, G., Bevilacqua, A., Libutti, A., Tarantino, E., Bellucci, M., Troiano, E., Spano, G. (2017), "Impact of the reusing of food manufacturing wastewater for irrigation in a closed system on the microbiological quality of the food crops”. International Journal of Food Microbiology. Volume 260, 2 November 2017, Pages 51-58.
18. Bellucci M., Botticella, G., Francavilla M., Beneduce L. (2016), "Inoculum Pretreatment Affects The Fermentative Activity Of Hydrogen Producing Communities In Presence Of 5-Hydroxymethylfurfural". Applied Microbiology and Biotechnology, Jan 100 (1):493-504.
19. Bellucci M., Bernet N., Harmand J., Godon JJ. and Milferstedt K (2015). “Invasibility of resident biofilms by allochthonous communities in bioreactors”. Water Research 81:232-239.
20. Bellucci M., I.D. Ofiţeru, L. Beneduce, I. M. Head, D.W. Graham, and T.P. Curtis (2015). “A preliminary and qualitative study of resource ratio theory to nitrifying lab-scale bioreactors”. *Microbial Biotechnology, May;8(3):590-603.*
21. Sambusiti, C., Bellucci, M., Zabaniotou, A., Beneduce, L., Monlau, F (2015). “Algae as promising feedstocks for fermentative biohydrogen production according to a biorefinery approach: A comprehensive review”. Renewable and Sustainable Energy Reviews, Volume 44, April 2015, Pages 20-36.

22. Beneduce L., G. Spano, F. Lamacchia, M. Bellucci, F. Consiglio, I. M. Head (2014). “Correlation of seasonal nitrification failure and ammonia-oxidizing community dynamics in a wastewater treatment plant treating water from a saline thermal spa”. *Annals of Microbiology*, DOI:10.1007/s13213-014-0811-5.
23. Ofiţeru I. D., M. Bellucci, V. Lavric, C. Picioreanu, T. P. Curtis (2014). “Multi-scale modelling of bioreactor-separator system for wastewater treatment with two-dimensional activated sludge floc dynamics”. *Water Research*, March 50 (1), Pages 382-395.
24. Bellucci, M., Ofiţeru, I.D., Head, I. M., Curtis, T.P., and D.W. Graham (2013). “Nitrification in Hybrid Bioreactors Treating Simulated Domestic Wastewater”. *Journal of Applied Microbiology*, Aug; 115(2):621-30.
25. Bellucci M., Ofiţeru, I.D., Head, I. M., Graham, D.W., and T.P. Curtis. (2011). “Low Dissolved Oxygen Nitrifying Systems Exploit Ammonia-Oxidizing Bacteria With Unusually High Yield”. Applied and Environmental Microbiology”. *Applied and Environmental Microbiology*, 77: 7787-7796.
26. Ofiţeru I. D., M. Bellucci, V. Lavric, C. Picioreanu, T. P. Curtis (2011). “Multi-scale modeling of activated sludge floc structure formation in wastewater bioreactors”. 21st European Symposium on Computer Aided Process Engineering – ESCAPE 21.

Capitoli di libri

1. Catenacci A., Bellucci M., Yuan T., Malpei F (2020). “DAIRY WASTEWATER TREATMENT USING COMPOSITE MEMBRANES”. Capitolo 9 In *Current Trends and Future Developments on (Bio-) Membranes*, Angelo Basile and Antonio Comite editors, Elsevier. Pp. 261-288.
2. M. Bellucci and T. P. Curtis (2011). “Ammonia Oxidizing Bacteria in Wastewater”. In Martin G. Klotz and Lisa Y. Stein, editors: *Methods in Enzymology*, Vol. 496, Burlington: Academic Press, 2011, pp. 269-286.

Conferenze

1. Clagnan E., Brusetti L., Visigalli S., Bargna M., Bergna G., Ficara E., Canziani R., Bellucci M. “PN-Anammox for the treatment of textile wastewater: performance and microbial community of a sequencing batch reactor”. 3rd WaterEnergyNEXUS Conference, 1-5 December 2020, Djerba, Tunisia (virtual), (presentazione orale).
2. Bellucci M., Musatti A., Marazzi F., Fornaroli R., Bargna M., Bergna G., Canziani R., Mezzanotte V., Rollini M., Ficara E. “Biological treatment of textile wastewater based on anammox granules, microalgae and fungi”. 3rd WaterEnergyNEXUS Conference, 1-5 December 2020, Djerba, Tunisia (virtual), (presentazione orale).
3. Bellucci M., Marazzi F., Bellandi G., Bergna G., Canziani R., Mezzanotte V., Ficara E. “Coupling PN/anammox and microalgae for a cost-effective nitrogen removal in textile wastewater”. 3rd WaterEnergyNEXUS Conference, 1-5 December 2020, Djerba, Tunisia (virtual), (presentazione orale).
4. M. Bellucci “Opportunità di impiego delle microalghe per il trattamento delle acque reflue di origine tessile”. AQUAFARM, 19-20 Febbraio 2020, Pordenone, Italia (relatore invitato)
5. M. Bellucci, F. Marazzi, E. Ficara, V. Mezzanotte “ MICROALGAL BASED TREATMENT OF WASTEWATER AND RESOURCE RECOVERY IN THE TEXTILE DYEING INDUSTRY”. AlgaEurope, 3-5 Dicembre 2019, Parigi, Francia (presentazione orale).
6. M. Bellucci, F. Marazzi, R. Fornaroli, C. Barbieri, E. Ficara, V. Mezzanotte “TRETILE: nutrient treatment and valorisation of textile wastewater through microalgae application”. Workshop Giovani AISAM, 28 Ottobre 2019, Firenze, Italia (presentazione orale).
7. Alessia Bani, Sabina Arabi, Gabriella Bongioni, Cristina Previtali, Andrea Pizzera, Elena Ficara, Katia Parati, M. Bellucci “ Metabarcoding of pilot-scale photobioreactors treating digestate”. IWAlgae2019, 1-2 Luglio 2019, Valladolid, Spagna (presentazione orale).
8. Bellucci M., Marazzi F., Elena Ficara E., Mezzanotte V. “TRETILE PROJECT: INTEGRATED MICROALGAE-BASED PROCESS FOR NITROGEN AND DYE REMOVAL IN TEXTILE WASTEWATER”, ALGAEUROPE 2018, 4-6 Dicembre 2018, Amsterdam, Paesi Bassi (poster).
9. S. Rossi, F. Casagli, M. Bellucci, F. Marazzi, M. Mantovani, J. Gonzalez Camejo, V. Mezzanotte, E. Ficara “RESPIROMETRY AS A TOOL TO ASSESS RELEVANT PARAMETERS IN ALGAE-BACTERIA CONSORTIA”, ALGAEUROPE 2018, 4-6 Dicembre 2018, Amsterdam, Paesi Bassi (poster).
10. Fantasia T., M. Bellucci, F. Marazzi, M. Mantovani, E. Ficara, V. Mezzanotte ”Treatment of wastewater from a milk whey factory by microalgae and bacteria”. ”, ALGAEUROPE 2018, 4-6 Dicembre 2018, Amsterdam, Paesi Bassi (poster).

