

DONATELLA AMBROSELLI

Curriculum Vitae

Part I – General Information

Full Name	Donatella Ambroselli
Spoken Languages	Italian, English

Part II – Education

IIA – Academic Education

Type	Year	Institution	Notes
Phd in MOLECULAR DESIGN AND CHARACTERIZATION FOR THE PROMOTION OF HEALTH AND WELL-BEING: FROM DRUG TO FOOD	2024	Department of Chemistry and Technology of Drugs, Sapienza University of Rome	Excellent with honours
Master's Degree	2020	Department of Chemistry and Technology of Drugs, Sapienza University of Rome	107/110

IIB – Other training course

Type	Year	Institution	Notes
Training School	2022	University of Pavia	<i>Autumn School in Food Chemistry</i>
Training School	2024	University of Turin	<i>XXVI Scuola Nazionale di Risonanza Magnetica Nucleare – G I D R M (Advanced course)</i>

Part III – Appointments

IIIA – Academic appointments

Start	End	Institution	Position
1-02-2024	31-01-2025	Department of Chemistry and Technology of Drugs, Sapienza University of Rome	Research Fellow Research Topic: Food Chemistry, analysis of complex food matrixes to characterise and valorize foodstuff
1-12-2021	30-11-2023	Department of Chemistry and Technology of Drugs, Sapienza University of Rome	Research Fellow Research Topic: Food Chemistry, analysis of complex food matrixes to characterise and valorise foodstuff
1-04-2021	31-07-2021	Department of Chemistry and Technology of Drugs, Sapienza University of Rome	Research Young Fellow Research Topic: Food Chemistry, analysis of complex food matrixes to characterise and valorise foodstuff

2018	2020	Department of Public Health and Infectious Diseases, Sapienza University of Rome	<p>Research Topic: Identification of predictive biomarkers of Progressive Multifocal Leukoencephalopathy caused by Human Polyomavirus JC in Multiple Sclerosis patients treated with Natalizumab</p> <p>Identification of gene sequences by PCR (Polymerase Chain Reaction), Real Time PCR and gel electrophoresis.</p>
------	------	--	---

IIIB – Abroad Experience

Start	End	Institution	Position
1-02-2023	1-08-2023	Centre Interdisciplinaire de Nanoscience de Marseille (CINaM), University of Marseille	<p>Visiting Researcher – Study Abroad Internship</p> <p>Study of natural plant mixtures (essential oils, essential extracts) with high biological value, using NMR and MS approaches.</p>
1-07-2023	14-07-2023	Laboratory of Natural Products Chemistry, University of Corsica	Production and analysis of essential oils from vegetables matrices by applying GC/MS.

IIIC – Fellowship

Start	End	Institution	Position
1-02-2024	31-01-2025	Department of Chemistry and Technology of Drugs, Sapienza University of Rome	Research Fellow AGRITECH
15-07-2024	19-07-2024	GIDRM	GIDRM Fellowship for attendance at <i>XXVI Scuola Nazionale di Risonanza Magnetica Nucleare – GIDRM (Advanced course)</i>
06-09-2023	8-09-2023	GIDRM	Fellowship for attendance at <i>50th National Congress on Magnetic Resonance</i>
1-03-2023	31-05-2023	Sapienza University of Rome	Grant Agreement for International Mobility
27-09-2022	30-09-2022	GIDRM	Fellowship for attendance at the <i>Italian-French International Conference on Magnetic Resonance</i>
1-12-2021	30-11-2023	Department of Chemistry and Technology of Drugs, Sapienza University of Rome	Research Fellow Ministry of Economic Development (MiSE)

Part IV – Teaching experience

Year	Institution	Lecture/Course
2023	Department of Chemistry and Technology of Drugs, Sapienza University of Rome	<i>Tutoring</i> Math lessons and university support activities for students.
2022-2023	Department of Pharmacy and Medicine, Biomedical Scientific Communication, Sapienza University of Rome	<i>Tutoring</i> Chemistry lessons and university support activities for students

