

EUROPEAN
CURRICULUM VITAE
FORMAT



PERSONAL INFORMATION

Name
Address
Telephone
E-mail
Nationality
Date of birth

DI FIDIO NICOLA
VIA DELLA REPUBBLICA N° 54, 76121, BARLETTA (BT), ITALY
VIA GIAMBATTISTA MARINO N° 6, 56127, PISA (PI), ITALY
+39 3299740251
nicola.difidio91@gmail.com / n.difidio@studenti.unipi.it
Italy
04, May, 1991



EDUCATION AND TRAINING

- Dates (from – to) Nov 2017 - Dec 2020
- Name and type of organization Green Catalysis Laboratory, Department of Chemistry and Industrial Chemistry - **University of Pisa** (Supervisor: Prof. Anna Maria Raspolli Galletti)
- Title of qualification awarded Ph.D. in Chemistry and Materials Science
- Main activities and responsibilities Innovative process for the conversion of residual biomass into high added-value products combining chemical and biological catalysis
- Level in national classification **Excellent cum laude**
- Dates (from – to) 22 -26 July 2019
- Name and type of organization **The European Research Institute of Catalysis** (Sarteano - Italy)
- Type of sector **Summer School** "Making business with Green Chemistry & sustainable energy"
- Dates (from – to) 2 - 6 Sep 2018
- Name and type of organization **University of Wageningen** (The Netherlands)
- Type of sector **Summer School** ZELCOR "Zero waste biorefineries: technical advances and sustainability assessment"
- Dates (from – to) Oct 2013 - Dec 2015
- Name and type of organization Department of Biosciences, Biotechnologies and Biopharmaceutics - University of Bari
- Title of qualification awarded Master's degree in **Environmental and Industrial Biotechnologies**
- Level in national classification **110 / 110 cum laude**
- Dates (from – to) Oct 2010 - Oct 2013
- Name and type of organization Department of Biosciences, Biotechnologies and Biopharmaceutics - University of Bari
- Title of qualification awarded Bachelor's degree in **Industrial Biotechnologies**
- Level in national classification **110 / 110 cum laude**
- Dates (from – to) 2005 - 2010
- Name and type of organization Liceo Scientifico "Carlo Cafiero" - Barletta (BT)
- Title of qualification awarded **Maturità scientifica**
- Level in national classification **100 / 100 cum laude**

WORK EXPERIENCE

- Dates (from – to)
 - Name and address of employer
 - Occupation or position held
 - Main activities and responsibilities
-
- Dates (from – to)
 - Name and address of employer
 - Occupation or position held
 - Main activities and responsibilities
-
- Dates (from – to)
 - Name and address of employer
 - Occupation or position held
 - Main activities and responsibilities
-
- Dates (from – to)
 - Name and address of employer
 - Type of business or sector
 - Occupation or position held
 - Main activities and responsibilities
-
- Dates (from – to)
 - Name and address of employer
 - Occupation or position held
 - Main activities and responsibilities
-
- Dates (from – to)
 - Name and address of employer
 - Occupation or position held
 - Main activities and responsibilities
-
- Dates (from – to)
 - Name and address of employer
 - Occupation or position held
 - Main activities and responsibilities

TEACHING EXPERIENCE

- Dates (from – to)
- Name and address of employer
- Occupation or position held
- Main activities and responsibilities

Jan 2021 - present day
Department of Chemistry and Industrial Chemistry - **University of Pisa**, Green Catalysis Laboratory - Supervisor: Prof. Anna Maria Raspolli Galletti

Postdoctoral fellow

Innovative process for the conversion of residual biomass into high added-value products combining chemical and biological catalysis

Jul 2019 - Dec 2019

Wageningen Food & Biobased Research – **Wageningen University and Research** – Laboratory of Biobased Products

Visiting PhD student

Study on the electrochemical conversion of lignin into functionalised biopolymers – Supervisors: Dr. Ing. Richard Gosselink, Dr. Ted Slaghek