11. M. Bellucci, F. Marazzi, S. Rossi, V. Mezzanotte, E. Ficara. “Influence of N:P ratio on the nitrogen removal processes in lab-scale photobioreactors treating real digestate”. IWA World Water Congress & Exhibition, Settembre 16-21, 2018, Tokyo, Giappone (poster).
12. M. Bellucci, F. Marazzi, L. S. Naddeo, L. Beneduce, E. Ficara, V. Mezzanotte. “DISINFECTION IN LAB-SCALE PHOTOBIOREACTORS FOR WASTEWATER TERTIARY TREATMENT”. 11th International Society of Environmental Biotechnology (ISEB) Conference, 11th ISEB Conference, June 25 – 28, 2018, Chania, Grecia (presentazione orale).
13. F. Marazzi, M. Bellucci, R. Fornaroli, E. Ficara and V. Mezzanotte. “LAB-SCALE TESTING OF OPERATION PARAMETERS FOR ALGAE BASED TREATMENT OF PIGGERY WASTEWATER”. 11th International Society of Environmental Biotechnology (ISEB) Conference, 11th ISEB Conference, June 25 – 28, 2018, Chania, Grecia (presentazione orale)
14. Bellucci M., Piergiacomo F, Russo P., Spano G., Corbo M.R. and Luciano Beneduce L. “Shaping microbial communities for hydrolysis-acidogenesis and contemporary nitrification at low dissolved oxygen level”. 4th International Conference on Microbial Diversity, 24-26 Ottobre, 2017, Bari, Italia (poster).
15. Marazzi, F., Scaglione, D., Bellucci, M., Rossi, S., Cristovao, M.B., Ficara, E., T. Fantasia, Mezzanotte, V. “Algal based treatment for an energy efficient treatment of piggery wastewater”. The 14th IWA Leading Edge Conference on Water and Wastewater Technologies 29 May – 2 June 2017, Florianópolis, Brasile (Poster).
16. M. Bellucci, F. Marazzi, S. Rossi, D. Scaglione, R. Puglisi, K. Parati, V. Mezzanotte, E. Ficara. Comparison of simple methods to determine microalgal biomass in photobioreactors fed with synthetic and real digestate. The 14th IWA Leading Edge Conference on Water and Wastewater Technologies 29 May – 2 June 2017, Florianópolis, Brazil (Poster)
17. Marazzi F., Davide Scaglione D., Bellucci M., Mezzanotte V., Ficara E. “MICROALGAE TO REMOVE NITROGEN FROM AGRO-DIGESTATES: THE MICROGATE PROJECT”. 10th International Society of Environmental Biotechnology (ISEB) Conference, 1-3 Giugno 2016, Barcellona, Spagna (poster).
18. Bellucci M., Borruso L., Piergiacomo F., Russo P., Brusetti L., Beneduce L. “Can ammonia oxidizing microorganisms survive in a full scale two-stage anaerobic digester fed with agro-industrial wastes?”. 10th International Society of Environmental Biotechnology (ISEB) Conference, 1-3 Giugno 2016, Barcellona, Spagna (presentazione orale).
19. Bellucci M., Russo P., Francavilla M. and Beneduce L. "Microbial community structure and dynamics of two-stage anaerobic digester changing the feedstock from energy crop to animal waste". 3nd International Conference on Microbial Diversity, 27-29 Ottobre 2015, Perugia, Italia (poster).
20. Martino G., Beneduce L., Lotti C., Bellucci M., Ricciardi L., Plaza C., Zaccone C. “DNA occurrence in organic matter fractions isolated from agricultural soils using a physical fractionation method”. XXXIII CONVEGNO NAZIONALE Società Italiana di Chimica Agraria – SICA, 16-18 Settembre 2015, Bologna, Italia (presentazione orale)
21. Bellucci M., Burbaci S., Botticella G., Francavilla M. and Beneduce L. "Non-conventional pretreatments mitigate the inhibitory effect of 5-hydroxymethylfurfural in dark fermentation process". 13th Symposium on Bacterial Genetics and Ecology, 14 – 18 Giugno 2015, Milano, Italia (poster).
22. Bellucci M., Yamamoto T., Riya S., Mizuma S., Kanai R., Kamimura K., Hojo K., Hosomi M., Curtis T.P., and A. Terada."Nitrification in extremely low dissolved oxygen conditions". 6th International Conference Microbial Ecology and Wastewater Engineering, 7-10 Luglio 2013, Ann Arbor, MI, USA (presentazione orale).
23. Bellucci M., Godon J.J, Escudié R., Nicolas Bernet N., and K. Milferstedt. “Recovery of a biofilm: a resilent bacterium strikes back”. Biofilm 5 International Conference 10-12 Dicembre 2012, Parigi, Francia (poster).
24. Bellucci M., Milferstedt K., Escudié R., Nicolas Bernet N., Godon J.J, and J. Harmand. “Dynamics of autochthonous biofilm community in presence of allochthonous bacterial consortia”. Biofilm 5 International Conference, 10-12 Dicembre 2012, Parigi, Francia (poster).
25. Yamamoto T., Bellucci M., Hojo K., Kuroiwa M., Isobe K., Katsuyama C., Zhou S., Hosomi M., Suwa Y., Koba K., and A. Terada. “Elucidating nitrous oxide formation pathways in nitrifying bioreactor towards nitrification: the effect of dissolved oxygen”. 14th International Symposium on Microbial Ecology, ISME14, 19-24 Agosto 2012, Copenhagen, Danimarca (poster).
26. Bellucci M., Yamamoto T., Riya S., Mizuma S., Kanai R., Kamimura K., Hojo K., Hosomi M., Curtis T.P., and A. Terada. “Efficient nitrifying bioreactors operated at extremely low dissolved oxygen concentrations produce low N_2O emissions”. 14th International Symposium on Microbial Ecology, ISME14, 19-24 Agosto 2012, Copenhagen, Danimarca (poster).
27. Bellucci M., Milferstedt K., Escudié R., Gévaudan G., Steyer JP, Nicolas Bernet N., Godon JJ, and J. Harmand . “Interactions between autochthonous microbial community and invading microbial strains in biofilm”. 14th International Symposium on Microbial Ecology, ISME14, 19-24 Agosto 2012, Copenhagen, Danimarca (poster).
28. Bellucci M., I. D. Ofiteru, I. M. Head, D. W. Graham, and T. P. Curtis.. “High Yield of Ammonia Oxidizing Bacteria in Low Dissolved Oxygen Nitrifying Lab-Scale Reactors” (poster presentation). 2nd International Conference on Nitrification (ICoN2), 3 – 7 Luglio 2011, Nijmegen, Paesi Bassi (poster).
29. Bellucci M., I. D. Ofiteru, I. M. Head, D. W. Graham, and T. P. Curtis. “Combining theoretical and empirical approaches in lab-scale nitrifying systems”. First International Symposium on Microbial Resource Management in Biotechnology: Concepts & Applications. Giugno 30- Luglio 1 2011, Ghent, Belgio (poster,

secondo premio per il miglior poster).

30. Bellucci, M., I.D. Ofiteru, I.M. Head, D.W. Graham, and T.P. Curtis. “Ammonia-Oxidizing Bacteria Dynamics under High and Low Oxygen and Ammonia Conditions in Nitrifying Bioreactors”. 15th Molecular Microbial Ecology Group Meeting, Luglio 29 – 30 2009; University of Aberdeen, Regno Unito (presentazione orale).
31. Bellucci, M., I.D. Ofiteru, I.M. Head, D.W. Graham, and T.P. Curtis. “Ammonia-Oxidizing Bacteria Dynamics under High and Low Oxygen and Ammonia Conditions in Nitrifying Bioreactors”. Specialized Conference on Microbial Population Dynamics in Biological Wastewater Treatment ASPD5, Maggio 24-27, 2009; Aalborg, Danimarca (presentazione orale).
32. Bellucci, M., I.D. Ofiţeru, C.W. Knapp, T.P. Curtis, and D.W. Graham. “Nitrification Stability In Lab-Scale Bioreactors Under Different Ammonium And Oxygen Conditions”. 4th International Young Water Professionals Conference, Luglio 16–18, 2008; Berkley, USA (poster).
33. Ofiţeru, I.D., M. Bellucci, V. Lavric, and T.P. Curtis. “Floc modelling in wastewater treatment. From experiment to model”. 14th Molecular Microbial Ecology Group Meeting, Luglio 3–4, 2008; University of Warwick, UK (presentazione orale).
34. Bellucci, M., I.D. Ofiţeru, C.W. Knapp, T.P. Curtis, and D.W Graham. “Mixed-media reactors: correlation between nitrification performance and microbial community structure”. 14th Molecular Microbial Ecology Group Meeting, Luglio 3–4 2008; University of Warwick, Gran Bretagna (presentazione orale).
35. Bellucci, M., M. Roel Fernandez, I.D. Ofiteru, C.W. Knapp, T.P. Curtis and D.W. Graham. “Community composition and nitrification performance in mixed-media reactors containing differing surface area-to-volume ratio suspended particles”. 9th IWA UK National Young Water Professionals Conference, Aprile 3-4 2008; Newcastle upon Tyne, Gran Bretagna (presentazione orale).
36. Bellucci, M., M.C. Tomei, and S. Rossetti. “*In situ* detection of active cells of Acinetobacter johnsonii by Fluorescence In Situ Hybridization with ISR probes”. 7th Convegno FISV, Settembre 22-25 2005; Riva del Garda (TN), Italia (poster).