Part V - Society memberships, Awards and Honors

Year	Title
2021-2024	Italian Group of Magnetic Resonance Discussion (GIDRM)
2024	Italian Society of Nutrition Science (SISA)

Part VI - Funding Information [grants as PI-principal investigator or I-investigator]

Year	Title	Program	Grant value
2023	TREACE: Fermentation of Tomato By-products for the development of food Additives and bioActive ingredients in foods N. PROT. RM123188F74C7C92	Sapienza - University Research Project 2023	€ 11000

Part VII Conference organization, lectures and posters

VIII A Conference organization

Place, Date	Conference	Position
Rome, 24/02/2023	Workshop Ri-cicloHorto <i>Valorizzazione degli scarti alimentari</i> Department of Chemistry and Technology of Drugs, Sapienza University of Rome	Scientific Committee Member Organizing Committee Member
Rome, 09/09/2023	Workshop FITOBIO <i>Caratterizzazione multi-metodologica di piante officinali</i> Department of Chemistry and Technology of Drugs, Sapienza University of Rome	Scientific Committee Member Organizing Committee Member
Rome, 23- 24/06/2022	VII Workshop - <i>Applicazioni della Risonanza Magnetica nella Scienza degli Alimenti</i> Department of Chemistry and Technology of Drugs, Sapienza University of Rome	Segretariat
Rome, 27/05/2022	Workshop Ri-cicloHorto <i>Valorizzazione degli scarti alimentari – primo anno di attività online meeting</i> Department of Chemistry and Technology of Drugs, Sapienza University of Rome	Scientific Committee Member Organizing Committee Member

VIII B Lectures

Place and Date	Conference	Position
Rome, 23 – 25/09/2024	AMYC-BIOMED, Autumn Meeting for Young Chemists in Biomedical Sciences - 5 th Edition Department of Chemistry, Sapienza University of Rome	Lecture: “From safety to sustainability along the tomato supply chain”
Rome, 24 – 28/06/2024	SYNC 2024, Symposium for YouNg Chemists Department of Chemistry, Sapienza University of Rome	Lecture: “Plant-Based Food: From Nutritional Value to Health Benefits”
Rome, 20-21/06/2024	VIII Workshop - <i>Applicazioni della Risonanza Magnetica nella Scienza degli Alimenti</i> Department of Chemistry and Technology of Drugs, Sapienza University of Rome	Lecture: “Profilo fitochimico di <i>Arctium lappa</i> L., <i>Taraxacum officinale</i> e <i>Melissa officinalis</i> : un confronto tra ecotipi spontanei e biologici”
Pavia, 17-18/10/2022	Autumn school in food chemistry University of Pavia	Short communication: “Cauliflower by-product valorization through a multi methodological approach”
Rome, 9-09-2022	Workshop FITOBIO <i>caratterizzazione multi-metodologica di piante officinali</i> Department of Chemistry and Technology of Drugs, Sapienza University of Rome	Lecture: “Caratterizzazione metabolomica NMR di tre ecotipi di <i>Melissa officinalis</i> ”

Rome, 27/05/2022	Workshop Ri-ciclohorto Valorizzazione degli scarti alimentari Department of Chemistry and Technology of Drugs, Sapienza University of Rome	Lecture: “Produzione di biostimolanti a partire da scarti di carciofo e cavolfiore”
---------------------	---	--

VIII C Poster

Place and Date	Conference	Title
Rome, 3-4/10/2024	XXI CONGRESSO NAZIONALE SISA (Società Italiana di Scienze dell'Alimentazione)	“Multi-methodological analysis along the ‘Pomodoro Riccio’ supply chain: sustainability and safety”
Florence, 4-6/09/2024	51 st National Congress on Magnetic Resonance	“The influence of biodegradable packaging material on the quality and shelf life of fresh apples”
Rome, 8-8/09/2024	50 th National Congress on Magnetic Resonance	“Biodiversity within Melissa officinalis by applying NMR based metabolomics at 50th National”
Marsala, 29-31/05/2023	XIII Congresso Nazionale di Chimica degli Alimenti	“Valorization of agro-food waste into artichoke and cauliflower by-products-based food supplements”
Milan, 27-30/09/2022	Italian-French International Conference on Magnetic Resonance	“Cauliflower by-products valorization by applying NMR based metabolomics”
Rome, 23-14/06/2022	VII workshop Applicazioni della Risonanza Magnetica nella Scienza degli Alimenti	“NMR metabolomic profiling of fresh Goji berries from two varieties grown in Lazio”
Rome, 18-21/12/2019	47° Congresso Nazionale della Società Italiana di Microbiologia	“Polyomaviruses stool shedding in patients with hematological disorders: detection analysis and study of the non-coding control region genetic variability”