Jan 2017 - Jul 2017

Department of Biosciences, Biotechnologies and Biopharmaceutics - **University of Bari**
Department of Energetic Technologies - Laboratory of Biorefineries and Green Chemistry - **Italian National Agency for New Technologies, Energy and Sustainable Economic Development (ENEA)** - Trisaia (MT)

Research assistant

Optimization of fermentation processes for the conversion of lignocellulosic biomass hydrolysates into selected biochemicals - Supervisors: Prof. Luigi Palmieri, Dr. Isabella Pisano (University of Bari), Dr. Isabella De Bari (ENEA)

Sep 2016 - Jun 2017

Racanati Multitrader s.n.c. - Bisceglie (BT)

Sale of fertilizers, crop protection products, seeds and plants.

Technical consultant

Advising on plant and process design to produce fertilizers in the form of pellet.

Sep 2016 - Dec 2016

Department of Biosciences, Biotechnologies and Biopharmaceutics - **University of Bari**

Internship

Screening of enzymatic hydrolysates with high concentration of sugars and low content of secondary degradation products for the subsequent bioconversion by bacteria and yeasts

Mar 2015 - Nov 2015

Department of Energetic Technologies - Laboratory of Biorefineries and Green Chemistry - **Italian National Agency for New Technologies, Energy and Sustainable Economic Development (ENEA)** - Trisaia (MT)

Internship for Master's degree thesis

Fermentation of carbohydrates from lignocellulosic biomass into high added-value bioproducts

May 2013 - Jun 2013

Department of Biosciences, Biotechnologies and Biopharmaceutics - Laboratory of Molecular Biology - **University of Bari**

Internship for Bachelor's degree thesis

Cloning and expression of a gene encoding a *Rhodobacter sphaeroides* protein

- Dates (from – to)
 - Name and address of employer
 - Occupation or position held
 - Main activities and responsibilities
-
- Dates (from – to)
 - Name and address of employer
 - Occupation or position held
 - Main activities and responsibilities
-
- Dates (from – to)
 - Name and address of employer
 - Occupation or position held
 - Main activities and responsibilities