Alif CHEBBI PhD. Biological Engineering

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Dep. of Civil, Environmental, Architectural Engineering, and Mathematics
University of Brescia, Via Branze 43, 25123 Brescia, Italy

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Date
Sex
Nationality:
H-index: 1

INTERNSHIP EXPERIENCE/WORK LAB. EXPERIENCE

Postdoctoral fellow (*Assegnista di ricercara*), Bioremediation of petroleum-contaminated soils: novel treatments by long-chain rhamnolipids produced on winery residues (CREIAMO), Dep. of Civil, Environmental, Architectural Engineering, and Mathematics, University of Brescia, Supervisor: **Prof. Mentore VACCARI**, **(Jan 2021- to date)** • **ITALY**

Postdoctoral fellow (*Assegnista di ricercara*), Circular economy in olive oil and wine sectors. Valorization of by-products and residues through innovative processes and new business models (CREIAMO), Department of Earth and Environmental Sciences DISAT, Microbiology Group, Università degli Studi di Milano-Bicocca, Supervisor: **Prof. Andrea FRANZETTI**, **(Apr 2019- Dec 2020)** • **ITALY**

Postdoctoral fellow (*Assegnista di ricercara*), Study of biodegradation processes of short-chain chlorinated solvents in contaminated sites under aerobic conditions, Department of Earth and Environmental Sciences DISAT; Microbiology Group, Università degli Studi di Milano-Bicocca, Supervisor: **Prof. Andrea FRANZETTI**, **(Apr 2018- Mar-2019)** • **ITALY**

Diploma in Bioinformatics and Genome Analyses course (2017), International courses BCGA (450 h) - (Institut Pasteur Tunis, Tunisia**. (Sep 18 - Dec 15, 2017)** https://webext.pasteur.fr/tekaia/BCGAIPT2017.html • **TUNISIA**

Internship position, Biosurfactants characterization and antibiofilm activities of rhamnolipids, School of Biomedical Sciences, Ulster University, Cromore Road, Coleraine, Co. Londonderry, BT52 1SA, Northern Ireland, UK, Supervisor: **Prof Ibrahim BANAT** (Summer 2015) **(Jul -Sep 2015) • UNITED KINGDOM**

Internship position, Culture methods for anaerobic bacteria, Supervisor**: Prof. Bernard OLLIVIER**, Mediterranean Institute Of Oceanography, University of Marseille **(Jun 2014) • FRANCE**

Internship position, Regional hospital in Kairouan Ibn Jazzar, one month, Clinical biochemistry **(Summer 2007) • TUNISIA**

Internship position, Hygienic laboratory in Kairouan, Health service, two months, field: water controls, food controls **(Summer 2008) • TUNISIA**

Research position, Bioremediation of mercaptans generated by a phosphate plant in Sfax.18 months, Dr. Mohamed CHAMKHA, Centre of Biotechnology of Sfax **(2011-2012) • TUNISIA**

International workShop, Soil Risk Assessment, certified by North Atlantic Treaty Organization (NATO). **(January 2011) • TUNISIA**

Prokaryotes In Extreme Environments, Incommet Training Course). Pr. Bernard Ollivier (IRD, MIO), INSTM, CBS et AMU), **(25-29, November 2013) • TUNISIA**

Research position, Research capacity of vaccinating strain Coxsackievirus 3-sabin like3 in a mouse model, six months, Laboratory diseases and bioactive substances, Faculty of Pharmacy, Monastir, **Prof. Jawhar GHARBI**, (Ben Mhadheb-Gharbi Manel, 2005) **(Jan 2010- May 2010) • TUNISIA**

ACADEMIC BACKGROUND

2013-Nov 2017	**Ph.D. Doctor of Philosophy (Ph.D.) in Biological Engineering**, Centre of Biotechnology of Sfax (CBS), Laboratory of Environmental Bioprocesses (LBPE), National School of Engineers of Sfax, ENIS, University of Sfax, Ph.D. Thesis entitled: Isolation and characterization of hydrocarbon-degrading Bacteria; Production and applications of biosurfactant(s). Very good • **TUNISIA**
Sep 2010 - Dec 2012	**Master of research in Environmental Biotechnology,** University of Sfax, Higher Institute of Biotechnology of Sfax. Very good. • **TUNISIA**
Sep 2008 - Jun 2010	**Bachelor's degree in Medical Biotechnology**, University of Monastir, Higher Institute of Biotechnology of Monastir. Good. • **TUNISIA**
2006 - 2008	**University Diploma of Scientific Studies, Biological Chemistry**, University of Monastir, Higher Institute of Biotechnology of Monastir • **TUNISIA**

AREA OF COMPETENCE

Laboratory experience: Wide-ranging experience in Microbiology, methods of hydrocarbon analysis, and hazardous compounds.
Microscopy techniques: Confocal microscopy and optical microscopy.
Molecular techniques: DNA extraction, qPCR, PCR, gel electrophoresis, microbial next-generation sequencing (NGS) methods, Whole-Genome Microbial Sequencing.
Algorithms for Next Generation Sequencing Data Analysis: OTU, ASV (DADA2), and others.
Microbial models: *Escherichia coli, Bacillus subtilis, Staphylococcus aureus, Staphylococcus capitis, Pseudomonas aeruginosa, bacillus licheniformis* and others.
Molecular Biology: DNA/RNA preparations (environmental samples: filtered water, groundwater, sediments, and others) genomic library, cloning, PCR, RT-PCR, gel electrophoresis.
Microbiology: Isolation and culturing of bacteria and archaea, antimicrobial, antibiofilm, antibiofouling activities on several surfaces.
Cell culture: Preparing and maintaining Vero/HEK cell cultures.
Bioinformatics (Diploma in Bioinformatics and Genome Analyses course): The first principal theme of the course is comparative genomics, covering genome analysis and exploration, pair-wise comparisons of genomes, comparisons of multiple genomes, evolutionary inferences (orthologs, paralogs and their classification). The second principle theme of the course is related to Next-Generation Sequencing, including algorithms, methods, sequence mapping tools, data analyses and applications. Integration of genomic and genetic data in the context of Next Generation Sequencing (NGS) and their applications in human diseases as well as in environmental omics.
Biochemistry: Analysis of biosurfactants, purification, and characterization, agricultual wastes.
Identification of organic compounds: GC-FID, GC-MS/MS, LC-MS-MS, HPLC, FTIR, MALDI-TOF.
Fieldwork: Groundwater sampling, Seawater sampling.
Life-cycle assessment: Ceritficate of Life-cycle assessment using Simapro software obtained in 2021.