Part IX – Scientific Qualification

Date	Description
11/2021	Qualified Pharmacist at Sapienza University of Rome

Part X – Research Activities

The research activity of Dr. Donatella Ambroselli is focused on the study of food matrices carried out using advanced methodologies, such as Nuclear Magnetic Resonance (NMR) and high-performance liquid chromatography (HPLC), and on the natural products investigation.

Keywords: Foodstuffs; Advanced methodologies; Metabolomics; Natural Products

NMR and metabolomic	<p>In the field of NMR, Dr Ambroselli's research focused on characterising and monitoring metabolomic profiles of plant and food matrices. Specifically, untargeted NMR-based approaches were applied, which made it possible to identify compounds such as amino acids, nucleic acids, polyphenols, organic acids, sugars, and saturated and unsaturated fatty acids. Assignments of hydroalcoholic and lipophilic fractions were carried out using 2D experiments (^1H-^1H TOCSY, ^1H-^{13}C HSQC, ^1H-^{13}C HMBC), with the addition of reference standards and literature data from other matrices analysed under similar experimental conditions. To discern compounds with particular structures, 2D experiments such as NOESY and DOSY were applied.</p> <p>The specific objectives of this line of research are:</p> <ul style="list-style-type: none">- Design metabolomics experiments that provide relevant information on the metabolic status of the representative organisms analysed;- Develop different protocols for the preparation of specific samples;- Define a workflow for data analysis to study these NMR samples. This workflow includes alignment and normalisation of NMR data, assignment and integration of resonances, statistical analysis ANOVA (Analysis of Variance) for significance and analysis of the data set with chemometric methods, such as principal component analysis (PCA);- establish a data analysis strategy to merge NMR spectroscopy data with those obtained from other analytical platforms with the aim of generating a more complete characterisation of metabolic perturbations in the organisms studied.
----------------------------	---

Food Resources	<p>In the field of food resources, Dr Ambroselli research interest aims at determining the foodstuffs' metabolic profile by advanced targeted and untargeted methodologies (like NMR spectroscopy and chromatography) and, according to the specific problem, elaborating the obtained data through appropriate multivariate statistical analyses. The applicant's expertise comprises the study of different food matrices to have information regarding the following issues:</p> <ul style="list-style-type: none"> • <i>Chemical characterisation of the metabolite profile</i>: comprehensive information regarding compounds in the sample (this information may be also useful for industries interested in specific nutrients for the formulation of new products). • <i>Geographical origin determination</i>: to classify samples according to geographical origin and to detect possible frauds within the food traceability issues. • <i>Cultivar differentiation</i>: to study the genetic effects of variety and type of production and farming. • <i>Ripening monitoring</i>: monitor the foodstuff metabolic profiles over time (this aspect may have an important role in the determination of the most suitable time for product harvesting). • <i>Agronomical practices effects</i> to study the effect of specific sample treatments. <p>Main skills: Extraction protocols, metabolomics, chemometrics, NMR, HPLC-UV, HPLC-MS.</p>
Food processing	<p>In the field of food processing, Dr Ambroselli's research is focused on the following topics:</p> <ul style="list-style-type: none"> • <i>Agri-food waste valorisation</i>. Dr Ambroselli's expertise is valorizing agri-food waste by applying a multi-methodological protocol and providing innovative solutions like developing biostimulants and bioactive compounds for nutraceutical use. <p><i>Innovative food packaging to preserve food quality</i>. Dr. Ambroselli's research focuses on producing and studying new biomaterials for food packaging starting from food waste.</p>
Food intake	<p>In the field of food intake, Dr Ambroselli research is focused on the following topics:</p> <ul style="list-style-type: none"> • <i>Role of food and diet in preventing and treating diseases</i>. She has expertise in identifying biomarkers present in biological fluids to detect metabolic changes, defining pathological conditions. <p><i>Food Consumption monitoring studies</i>. Dr. Ambroselli's research based on NMR metabolomics of obese patient urines, reporting the effects of selected foodstuffs intake in high-fat and high-sugar meals on some specific markers of type II diabetes.</p>