PUBLICATIONS

- Jan 2021
Department of Chemistry and Industrial Chemistry - University of Pisa
Laboratory Teaching Assistant
Principles of Industrial Chemistry Laboratory (Bachelor's program in Industrial and Environmental Chemistry) - Catalysis and chemical characterization (GC-FID, FT-IR)
- Nov 2018
Department of Chemistry and Industrial Chemistry - University of Pisa
Teaching Assistant
Principles of Industrial Chemistry Laboratory (Bachelor's program in Industrial and Environmental Chemistry) - Comparison between chemical and biological catalysis
- April 2021
Department of Chemistry and Industrial Chemistry - University of Pisa
Teaching Assistant
Industrial Chemistry and Laboratory (Master's program in Industrial Chemistry) – Industrial applications of biological catalysis: advantages, disadvantages and case studies.
- Di Fidio, N., Timmermans, J., Antonetti, C., Raspolli Galletti, A.M., Gosselink, R.J.A., Bisselink, R., Slaghek, T. Electro-oxidative depolymerisation of technical lignin in water using platinum, nickel oxide hydroxide and graphite electrodes, *New Journal of Chemistry*, 2021, *in press*. DOI: 10.1039/D1NJ01037A
- Di Fidio, N., Antonetti, C., Raspolli Galletti, A.M. Microwave-assisted FeCl₃-catalysed hydrolysis of giant reed and cardoon cellulose followed by fermentation to single cell oil by *Lipomyces starkeyi*. European Biomass Conference and Exhibition Proceedings (29th EUBCE), 2021, *in press*.
- Di Fidio, N., Ragaglini, G., Dragoni, F., Antonetti, C., Raspolli Galletti, A.M. Integrated cascade biorefinery processes for the production of single cell oil by *Lipomyces starkeyi* from *Arundo donax* L. hydrolysates. *Bioresource Technology*, 2020, 124635. DOI: 10.1016/j.biortech.2020.124635.
- Di Fidio, N., Dragoni, F., Antonetti, C., De Bari, I., Raspolli Galletti, A.M., Ragaglini, G. From a paper mill waste to single cell oil: enzymatic hydrolysis to sugars and their fermentation into microbial oil by the yeast *Lipomyces starkeyi*. *Bioresource Technology*, 2020, 123790. DOI: 10.1016/j.biortech.2020.123790
- Di Fidio, N., Fulignati, S., De Bari, I., Antonetti, C., Raspolli Galletti, A.M. Optimisation of glucose and levulinic acid production from the cellulose fraction of giant reed (*Arundo donax* L.) performed in the presence of ferric chloride under microwave heating. *Bioresource Technology*, 2020, 123650. DOI: 10.1016/j.biortech.2020.123650
- Di Fidio, N., Raspolli Galletti, A.M., Fulignati, S., Licursi, D., Liuzzi, F., De Bari, I., Antonetti, C. Multi-Step Exploitation of Raw *Arundo donax* L. for the Selective Synthesis of Second-Generation Sugars by Chemical and Biological Route. *Catalysts*, 2020, 10, 79. DOI: 10.3390/catal10010079
- Di Fidio, N., Antonetti, C., Raspolli Galletti, A.M. Microwave-assisted cascade exploitation of giant reed (*Arundo donax* L.) to xylose and levulinic acid catalysed by ferric chloride. *Bioresource Technology*, 2019, 122050. DOI: 10.1016/j.biortech.2019.122050
- Di Fidio, N., Fulignati, S., Antonetti, C., Raspolli Galletti, A.M. Microwave-assisted hydrolysis of giant reed hemicellulose in the presence of Amberlyst-70 as heterogeneous catalyst. European Biomass Conference and Exhibition Proceedings (27th EUBCE), 2019, pp. 1393-1398. DOI: 10.5071/27thEUBCE2019-3CV.7.29
- Di Fidio, N., Liuzzi, F., Mastrolitti, S., Albergo, R., De Bari, I. Single cell oil production from undetoxified *Arundo donax* L. hydrolysate by *Cutaneotrichosporon curvatus*. *Journal of*

Microbiology and Biotechnology, 2019, 29(2), 256–267. DOI: 10.4014/jmb.1808.09015.

De Bari, I., Cuna, D., Di Fidio, N. Biorefineries: Biofuels, Biochemicals And Bioproducts in Biofuels Production and Processing Technology, M.R. Riazi, David Chiaramonti (Eds). ISBN 9781498778930 - CRC Press Taylor & Francis Group, 2017. DOI: 10.1201/9781315155067-19

De Bari, I., Di Fidio, N., Liuzzi, F., Albergo, R., Mastrolitti, S. Lipids production from lignocellulosic hydrolyzates by the oleaginous yeast *Cryptococcus curvatus*. European Biomass Conference and Exhibition Proceedings (24th EUBCE), 2016, pp. 1335-1337.
DOI: 10.5071/24thEUBCE2016-3DV.3.89

GRANTS & AWARDS

3rd place award - National contest for innovators “Falling Wall Lab Italy 2020” - Università degli Studi di Milano Bicocca (Italy)

Case study selection award - International conference “Making business with green chemistry & sustainable energy 2019” - Sarteano (Italy)

Solvay Group special award - Young Innovators Contest 2018 sponsored by the municipality of Rosignano Marittimo (Italy) - Project title “GREENTECHOil”.