SCHOLARSHIPS AND GRANTS

- Bioremediation of petroleum contaminated soils: Novel treatments by long-chain rhamnolipids produced on winery residues (CREIAMO) • **(Tot. 25K euro) Unveristy of Brescia (**Jan 2021-to date) • **ITALY**
- Circular economy in olive oil and wine sectors. Valorization of by-products and residues through innovative processes and new business models (CREIAMO Project) • **(Tot. 87.5k euro)** (2019-2021) **Fondazione Cariplo** • **ITALY**
- Study of biodegradation processes of short-chain chlorinated solvents in contaminated sites under aerobic conditions, Microbiology Group **(Tot. 25K euro)** (2018-2019) • **Eni Oil industry company** • **ITALY**

- Internship position, biosurfactants characterizations and antibiofilm activities of rhamnolipids, School of Biomedical Sciences, Ulster University, Cromore Road, Coleraine, Co. Londonderry, BT52 1SA, Northern Ireland, UK (Summer 2015) (4 months) **(1K euro) (MES TUNISIA) • UNITED KINGDOM**
- Internship position, Culture methods for anaerobic bacteria, Pr. Bernard OLLIVIER, Mediterranean Institute Of Oceanography, University of Marseille (June 2014) **(MES TUNISIA) (1k euro) • FRANCE**

INTERNATIONAL PUBLICATIONS (Relevant Publications) >19

1. *Burkholderia thailandensis* E264 as a promising safe rhamnolipids' producer towards a sustainable valorization of grape marcs and olive mill pomace **(2021)**. **Alif Chebbi**, Massimiliano Tazzari, Cristiana Rizzi, Franco Hernan Gomez Tovar, Sara Villa, Silvia Sbaffoni, Mentore Vaccari, Andrea Franzetti, ***Applied Microbiology and Biotechnology***, 105:3825-3842 **(IF: 4.8)** (https://doi.org/10.1007/s00253-021-11292-0) **ITALY**
2. Potentials of winery and olive oil residues for the production of rhamnolipids and other biosurfactants: A step towards achieving a circular economy model **(2021)**. **Alif Chebbi**, Andrea Franzetti, Francine Duarte Castro, Franco Hernan Gomez Tovar, Massimiliano Tazzari, Silvia Sbaffoni, Mentore Vaccari, ***Waste and Biomass Valorization***, 12:4733–4743 **(IF: 3.8)** (10.1007/s12649-020-01315-8) **ITALY**
3. Isolation and characterization of a novel rhamnolipid producer *Pseudomonas* sp. LGMS7 from a highly contaminated site in Ain El Arbaa region of Ain Temouchent, Algeria (2021) Abdelkrim Chaida, **Alif Chebbi**, Farid Bensalah, Andrea Franzetti, ***3 Biotech*** 11:200 **(IF: 2.4)** (10.1007/s13205-021-02751-6) **ITALY**
4. Biodegradation of hydrocarbons and biosurfactants production by a newly halotolerant *Pseudomonas* sp. strain isolated from contaminated seawater **(2021)** Dorra Hentati, **Alif Chebbi**, Asma Mahmoudi, Fatma Hadrich, Meriam Cheffi, Ilhem Frikha, Sami Sayadi, Mohamed Chamkha, ***Biochemical Engineering Journal***, 107861: 166 **(IF: 3.97).** (https://doi.org/10.1016/j.bej.2020.107861).
5. Isolation and characterization of a newly naphthalene-degrading *Halomonas pacifica* strain Cnaph3: biodegradation and biosurfactant production studies **(2020)** Meriam Cheffi, Dorra Hentati, **Alif Chebbi**, Najla Mhiri, Sami Sayadi, Ana Maria Marqués & Mohamed Chamkha, 10:89 ***3Biotech*** 11:200 **(IF: 1.7)** (https://doi.org/10.1007/s13205-020-2085-x)
6. A non-toxic microbial surfactant from *Marinobacter hydrocarbonoclasticus* SdK644 for crude oil solubilization enhancement **(2018)** Billal Zenati**, Alif Chebbi**, Abdelmalek Badis, Kamel douaouda, Hocin Boutoumi, Mohamed El Hattab, Dorra Hentati, Manel Chelbi, SamiSayadi, Mohamed Chamkha & Andrea Franzetti, ***Ecotoxicology and environmental safety*** 154: 100-107. (**IF: 3.97**)(10.1016/j.ecoenv.2018.02.032) **ITALY**
7. Production, characterization and biotechnological potential of lipopeptide biosurfactants from a novel marine Bacillus stratosphericus strain FLU5 **(2019)**. Hentati Dorra, **Alif Chebbi**, Hadrich Fatma, Ines Frikha, Rabanal Francesc, Sami Sayadi, Angeles Manresa, and Mohamed Chamkha, ***Ecotoxicology and environmental safety*** 167:441-449. **(IF: 3.97)**.
8. Rhamnolipids from non-pathogenic *Burkholderia thailandensis* E264: Physicochemical characterization, antimicrobial and antibiofilm efficacy against oral hygiene related pathogens **(2017)**. Mohamed Elshikh, Scott Funston, **Alif Chebbi**, Syed Ahmed, Roger Marchant & Ibrahim M. Banat. ***New Biotechnology*** 36: 26-36. **(IF= 3,813).**
9. A moderately thermophilic and mercaptan-degrading *Bacillus licheniformis* strain CAN55 isolated from gas-washing wastewaters of the phosphate industry, Tunisia. (**2014**). **Alif Chebbi**, Sami Mnif, Najla Mhiri, Lobna Jlaiel, Sami Sayadi & Mohamed Chamkha**. *International Biodeterioration and Biodegradation*** 94: 207-213. **(IF=2,235)**.
10. Biodegradation of malodorous thiols by a *Brevibacillus* sp. strain isolated from a Tunisian phosphate factory. **(2015)**. **Alif Chebbi**, Najla Mhiri, Fatma Rezgui, Najoua Ammar, Amina Maalej, Sami Sayadi & Mohamed Chamkha. ***FEMS Microbiology Letters***. 362 (14): fnv097. **(IF=2,121)**.
11. Biodegradation of malodorous mercaptans by a novel *Staphylococcus capitis* strain isolated from gas-washing wastewaters of the Tunisian Chemical Group **(2016)**. **Alif Chebbi**, Hend Jaoua, Slim Loukil, Najla Mhiri, Najoua Ammar, Sami Sayadi, & Mohamed Chamkha. ***International Journal of Environmental Science and Technology*** 13:571-580. **(IF=2,344)**.
12. Polycyclic aromatic hydrocarbon degradation and biosurfactant production by a newly isolated *Pseudomonas* sp. strain from used motor oil-contaminated soil **(2017)**. **Alif Chebbi**, Dorra Hentati, Hatem Zaghden, Nidhal, Baccar, Fatma Rezgui, Manel Chalbi, Sami Sayadi & Mohamed Chamkha. ***International Biodeterioration and Biodegradation*** 122: 128-140. **(IF= 2,962)**.
13. Rhamnolipids from *Pseudomonas aeruginosa* strain W10: As antibiofilm/antibiofouling products for metal protection (2**017**). **Alif Chebbi**, Mohamed Elshikh, Farazul Haque, Sayed Ahmed, Sara Dobbin, Roger Marchant, Sami Sayadi, Mohamed Chamkha & Ibrahim M. Banat **(2017)**. ***Journal of Basic Microbiology*** 57: 364-375. **(IF=1,585).**

14. Promising abilities of mercapto-degrading *Staphylococcus capitis* strain SH6 in both crude oil and waste motor oil as sole carbon and energy sources: its biosurfactant production and preliminary characterization **(2017)**.
15. **Alif Chebbi**, Rihab Bouabdallah, Dorra Hentati, Meriam Cheffi, Sami Sayadi & Mohamed Chamkha. ***Journal of Chemical Technology and Biotechnology*** 10.1002/jctb.5508. **(IF=3,15)**.
16. Biodegradation of fluoranthene by a newly isolated strain of *Bacillus stratosphericus* from Mediterranean seawater of the Sfax fishing harbour, Tunisia **(2016)**. Dorra Hentati, **Alif Chebbi**, Slim Loukil, Jean-Jacques Godon, Sami Sayadi & Mohamed Chamkha. ***Environmental Science and Pollution Research*** 23:15088-15100. **(IF=2,76)**.
17. Preliminary characterization of biosurfactant produced by a PAH-degrading *Paenibacillus* sp. under thermophilic conditions **(2016)**. Fatma Zohra Mesbaiah, Kamel Eddouaouda, Abdelmalek Badis, **Alif Chebbi**, Dorra Hentati, Sami Sayadi & Mohamed Chamkha. ***Environmental Science and Pollution Research*** 23:14221-14230 **(IF=2,76)**.
18. Biodegradation of phenanthrene by a bacterial consortium enriched from Sercina oilfield **(2017)**. Sami Mnif*, **Alif Chebbi***, Najla Mhiri, Sami Sayadi & Mohamed Chamkha. *Co-premier auteur. ***Process Safety and Environmental Protection*** 107: 44-53. **(IF= 2,905)**. (10.1016/j.psep.2017.01.023)

