

# Maria Gioia Fabiano

## CV in italiano

### Informazioni generali

|                 |                                 |
|-----------------|---------------------------------|
| Nome            | Maria Gioia                     |
| Cognome         | Fabiano                         |
| Nazionalità     | Italiana                        |
| Indirizzo email | mariagioia.fabiano@uniroma1.it  |
| Lingue parlate  | Italiano (madrelingua), Inglese |

### Formazione

[1/01/ 2021- 31/12/2024]

Dottoranda, XXXVII ciclo, in MOLECULAR DESIGN AND CHARACTERIZATION FOR THE PROMOTION OF HEALTH AND WELL-BEING: FROM DRUG TO FOOD

[Luglio 2021]

Abilitazione alla professione di Farmacista - Sapienza Università di Roma

Attualmente iscritta all'Ordine dei Farmacisti di Roma

[17 Marzo 2021]

Laurea in Farmacia - Sapienza Università di Roma

Voto: 110 e lode

Tesi sperimentale: "Nanosistemi a base di olio di cocco e olio di mandorla: preparazione, caratterizzazione e potenziali applicazioni"

Relatrice: Prof.ssa Maria Carafa

[a.a. 2013-2014]

Liceo Scientifico "Federigo Enriques"

Voto: 86/100

### Esperienza Professionale

[26/10/2024 - 20/12/2024]

Docente per il corso di Chimica (18 ore) - Scuola Media "Cesare Piva"

Nell'ambito del D.M. 65/2023, Linea di Intervento A2 'Orientamento STEM', finalizzato a promuovere l'interesse per le materie scientifiche e tecniche, con particolare attenzione alle studentesse e al superamento degli stereotipi di genere

[01/06/2021 - 31/12/2021]

Farmacista Collaboratrice

Farmacia dei Velieri snc, Roma

### Posizione Attuale

Dottoranda, XXXVII ciclo, in MOLECULAR DESIGN AND CHARACTERIZATION FOR THE PROMOTION OF HEALTH AND WELL-BEING: FROM DRUG TO FOOD

Università degli Studi di Roma "La Sapienza," Nanomedicine\_Lab

Tutor: Prof.ssa Maria Carafa

Progetto: "Nanodispersed essential oils as biodegradable and biocompatible treatments to improve the sanitization and fermentation of the organic fraction of municipal solid waste"

### Competenze di Ricerca

L'attività di ricerca si è concentrata sulla preparazione e caratterizzazione di nanovettori per la somministrazione di farmaci, gas (come i PFC) per la terapia e diagnosi, molecole naturali, così come oli e oli essenziali. In particolare, la ricerca ha coinvolto Nanoemulsioni, Liposomi, Niosomi e, più recentemente, Nanoparticelle di Chitosano. È stata dedicata particolare attenzione alla caratterizzazione dei nanovettori per comprendere meglio il loro comportamento e le loro proprietà per diverse applicazioni. Durante la tesi sperimentale e il dottorato, sono stati preparati e caratterizzati numerosi nanovettori per applicazioni cutanee, polmonari, naso-cerebrali, nonché per compost e alimenti, garantendo la loro sicurezza microbiologica. Durante il periodo di ricerca all'estero, mi sono concentrata sull'ecotossicità, testando le formulazioni su cellule di microalghe e *Daphnia magna*.

Competenze Tecniche e Metodologiche:

- Dynamic Light Scattering (DLS)
- Nanoparticle Tracking Analysis (NTA)
- Spettroscopia Infrarossa (IR)
- Microfluidica
- Metodi analitici utilizzando spettrofotometria UV-Vis e spettrofluorimetria
- Tecniche di purificazione mediante cromatografia su colonna, centrifugazione e ultracentrifugazione
- Esperimenti con microalghe cellulari, *Daphnia magna* e gamberetti.

### Esperienza di Didattica

- a.a. 2022-2023: 80 ore di tutoraggio in matematica per studenti del corso di laurea in Chimica e Tecnologia Farmaceutiche presso l'Università degli Studi di Roma "La Sapienza"
- a.a. Year 2023-2024: 80 ore di tutoraggio in matematica per studenti del corso di laurea in Farmacia presso l'Università degli Studi di Roma "La Sapienza"
- a.a. 2024-2025: 80 ore di tutoraggio in Scienze Farmaceutiche Applicate presso l'Università degli Studi di Roma "La Sapienza", da completare
- 18 ore di insegnamento di Chimica presso la scuola media "Cesare Piva" – dal 18.10.24 al 20.12.24.
- 21 ore di insegnamento di Chimica presso la scuola media "Alcide De Gasperi" – da concludere

### Esperienza di Ricerca Nazionale e Internazionale

[2 aprile 2024 – 15 ottobre 2024]