Grant for the participation to the national conference “CIG-2020: catalisi in gioco” - Reggio Calabria (Italy)

Grant for the participation to the international conference “Young Energy Researchers Conference - World Sustainable Energy Days 2020” - Wels (Austria)

Grant Erasmus+ 2019 for 2-months traineeship at the WFBR, Wageningen (The Netherlands)

Grant for 6-months STSM of European COST Action CA17128 – LignoCOST

Grant for the participation to the international conference “Making business with green chemistry & sustainable energy 2019” - Sarteano (Italy)

Grant for the participation to the international COST action “LignoCOST CA17128 2019” - Wageningen (The Netherlands)

Grant for the participation to the international conference “XVI CSCC 2018” - Siena (Italy)

Grant for the participation to the workshop “Third generation biorefineries 2017” - Bologna (Italy)

**ORAL COMMUNICATION IN
INTERNATIONAL CONFERENCES**

Single Cell Oil: a potential and innovative industrial platform for the production of new generation biodiesel and bioproducts starting from biomass - March 4-6, 2020, Wels (Austria) - **"Young Energy Researchers Conference - World Sustainable Energy Days"** - N. Di Fidio, I. De Bari, G. Ragaglini, C. Antonetti, A. M. Raspolli Galletti.

Single Cell Oil: a potential and innovative industrial platform for the production of new generation biodiesel and bioproducts starting from biomass - July 22-26, 2019, Sarteano (Italy) - **"Making business with green chemistry & sustainable energy"** - N. Di Fidio, S. Panchetti, I. De Bari, G. Ragaglini, C. Antonetti, A. M. Raspolli Galletti.

Development of processes for the complete valorisation of biomass by combining chemical and biological catalysis - March 13-15, 2019, Wageningen (The Netherlands) - **"CA17128 LignoCOST network: Establishment of a Pan-European Network on the Sustainable Valorisation of Lignin"** - N. Di Fidio, C. Antonetti, A. M. Raspolli Galletti.

Synergy between chemical and biological catalysis for new generation oil production according to the biorefinery perspective - February 22, 2019, Milano (Italy) - **"Chemists for Biotechnologies"** - N. Di Fidio, S. Panchetti, I. De Bari, G. Ragaglini, C. Antonetti, A.M. Raspolli Galletti

An integrated and versatile biorefinery model to produce lipids from second generation biomass - November 19-21, 2018, Rimini (Italy) - **"Merck & Elsevier Young Chemists Symposium (MEYCS 2018)"** - N. Di Fidio, S. Panchetti, I. De Bari, G. Ragaglini, C. Antonetti, A. M. Raspolli Galletti.

Production of second generation sugars from giant reed and cardoon as potential feedstock for the bioconversion into microbial lipids - June 17-20, 2018, Siena (Italy) - **"XVI CSCC 2018"** - N. Di Fidio, S. Fulignati, C. Antonetti, A. M. Raspolli Galletti.

**ORAL COMMUNICATION AS
INVITED SPEAKER**

GreenTechOil project - April 29, 2020, Pisa (Italy) - **"Webinar on Circular Economy"** - N. Di Fidio.

Biotechnologie a 360° - May 28, 2020, Bari (Italy) - Webinar for undergraduate students in Biotechnologies of the University of Bari - N. Di Fidio.

Nuovi modelli di economia circolare - March, 15, 2021, online (Italy) - **"Webinar Sfide Scientifiche del 2021"** - N. Di Fidio.

**POSTER IN INTERNATIONAL
CONFERENCES**

Microwave-assisted FeCl₃-catalysed hydrolysis of giant reed and cardoon cellulose followed by fermentation to single cell oil by *Lipomyces starkeyi* - Marseille (France), 26-29 April 2021 - **"29th European Biomass Conference & Exhibition"** - N. Di Fidio, C. Antonetti, A. M. Raspolli Galletti.

From agro-industrial lignocellulosic wastes to new generation biodiesel: an innovative biorefinery scheme based on the Green Chemistry and the Circular Economy - Milan (Italy), 29 September 2020 - **"8° Workshop Nazionale Gruppo Interdivisionale Di Green Chemistry - Chimica Sostenibile"** - N. Di Fidio, C. Antonetti, A. M. Raspolli Galletti.