TRAINING AND MENTORING OF STUDENTS

- **Beatrice Murena (2021_ ongoing)** MS in Industrial Biotechnology, Department of Biotechnology and Biosciences, Università degli Studi di Milano-Bicocca • **ITALY**
- **Riccardo Botticini (2021)** MS. Environmental engineering. Experimental use of biosurfactants into soil-washing process of hydrocarbon-contaminated soils, Dep. of Civil, Environmental, Architectural Engineering, and Mathematics, University of Brescia • **ITALY**
- **Massimiliano Tazzari (2020)** MS in Industrial Biotechnology, "Production of biosurfactants using winery and olive oil wastes, Department of Biotechnology and Biosciences, Università degli Studi di Milano-Bicocca • **ITALY**
- **Luca Brambilla (2019)** MS Environmental Sciences, Department of Earth and Environmental Sciences DISAT, Università degli Studi di Milano-Bicocca "Compositions of enriched bacterial communities involved in the aerobic degradation of BTEX and vinyl chloride from chlorinated solvent-contaminated groundwater • **ITALY**
- **Rihab Bouabdellah (2014)** MS in environmental biotechnology 'production of biosurfactants by strain W10 and their environmental potential applications • **TUNISIA**
- **Dorra Hentati (2013)** MS in microbiology «*Isolement et caractérisation d'une bactérie marine hydrocarbonoclaste dégradant le naphtalène*» Faculty of Sciences of Sfax • **TUNISIA**

INTERNATIONAL SEMINARS, CONFERENCES (Oral Presentations) (Relevant)

1. Novel green long-chain rhamnolipids towards safely treating petroleum-contaminated soils, **Alif Chebbi**, Andrea Franzetti, Franco Hernan Gómez, Laura Benassi, Silvia Sbaffoni, Tizana Beltrani, Daniele Fiorino, Emanuela Demarco, Mentore Vaccari, **3rd Euro-Mediterranean Conference for Environmental Integration (EMCEI-2021)** **ITALY**
2. Sustainable wineries through waste valorisation: novel biosurfactants (rhamnolipids) for treating hydrocarbon-contaminated soils. Mentore Vaccari, **Alif Chebbi**, Franco Hernán Gómez, Silvia Sbaffoni, Tiziana Beltrani, Fiorino Daniele, Andrea Franzetti, ***Ecomondo 2020.*** **ITALY**
3. A methodology for boosting circular economy in olive oil and wine sectors: opportunities for the italian competitiveness through eco-innovation strategies Mentore Vaccare, **Alif Chebbi**, Andrea Franzetti., Sbaffoni Sara, ***(CEST, Sept, 2019)*** Rhodes, Greece. **ITALY**
4. « *Isolement et caractérisation des bactéries dégradant des mercaptans, à partir des eaux de lavage des gaz des cheminées de l'usine de transformation du phosphate de Sfax*» **Alif Chebbi**, Sami Mnif, Najla Mhiri, Najoua Ammar, Sami Sayadi & Mohamed Chamkha. ***Internationales de Biotechnologie '*** **(JIB, Dec 2013)**. A.T.Biotech., Hammamet, Tunisia.
5. « *Biodégradation des hydrocarbures aromatiques polycycliques (HAPs) et production de biosurfactant(s) par une bactérie hydrocarbonoclaste nouvellement isolée*. »
6. **Alif Chebbi**, Dorra Hentati, Sami Sayadi & Mohamed Chamkha. ***Journées Internationales de Biotechnologie ''*** **(JIB, Dec 2014)**. A.T.Biotech., Hammamet, Tunisia.
7. Biodegradation of fetid mercaptans by a novel *Staphylococcus capitis* strain SH6 isolated from the Tunisian Chemical Group. **Alif Chebbi**, Hend Jaoua, Slim Loukil, Najla Mhiri, Najoua Ammar, Sami Sayadi & Mohamed Chamkha. "*Journées Internationales de Biotechnologie »* **(JIB, Dec 2015)**. A.T.Biotech., Djerba, Tunisia.
8. Rhamnolipids from *Pseudomonas aeruginosa* strain W10: As antibiofilm products for metal protection. **Alif Chebbi**, Mohamed Elshikh, Sara Dobbin, Roger Marchant, Ibrahim M. Banat, Sami Sayadi & Mohamed Chamkha. "***Journées Internationales de Biotechnologie '*** (JIB, Dec 2016). **A.T.Biotech**., Sousse, Tunisia.

9. Biodegradation of naphthalene and production of biosurfactant by a *Pseudomonas aeruginosa* starin NAPH6 isolated from the Sfax fishing harbor. Dorra Hentati, **Alif Chebbi**, Meriam Cheffi, Slim Loukil, Najla Mhiri, Fatma Rezgui, Jean Jacques Godon, Sami Sayadi & Mohamed Chamkha. ***27ème Forum International des Sciences Biologiques et de Biotechnologie*** (ATSB, Mar 2016). Hammamet, Tunisia.
10. «*Etude de la biodégradation des hydrocarbures et de la production de biosurfactants par une bactérie marine nouvellement isolée*» Meriam Cheffi, Dorra Hentati, **Alif Chebbi**, Slim Loukil, Nidhal Baccar, Sami Sayadi, Mohamed Chamkha. M. ***27ème Forum International des Sciences Biologiques et de Biotechnologie*** (ATSB, Mar 2016). Hammamet, Tunisia.
11. « *Isolement et caractérisation d'une bactérie marine hydrocarbonoclaste dégradant le naphtalène*» Dorra Hentati, **Alif Chebbi**, Slim Loukil, Najla Mhiri, Fatma Rezgui, Sami Sayadi & Mohamed Chamkha. ***26ème Forum International des Sciences Biologiques et de Biotechnologie*** (ATSB, Mar 2015). Monastir, Tunisia.
12. «*Étude de la biodégradation des hydrocarbures par une bactérie marine nouvellement isolée*» Mariam Cheffi, Dorra Hentati, **Alif Chebbi**, Slim Loukil, Fatma Rezgui, Najla Mhiri, Sami Sayadi & Mohamed Chamkha. ***26ème Forum International des Sciences Biologiques et de Biotechnologie***. (ATSB, Mar 2015), Monastir, Tunisia.
13. «*Synthèse de biosurfactant par une souche bactérienne halotolérante SDK644: Optimisation de la production par l'utilisation des substrats carbonés renouvelables*» Bilal Zenati, Kamel Ben Ali, **Alif Chebbi**, Sami Sayadi, Mohamed Chamkha & Abdmlak Badis. ***26ème Forum International des Sciences Biologiques et de Biotechnologie***. (ATSB, Mar 2015). Monastir, Tunisia.
14. « *Isolement et caractérisation d'une bactérie hydrocarbonoclaste dégradant le fluoranthène* » Dorra Hentati, **Alif Chebbi**, Slim Loukil, Sami Sayadi & Mohamed Chamkha. ***Journées Internationales de Biotechnologie (JIB, Dec 2014)***. A.T.Biotech., Hammamet, Tunisia.