Part XII – Summary of Scientific Achievements

Documents	6
Total Citations	85
Hirsch (H) index	4

Database: SCOPUS, November 2024

XIIA – Articles

1. A. Salvo; F. Masciulli; D. Ambroselli; E. Romano; C. Ingallina; M. Spano; G. Di Matteo; A. M. Giusti; A. Di Sotto; E. Percaccio; S. Di Giacomo; G. Vinci; S. A. Prencipe; E. Acciaro; A.P. Sobolev; L. Costantini; N. Merendino; R. Giulianelli; E. Campiglia; L. Mannina. *Hydrolysates from cauliflower and artichoke industrial wastes as biostimulants on seed germination and seedling growth: a chemical and biological characterization*. J Sci Food Agric. (2024). DOI: 10.1002/jsfa.13813
2. D. Ambroselli; F. Masciulli; E. Romano; R. Guerrini; C. Ingallina; M. Spano; L. Mannina. *NMR Metabolomics of *Arctium lappa* L., *Taraxacum officinale* and *Melissa officinalis*: A Comparison of Spontaneous and Organic Ecotypes*.

Foods 2024, 13, 1642. DOI: 10.3390/foods13111642

3. D. Ambroselli, F. Masciulli, E. Romano, G. Catanzaro, Z. M. Besharat, M. C. Massari, E. Ferretti, S. Migliaccio, L. Izzo, A. Ritieni, M. Grosso, C. Formichi, F. Dotta, F. Frigerio, E. Barbiera, A. M. Giusti, C. Ingallina, L. Mannina. *New Advances in Metabolic Syndrome, from Prevention to Treatment: The Role of Diet and Food*. *Nutrients* (2023), 15, 640. DOI: 10.3390/nu15030640.
4. M. Kratter, F. Benedetti, F. Mura, C. Ingallina, D. Ambroselli, L. Nigro, T. Rinaldi *Climate change and cultural heritage: a unique and fragile interaction* [Abstract conference proceedings]
5. M. Spano, G. Di Matteo, C. Ingallina, D. Ambroselli, S. Carradori, M. L. Gallorini, A. M. Giusti, A. Salvo, M. Grosso, L. Mannina. *Modulatory Properties of Food and Nutraceutical Components Targeting NLRP3 Inflammasome Activation*. *Nutrients* (2022), 14, 490. DOI: 10.3390/nu14030490
6. C. Prezioso, F. Obregon, D. Ambroselli, Petrolo, S., P. Checcon, D. M. Rodio, L. Coppola, A. Nardi, C. Vito, Sarmati, L., M. Andreoni, A.T. Palamara, M. Ciotti, V. Pietropaolo. *Merkel Cell Polyomavirus (MCPyV) in the Context of Immunosuppression: Genetic Analysis of Noncoding Control Region (NCCR) Variability among a HIV-1-Positive Population*. *Viruses*. 2020;12(5):507 . DOI:10.3390/v12050507
7. C. Prezioso, M. Ciotti, F. Obregon, D. Ambroselli, D.M. Rodio, L. Cudillo, J. Gaziev, A. Mele, A. Nardi, C. Favalli, W. Arcese, A.T. Palamara, V. Pietropaolo. *Polyomaviruses shedding in stool of patients with hematological disorders: detection analysis and study of the non-coding control region's genetic variability*. *Medical microbiology and immunology* (2019) 208(6), 845854. <https://doi.org/10.1007/s00430-019-00630-9>