Electro-oxidation of lignin and guaiacol: a cyclic voltammetry study - Regua (Portugal), 13-14 November 2019 - **"CA17128 LignoCOST Co-located workshop and 3rd MC meetings"** - N. Di Fidio, R. Bisselink, J. Timmermans, A. M. Raspolli Galletti, R. Gosselink, T. Slaghek.

Microwave-assisted cascade exploitation of giant reed (*Arundo donax* L.) towards a lignin-rich

residue - Regua (Portugal), 13-14 November 2019 - "**CA17128 LignoCOST Co-located workshop and 3rd MC meetings**" - C. Antonetti, N. Di Fidio, S. Fulignati, D. Licursi, M. Rollo, A. M. Raspolli Galletti.

Single Cell Oil: a potential and innovative industrial platform for the production of new generation biodiesel and bioproducts starting from biomass - Sarteano (Italy), 22-26 July 2019 - "**Making business with green chemistry & sustainable energy**" - N. Di Fidio, S. Panchetti, I. De Bari, G. Ragolini, C. Antonetti, A. M. Raspolli Galletti.

Highly efficient microwave-assisted conversion of giant reed (*Arundo donax* L.) carbohydrates to xylose and levulinic acid over FeCl₃ catalyst in green salt solutions – Pisa (Italy), 3 - 5 July 2019 – "**Chemistry for the Future**" – N. Di Fidio, C. Antonetti, A. M. Raspolli Galletti.

Microwave-assisted hydrolysis of giant reed hemicellulose in the presence of Amberlyst-70 as heterogeneous catalyst - Lisbon (Portugal), 27 - 30 May 2019 - "**27th European Biomass Conference & Exhibition**" - N. Di Fidio, S. Fulignati, C. Antonetti, A. M. Raspolli Galletti.

Lactic acid production from undetoxified cardoon hydrolysate by different *Lactobacillus* species - Bari (Italy), 12 – 13 November 2018 – "**Green Extraction of Natural Products (GENP 2018)**" - N. Di Fidio, F. Liuzzi, G. Agrimi, I. De Bari, I. Pisano.

Innovative green catalysts to produce second generation sugars from non-food crops as a versatile biorefinery platform – Pisa (Italy), 4 - 6 July 2018 – "**Chemistry for the Future**" – N. Di Fidio, S. Panchetti, S. Fulignati, C. Antonetti, A. M. Raspolli Galletti.

Optimization of acid-catalyzed pretreatment of cardoon residues and development of innovative enzymatic cocktail - Rimini (Italy), 7 - 10 November 2017 - "**Ecomondo, The Green Technologies Expo**" - F. Liuzzi, N. Di Fidio, A. D'Annibale, M. Petruccioli, I. Pisano, I. De Bari.

Conversion of raw glycerol and cardoon hydrolysate into single cell oil by oleaginous yeasts - Roma (Italy), 5 - 6 October 2017 - "**Italian forum on Industrial Biotechnology and Bioeconomy**" - A. Caporusso, L. Donzella, N. Di Fidio, I. De Bari.

Bioconversion of cardoon hydrolysate sugars into lactic acid - Roma (Italy), 5 - 6 October 2017 - "**Italian forum on Industrial Biotechnology and Bioeconomy**" - I. Pisano, N. Di Fidio, F. Liuzzi, I. De Bari.

Lipids and lactic acid production by microbial fermentation of cardoon hydrolysates - Bologna (Italy), 23 - 24 March 2017 - Workshop "**Third generation biorefineries**" - N. Di Fidio, A. Caporusso, F. Liuzzi, S. Mastrolitti, I. Pisano, I. De Bari.

Conversion of biomass polysaccharides to microbial high added-value molecules by yeasts - Vicenza (Italy), 22 - 23 September 2016 - "**Italian forum on Industrial Biotechnology and Bioeconomy**" - I. De Bari, N. Di Fidio, A. Caporusso, F. Liuzzi, S. Mastrolitti.