INTERNATIONAL SEMINARS, CONFERENCES (Poster Presentations) (Relevant)

1. Compositions of enriched bacterial communities involved in the aerobic degradation of BTEX and vinyl chloride from chlorinated solvent-contaminated groundwater, **Alif Chebbi**, Tatiana Stella, Ilaria Pietrini, Giovanna Carpani & Andrea Franzetti. ***BAGECO, 15th Symposium on Bacterial Genetics and Ecology*** 26-30 (2019) May, Lisbon/Portugal. **ITALY**
2. Compositions of enriched bacterial communities involved in the aerobic degradation of BTEX and vinyl chloride from chlorinated solvent-contaminated groundwater, **Alif Chebbi**, Tatiana Stella, Ilaria Pietrini, Giovanna Carpani & Andrea Franzetti. ***The XXXIII SIMGBM Congress – Microbiology (2019)*** June, Florence/Italy. **ITALY**
3. « *Isolation and characterization of a novel thermophilic, halotolerant and mercaptans-degrading strain, from waters washing gases of industry of phosphates of Sfax*» **Alif Chebbi**, Sonia Kchaou, Najla Mhiri, Sami Sayadi & Mohamed Chamkha. ***24ème Forum International des Sciences Biologiques et de Biotechnologie. (ATSB 2015)***. Sousse, Tunisia.
4. « *Caractérisation physico-chimique des échantillons des eaux de mer et de sédiment provenant des ports de Sfax; Isolement et caractérisation de deux bactéries hydrocarbonoclastes dégradant les HAPs, fluoranthène et naphtalène*». Dorra Hentati, **Alif Chebbi**, Slim Loukil, Sami Sayadi & Mohamed Chamkha. ***Journées Internationales de Biotechnologie (JIB, Décembre 2013)***. A.T.Biotech., Hammamet, Tunisia.
5. « *Production de biosurfactant par une souche bactérienne thermophile isolée à partir d'un sol algérien contaminé par le pétrole brut*», Fatma Zahra Mesbaih, Kamel Eddouaouda, **Alif Chebbi**, Abdlmlak Badis, Sami Sayadi & Mohamed Chamkha. ***Journées Internationales de Biotechnologie*** (JIB, Dec 2013). A.T.Biotech., Hammamet, Tunisia.

LANGUAGES- BIOINFROMATICS' SKILLS- MEMBERSHIPS – EDITING AND REVIEWING

- Good ability to read, write, and speak Arabic French and English, basic Italian language.
- Regular reviewer: PLOS One, Fems microbiology letter, Journal of Hazardous Materials, Euro-Mediterranean Journal for Environmental Integration, 3biotech, and others.
- Software programs: BLASTnpx, Alignment, Sequencing, Swiss Prot, Bioedit, MEGA 7, Endnote, Mendeley, MEGA 6, Docear, JMP9, Unix environment, Perl, Python, R, Rstudio.
- President of Health Clubs Monastir IBSM for 2 years. 2008-2010. TUNISIA
- **Organizing committee member of the YTRB Network**
- **(https://ytrbiology.weebly.com/about.html)(2016-present)**

CURRICULUM VITAE | Daniele Ghezzi

ACTUAL POSITION

Microbiologist at Nanobiotechnology Laboratory (NABI), Rizzoli Orthopaedic Institute, Bologna.

PUBLICATIONS

Jurado V, D'Angeli I, Martin-Pozas T, Cappelletti M, **Ghezzi D**, Gonzales-Pimentel JL, Cuezva S, Miller AZ, Fernandez-Cortes A, De Waele J, Sanchez-Moral S, Saiz-Jimenez C. 2021. Dominance of *Arcobacter* in the white filaments from the thermal sulfidic spring of Fetida Cave (Apulia, southern Italy). *Science of The Total Environment*. doi: 10.1016/j.scitotenv.2021.149465

Ghezzi D, Sauro F, Columbu A, Carbone C, Hong P, Vergara F, De Waele J, Cappelletti M. 2021. Transition from unclassified *Ktedonobacterales* to *Actinobacteria* during amorphous silica precipitation in a quartzite cave environment. *Scientific Reports.* doi: 10.1038/s41598-021-83416-5

Ghezzi D, Filippini M, Cappelletti M, Firrincieli A, Zannoni D, Gargini A, Fedi S. 2021. Molecular characterization of microbial communities in a peat-rich aquifer system contaminated with chlorinated aliphatic compounds. *Environmental Science and Pollution Research*. doi: 10.1007/s11356-020-12236-3

Graziani G, Barbaro K, Fadeeva IV, **Ghezzi D**, Fosca M, Sassoni E, Vadalà G, Cappelletti M, Valle F, Baldini N, Rau JV. 2021. Ionized jet deposition of antimicrobial and stem cell friendly silver-substituted tricalcium phosphate nanocoatings on titanium alloy. *Bioactive Materials*. doi: 10.1016/j.bioactmat.2020.12.019

D'Angeli IM, **Ghezzi D**, Leuko S, Firrincieli A, Parise M, Fiorucci A, Vigna B, Addesso R, Baldantoni D, Carbone C, Miller AZ, Jurado V, Saiz-Jimenez C, De Waele J, Cappelletti M. 2019. Geomicrobiology of a seawater-influenced active sulfuric acid cave. *Plos One.* doi: 10.1371/journal.pone.0220706 **(co-first author)**

Sauro F, Cappelletti M, **Ghezzi D**, Columbu A, Hong P, Zowawi H, Carbone C, Piccini L, Vergara F, Zannoni D, De Waele J. 2018. Microbial diversity and biosignatures of amorphous silica deposits in orthoquartzite caves. *Scientific Reports.* doi: 10.1038/s41598-018-35532-y

Cappelletti M, **Ghezzi D**, Zannoni D, Capaccioni B, Fedi S. 2016. Diversity of methane-oxidizing bacteria in soils from "Hot Lands of Medolla" (Italy) featured by anomalous high-temperatures and biogenic CO_2 emission. *Microbes and Environments.* doi: 10.1264/jsme2.ME16087

EDUCATION

Nov 2016 – Oct 2019 PhD in **Cellular and Molecular Biology**, University of Bologna. Topics: microbiology of extreme environments, microbial biofilms, microbes-metals and microbes-minerals interactions. Thesis title: Microbial diversity and metabolic potential in caves. Supervisors: Prof. Davide Zannoni, Dr. Martina Cappelletti. Final mark: *Excellent*.

25th November 2015 Qualification to the profession of **Biologist**.

2012 – 2015 Master's degree in **Molecular and Industrial Biotechnology**, University of Bologna. Thesis title: *Characterization of methanotrophic bacteria from soils with high methane concentration*. Supervisors: Dr. Martina Cappelletti, Dr. Stefano Fedi. Mark: *110 cum Laude*.

2009 – 2012 Bachelor's degree in **Biotechnology**, University of Bologna. Thesis title: *Molecular diagnostics of cftr gene mutations in the neonatal screening*. Supervisors: Prof. Annalisa Pession, Dr. Massimo Valentini. Mark: *105/110*.

2003 – 2008 High School Diploma in Foreign Languages, High School T. Mamiani, Pesaro. Mark: *100/100*.

CONFERENCE PRESENTATIONS AND PROCEEDINGS

Ghezzi D, Cappelletti M, Giusto E, Boi M, Ciapetti G, Baldini N, Graziani G. Proprietà antibatteriche e antibiofilm di coating metallici nanostrutturati. *RIT days*, 26-27 November 2020. Poster presentation.

Ghezzi D, Sauro F, De Waele J, Cappelletti M. Microbial diversity and metabolic potential in caves. *ISME Virtual Microbial Ecology Summit*, 11-12 November 2020. Oral presentation.

Ghezzi D. Microbial diversity and metabolic potential in caves. *Virtual SIMGBM PhD Day*, 10 September 2020. Oral presentation.

Ghezzi D, Costantini PE, Iorio M, Maffioli S, Donadio S, Elbanna A, Khalil Z, Capon R, Monari S, Tassoni A, Sauro F, Cappelletti M. Caves: ancient and unexplored reservoir for antimicrobial compounds discovery. *Proceedings 14th GIM Congress*, Pisa (Italy), 8-11 September 2019. Poster presentation.

Ghezzi D, Sauro F, Columbu A, Hong P, De Waele J, Zannoni D, Cappelletti M. Biodiversity and metabolic potential in deep quartzitic caves. *Proceedings 8$_{th}$ Congress of European Microbiologists (FEMS)*, Glasgow (Scotland), 7-11 July 2019. Poster presentation.

Ghezzi D, Sauro F, D'Angeli IM, Costantini PE, Columbu A, De Waele J, Zannoni D, Cappelletti M. Cave environments for the discovery of novel microbes and bioactive molecules. *Proceedings 33rd SIMGBM Congress*, Firenze (Italy), 19-22 June 2019. Poster presentation.

Sauro F, Cappelletti M, **Ghezzi D**, Columbu A, Hong P, Zowawi H Carbone C, Piccini L, Vergara F, Zannoni D, De Waele J. Biomediated SiO_2 mobilization and deposition of amorphous silica speleothems in non-thermal subsurface environments. *Proceedings SGI-SIMP Congress*, Catania (Italy), 12-14 September 2018. Poster presentation.

Ghezzi D, Sauro F, Zowawi H, Hong P, Cappelletti M, Piccini L, Zannoni D, Vergara F, De Waele J. Microbial diversity featuring the quartz-sandstone cave Imawarì Yeuta in Auyan Tepui (Venezuela). *Proceedings 32nd SIMGBM Congress*, Palermo (Italy), 17-20 September 2017. Oral presentation.

Sauro F, Columbu A, **Ghezzi D**, Cappelletti M, Zannoni D, De Waele J. Microorganism-silica mineral interactions in a pristine quartz-sandstone cave environment (Venezuela): first observations. *Proceedings SIMP-SGI-SOGEI-AIV Congress*, Pisa (Italy), 4-6 September 2017. Poster presentation.

Ghezzi D, Sauro F, Zowawi H, Hong P, Cappelletti M, Zannoni D, Vergara F, De Waele J. Exploring the microbial diversity featuring the geochemical complexity of the quartz-sandstone cave Imawarì Yeuta, Auyan Tepui, Venezuela. Conference Proceeding and Oral Presentation by Dr. Sauro at XVII *International Congress of Speleology (ICS)*, Sydney (Australia), 23-29 July 2017.

Ghezzi D, Fedi S, Capaccioni B, Zannoni D, Cappelletti M. Characterization of methanotrophic microbial community in soils from Terre Calde di Medolla (Italy). *Proceedings 31st SIMGBM Congress*, Ravenna (Italy), 23-26 September 2015. Poster presentation.

RESEARCH EXPERIENCES

January 2020 - Today: Postdoctoral Researcher at Nanobiotechnology Laboratory (NABI), Rizzoli Orthopaedic Institute, Bologna. Research topic: Next generation antibacterial nanostructured osseointegrated customized vertebral replacement.

November 2016 – October 2019: PhD Student in the Molecular and Applied Microbiology Laboratory of the University of Bologna (Department of Pharmacy and Biotechnology). Research topic: Investigation of biodiversity and metabolic potential of microbes within different cave systems.

February 2018; February 2019; May 2019: Winner of three EuroPlanet Awards with Dr. Martina Cappelletti and Dr. Ilenia D'Angeli. Project topics: Metagenomics analysis of microbial communities from cave samples by using different NGS technologies. Supervised by Prof. Christine Moissl-Eichinger, Medical University of Graz.

September 2017 – November 2017: Visiting PhD Student at the Institute for Molecular Bioscience, University of Queensland, Brisbane (Australia). Supervised by Prof. Rob Capon. Research topic: Isolation of Actinobacteria from caves samples and investigation of novel antimicrobial compounds.

November 2016 – December 2016: Visiting PhD Student in the Laboratory of Environmental Microbiology, Dept. of Water Desalination and Reuse Centre, KAUST (King Abdullah University of Science and Technology), Thuwal (Saudi Arabia). Supervised by Dr. Peiying Hong. Research topic: MiSeq Illumina sequencing and bioinformatics analysis of microbial communities from cave samples.

April 2014 – March 2015; April 2015 – December 2015: Internship for Master Graduation and Attending Graduate in the Laboratory of Environmental and Applied Microbiology, Dept. of Pharmacy and Biotechnology, University of Bologna. Supervised by Dr. Martina Cappelletti. Research topic: Study and characterization of methane-oxidizing bacteria from soil samples by using cultivation approach, molecular biology techniques and computational analysis methods.

March 2012 – July 2012: Internship for Bachelor Graduation in the Laboratory of Molecular Genetics, Azienda Ospedaliera Ospedali Riuniti Marche Nord, Pesaro. Supervised by Dr Valentini Massimo. Research topic: Identification of mutations in *cftr* gene by using molecular biology techniques and computational analysis methods.

OTHER SCIENTIFIC ACTIVITIES

March 2020 – June 2020: Microbiologist in a task force for the certification of facemasks during COVID-19 pandemic at St. Orsola-Malpighi Polyclinic (Bologna) – evaluation of Bacterial Filtration Efficiency (BFE) and Microbial Cleanliness (Bioburden) – EN 14683:2019.

FOREIGN LANGUAGES

English: Fluent (C1/C2)
French: Good (DELF B2)
German: Intermediate (GOETHE B1)

COURSES

Feb 2018	Winter School in Big Data and Bioinformatics (Bologna) – UNIBO.
Sep 2017	Summer School on Computational Analysis: From Genomic Diversity to Ecosystem Structure (Firenze) – SIMTREA.

LAB SKILLS

General and Applied Microbiology, Molecular Biology, and Bioinformatics

General and Applied Microbiology: Bacterial enrichments; Isolation of pure cultures; Analysis of microbial communities and pure cultures; Treatment and maintenance of bacterial cultures; Evaluation of bacterial growth curves; Assessment of bacterial biofilm development; Investigation of planktonic and biofilm microbial growth (bacteria and fungi) in the presence of antimicrobial agents; Evaluation and improvement of antimicrobial properties of ceramic and metal-nanocoated surfaces and supports; Evaluation of antimicrobial properties and sterilization procedures of surfaces, item and devices by applying standard ISO (*e.g.*, EN 14683:2019, EN 22196, EN 11737); Phage titration; Optical microscopy; Scanning Electron Microscopy (SEM); Ionized Jet Deposition (IJD); Bacterial metabolites extraction; HPLC, UPLC, GC.

Molecular Biology: PCR, qRT-PCR, Electrophoresis of nucleic acids, Cloning, Electroporation, Genomic and Plasmid DNA extractions, RNA extraction, Protein extraction, T-RFLP, SDS-PAGE.

Bioinformatics (Windows and Linux operating systems): tools for genomes and metagenomes analysis from Illumina sequencing data (QIIME, QIIME2, RAST, MG-RAST, PROKKA), phylogenetic analysis platforms (GENEIOUS, MEGA, PHYLOSEQ), ecological data analyses and statistics (PRIMER-E, CALYPSO), databases (BLAST, RDP, SILVA-ARB), DNA sequence analysis (SNAPGENE).

TEACHING TUTOR

2020-2021 Microbial Biotechnologies (Master's degree in Ind. Biotechnology).
Molecular Biology (Bachelor's degree in Biotechnology).
Microbiology (Bachelor's degree in Biotechnology).
Molecular Biology of the Cell (Bachelor's degree in Genomics).

2019-2020 Microbiology and Molecular Virology (Master's degree in Mol. Cell. Biology).
Molecular Biology of Eukaryotes with Laboratory (Master's degree in Mol. Cell. Biology).
Molecular Biology of the Cell (Bachelor's degree in Genomics).

2018-2019 Microbial Biotechnologies (Master's degree in Ind. Biotechnology).
Molecular Biology (Bachelor's degree in Biotechnology).

2017-2018 Microbiology and Molecular Virology (Master's degree in Mol. Cell. Biology).
Microbial Biotechnologies (Master's degree in Ind. Biotechnology).

2016-2017 Applied Microbiology and Molecular Virology (Master's degree Ind. Biotechnology).

PRIZES

Awarded "Best PhD Thesis 2020" by the Italian Society for General Microbiology and Biotechnology (SIMGBM).