Lipids production from lignocellulosic hydrolyzates by the oleaginous yeast *Cryptococcus curvatus* - Amsterdam (Netherlands), 6 - 9 June 2016 - "**24th European Biomass Conference & Exhibition**" - I. De Bari, N. Di Fidio, S. Mastrolitti, F. Liuzzi, R. Albergo, V. Valerio.

Effect of bases and acids during the steam explosion pretreatment and fractionation of lignocellulosic biomass for the production of biobased products - Lodi (Italy), 24 - 25 September 2015 - "**Italian forum on Industrial Biotechnology and Bioeconomy**" - I. De Bari, F. Liuzzi, N. Di Fidio, S. Mastrolitti.

Microbial lipid production from mixed sugars hydrolyzates by the oleaginous yeast *Cryptococcus curvatus* - Perugia (Italy), 13 - 17 September 2015 - "**32th International Specialized Symposium on Yeasts: Yeasts Biodiversity and Biotechnology in the Twenty-First Century**" - S. Mastrolitti, N. Di Fidio, F. Liuzzi, M. A. Capozzi, I. De Bari.

**PERSONAL SKILLS
AND COMPETENCES**

MOTHER TONGUE

ITALIAN

OTHER LANGUAGES

- Reading skills
- Writing skills
- Verbal skills

ENGLISH

C1

C1

C1

SOCIAL SKILLS
AND COMPETENCES

Communication, teamwork, interpersonal skills

ORGANIZATIONAL SKILLS
AND COMPETENCES

Responsibility, working autonomy, problem solving, fast learning, flexibility

TECHNICAL SKILLS
AND COMPETENCES

Informatic software: Microsoft Office®, Origin®, Quantum XL®, PyMOL, Ivium®

Chemometrics: design of experiments (DoE), response surface methodology (RSM) analysis.

Chemistry: microwave-assisted chemical hydrolysis of biomass, homogeneous and heterogeneous catalysis, lipids extraction and trans-esterification. HPLC, GC, IC, UV-VIS spectrophotometry and basic knowledge of IR and Mass spectra.

Electrochemistry: cyclic voltammetry, electrodes preparation (Pt, C, NiOOH), electrolysis.

Biotechnology: yeast and bacteria manipulation in condition of sterility, cell cultures, microplate screening of microorganisms, batch and fed-batch fermentation in Erlenmeyer flasks and bioreactors, PCR, cloning, gene transfer, gel electrophoresis, enzymatic assays, optical microscopy.

Business: Business Model Canvas, business plan (basic knowledge), pitch presentation.

DRIVING LICENSE

B - own car

ADDITIONAL INFORMATION

From April 2020 member of the Social Media Group of the COST Action CA17128 LignoCOST

From January 2019 member of the Communication Office of the Department of Chemistry and Industrial Chemistry, University of Pisa

From August 2017 editor of the scientific website "Microbiologia Italia"

From February 2021 national coordinator of the thematic area "Valorisation of PhD" of the "Italian Association of Ph.D. and Ph.D. students" (ADI)

Member of Organizing Committee of the international conference "Chemistry for the Future", Pisa (Italy), 3-5 July 2019

From December 2018 to February 2021 vice Coordinator and Organizational Manager of the "Italian Association of Ph.D. and Ph.D. students" in Pisa (ADI-PISA)

From January 2020 to April 2021 member of the Academic Senate of the University of Pisa

Member of "Società Chimica Italiana" (ID 21737)

Member of "Associazione Internazionale Ricercatori Italiani" (ID 00671)

Hobbies: football, volley, manga, reading of science and technology magazines

In compliance with the Italian legislative Decree no. 196/2003, I hereby authorize you to use and process my personal details contained in this document and I confirm the truthfulness of information in compliance with the DPR no. 445/2000.

Date 2/5/2021

SIGN