19th October 2021

EDUCATION AND ACADEMIC TITLES

2014 - 2017 • **Ph.D. degree** in Mountain Environment and Agriculture. Faculty of Science and Technology, Free University of Bozen-Bolzano - Italy.
Title of the Thesis: "Habitat preferences of wood-inhabiting fungal communities across different biomes: a conservation perspective"

2010 - 2012 • **Master's degree** in Nature Conservation and Divulgation (Class nr. LM-60). Grade: 110/110 *cum laude*. University of La Sapienza di Roma - Italy.

2004 - 2010 • **Bachelor's degree** in Natural Sciences (Class nr. 27). Grade: 110/110 *cum laude*. University of La Sapienza di Roma - Italy.

CURRENT POSITION

2021 – present • **Postdoc researcher** within a Horizon 2020 project in the disciplinary area of Environmental Microbiology - Faculty of Science and Technology, Free University of Bozen Bolzano, Italy.
Research topics:
▪ Shotgun metagenomics for the characterization of microbial communities in deadwood and soil aiming to assess the effect of different forest management practices on decomposition and forest functioning.
▪ Real time PCR to evaluate the effect of forest management on specific bacterial functional groups involved in nitrogen pathway
▪ Bioinformatics, multivariate statistics and large dataset handling
Supervisor: Dr. Lorenzo Brusetti

PREVIOUS ACADEMIC POSITIONS

2017 - 2021 • **Postdoc researcher** in the disciplinary area of Agricultural and Environmental Microbiology - Faculty of Science and Technology, Free University of Bozen Bolzano, Italy.
Research topics:
▪ 16s/ITS and Shotgun metagenomics for the characterization of microbial decomposer communities in wood, soil and leaf litter in relation to changing microhabitat conditions
▪ Assessment of nitrogen depositions on decomposition process in forest environments
▪ Bioinformatics, multivariate statistics and large dataset handling
Supervisor: Dr. Lorenzo Brusetti

2011 - 2014 • **Ph.D. student** in Mountain Environment and Agriculture. Faculty of Science and Technology, Free University of Bozen-Bolzano - Italy. Title of the Thesis: "Habitat preferences of wood-inhabiting fungal communities across different biomes: a conservation perspective". Supervisor: Prof. Roberto Tognetti; Co-supervisor: Dr. Lorenzo Brusetti

RESEARCH VISITS ABROAD

4/2014 - 9/2014 • **Visiting scientist** at the Swedish University of Agricultural Science (SLU) of Uppsala, Dept. of Forest Mycology and Plant Pathology, Sweden. Grant Funded by La Sapienza University of Rome. Activities: Bioinformatics, data processing and statistical analysis of sequenced samples for fungal communities´ characterization in *Picea abies* forests. High-throughput fungal samples preparation (field sampling and laboratory analysis)

Co-SUPERVISION OF STUDENTS

• B.Sc.' students: Davide Refatti (Free University of Bozen-Bolzano 2020); Francesca Mura (Free University of Bozen- Bolzano, 2020)

NATIONAL TEACHING ACTIVITIES

Lecturer

2021 - today • **Lecturer** for the course in Geomicrobiology of mountain environments- Bachelor in Agricultural, Food and Mountain Environmental Sciences (L-25). Faculty of Science and Technology, Free University of Bozen-Bolzano – Italy. Teaching language: Italian (CFU: 3).

2019 - 2020 • **Lecturer** for the course in Freshwater Ecosystems - Bachelor in Agricultural and Agro-Environmental Sciences (L-25). Faculty of Science and Technology, Free University of Bozen-Bolzano - Italy. Teaching language: English. (CFU: 1.5).

Teaching assistant

2020 - 2021 • **Teaching assistant** in Agricultural and Environmental Microbiology - Agricultural and Agro-Environmental Sciences (L-25). Faculty of Science and Technology, Free University of Bozen-Bolzano - Italy. Teaching language: Italian. Lab Activities: bacterial plating and isolation, DNA extraction, PCR amplification, gel electrophoresis, molecular fingerprinting. Theory and exercises on bioinformatics and data analysis.

2019 - 2020 • **Teaching assistant** in Agricultural and Environmental Microbiology - Agricultural and Agro-Environmental Sciences (L-25). Faculty of Science and Technology, Free University of Bozen-Bolzano - Italy. Teaching language: Italian. Lab Activities: bacterial plating and isolation, DNA extraction, PCR amplification, gel electrophoresis, molecular fingerprinting. Theory and exercises on bioinformatics and data analysis.

EDITORIAL ACTIVITIES

Reviewer for the following indexed journals:

PLOS ONE (November 2019), Microbial Ecology (December 2019), Journal of Forestry Research (January 2018), Journal of Applied Ecology (November 2019)

NATIONAL AND INTERNATIONAL COLLABORATIONS

• Prof. Annamaria Persiani – Department of Environmental Biology; La Sapienza University of Rome (Italy);

• Prof. Anders Dahlberg - Department of Forest Mycology and Plant Pathology; Swedish University of Agricultural Science (SLU), Uppsala (Sweden)

• Dr. Judith Sarneel - Research fellow at Department of Ecology and Environmental Sciences; Umeå University (Sweden)
• Prof. Luciano Beneduce – Department of Agricultural science, food, natural resources and engineer; University of Foggia (Italy).
• Prof. Roberto Tognetti – Department of Agriculture, Environment and Food; University of Molise (Italy)

THIRD MISSION

2021 - today Consultant at Food and Agricultural Organization of the United Nation (FAO) in the Land and Water Division (NSL) under the Global Soil Doctor Programme.

TECHINCAL SKILLS

• **Wet-lab skills**

Culture media preparation, isolation and identification of culturing bacteria and fungi, dual intra and inter-kingdom assays; DNA extraction and purification from different matrix (i.e. soil, sediments, vegetable tissue, biomass) and DNA quantification (Qubit; Nanodrop); PCR and gel-electrophoresis; targeted-bacteria quantification via Quantitative Real-Time PCR; detection and quantification of genes linked with nutrient and biogeochemical cycles;

• **Statistic skills**

"R" environment; univariate and multivariate statistical analysis focusing on the microbial communities and environmental factors; ecological models applied to microbial communities; microbial ecological network analysis.

• **Informatic and bioinformatic skills**

- GIS software (Arc-Map, Q-GIS, SAGA Gis)
- LINUX operating system (command line language); Python; Windows
- Bioinformatics analysis of next-generation sequencers outputs including amplicon-based and shotgun metagenome output using *ad-hoc* pipelines (such as Qiime and Qiime 2); PICRUSt2 (Predict metagenome functional content from marker gene); LEfSe (Differentially Abundant Linear Discriminant Analysis); MG-Rast (Metagenomic Analysis Server for Shotgun Sequencing data); Kraken2 (metagenomic classifier system); Braken (Bayesian Reestimation of Abundance with KrakEN); Cytoscape (Network Data Integration, Analysis, and Visualization); bioinformatics database (Green Genes, SILVA, etc.)

• **Fieldwork activity and skills**

Experience of sampling from different environmental matrices: soil, sediments, leaf litter, deadwood. Sampling campaigns: Moticolo forest, South Tyrol, Italy (2018); Old growth forests within natural strict forest reserves in Italy (Sasso Fratino - FC, Valle Argentino - CS, Poggio tre Cancelli - GR, Sfilzi – FG; 2014-2017)

LANGUAGE COMPETENCE

• Italian - Mother tongue
• English (C1 - Self assessment)
• Spanish (C1 - Self assessment)

- French (B1 - Self assessment)
- German (A1 – Self assessment)

COURSES

▪ Course: 10th International Course in Microbial Ecology titled “Hands-on training in Prokaryotic and Eukaryotic metagenomics (ICME10), 6-10 May 2019, Milano, Italy.

▪ Course: “R4-omics”, September 2018. Università dell’Insubria, Busto Arsizio (VA), Italy.

▪ Summer school in “Bioinformatics for biologists” (19th – 23rd October 2015) organized by PR Statistics LTD, Glasgow, Scotland.

▪ Course on "How to prepare a sample for high-throughput sequencing of fungal communities" organized by the Nordic -Russian Boreal Forest Biodiversity Education Network (2014)