Periodo di ricerca all'estero

Università di Lund, Svezia – Dipartimento di Biochimica e Biologia Strutturale

Esperimenti di ecotossicità su microalghe e *Daphnia magna*

[1 luglio 2023 – 31 dicembre 2023]

Periodo di ricerca industriale presso Manna Biochemical srl, Latina (LT), Italia

[20 luglio 2023 – 24 luglio 2024]

Periodo di ricerca all'estero

European Synchrotron Radiation Facility (ESRF) – Grenoble, Francia

Esperimenti di scattering a piccolo angolo di raggi X (SAXS) in collaborazione con la Prof.ssa Elena Del Favero (Università di Milano)

#### **Presentazioni orali come relatrice**

- 1) IUFoST 22<sup>nd</sup> World Congress of Food Science and Technology, Rimini, Italia – 8-12 Settembre 2024  
"Thymus essential oil o/w nanoemulsions as a treatment to improve compost sanitization"  
M. G. Fabiano\*, J. Forte, E. D'Intino, T. Cedervall, M. Ekvall, S. Garzoli, F. Rinaldi, C. Marianecci, M. Carafa
- 2) IUFoST 22<sup>nd</sup> World Congress of Food Science and Technology, Rimini, Italia – 8-12 Settembre 2024  
"Design and characterization of resveratrol and thyme essential oil loaded liposomes as potential additives to improve the microbial safety of food products"  
M. G. Fabiano\*, J. Forte, E. D'Intino, L. Maurizi, C. Longhi, T. Cedervall, M. Ekvall, F. Rinaldi, C. Marianecci, M. Carafa
- 3) 1st SITELF National PhD summer school, Pavia, Italia – 2-4 Settembre 2024  
"Essential oil-based soft nanocarriers: exploring their potential application in different fields"  
M. G. Fabiano\*, J. Forte, E. D'Intino, T. Cedervall, M. Ekvall, S. Garzoli, L. Maurizi, C. Longhi, F. Rinaldi, C. Marianecci, M. Carafa
- 4) Younginnovation2023, Università degli Studi di Roma "La Sapienza", Italia – 20-22 settembre 2023  
*Abstract selezionato come presentazione orale su invito*  
"Inhibiting Pin1 by ATRA-loaded niosomes to treat High-Grade serous Ovarian Cancer"  
M. G. Fabiano\*, M. V. Giuli, P. N. Hanieh, J. Forte, F. Rinaldi, C. Marianecci, M. Carafa
- 5) VII Congresso Nazionale della Società Italiana per la Ricerca sugli Oli Essenziali, Università degli Studi di Roma "La Sapienza", Italia – 30 giugno - 1 luglio 2023  
"Oli essenziali in nanoemulsioni: un sistema promettente per differenti applicazioni"  
M.G. Fabiano\*, J. Forte, L. Rinaldi, S. Garzoli, C. Marianecci, M. Carafa

#### **Presentazioni orali come autrice**

- 1) International Conference on Emerging Technologies in Transdermal Drug Delivery, Naples, Italy - 17-19 Aprile 2023  
"Lentiscus Oil based nanoemulsions for skin infections: characterization and preliminary antibacterial activity evaluation"  
M.G. Fabiano, J. Forte\*, L. Maurizi, C. Longhi, F. Rinaldi, C. Marianecci, M. Carafa
- 2) NanoInnovation 2024 - Conference & Exhibition, Sapienza Università di Roma, Italia - 09-13 Settembre 2024  
"Application of microfluidic technology to obtain pH-sensitive niosomes for ATRA delivery in High-Grade Serous Ovarian Cancer (HGSOC)" E. D'Intino\*, M. V. Giuli, J. Forte, M. G. Fabiano, F. Rinaldi, E. Del Favero, S. Checquolo, M. Carafa, C. Marianecci.
- 3) NanoInnovation 2024 - Conference & Exhibition, Sapienza Università di Roma, Italia - 09-13 Settembre 2024  
"Microfluidics technique: an Innovative production of Niosomal Formulations"  
J. Forte\*, M.G. Fabiano, E. D'Intino, F. Rinaldi, C. Marianecci, M. Carafa

#### **Presentazioni Poster come relatrice**

- 1) 14th World Meeting on Pharmaceutics, Biopharmaceutics and Pharmaceutical Technology, Vienna, Austria - 8-21 Marzo 2024  
"Cannabidiol (CBD) delivery strategies by surfactant-based "soft" nanocarriers"  
M.G. Fabiano\*; J. Forte; E. Casagni; G. Roda; F. Rinaldi; C. Marianecci; M. Carafa
- 2) XXIII Scuola Dottorale in Tecnologia Farmaceutica, Trieste, ADRITELF, Società Chimica Italiana - 11-15 settembre 2023  
"Nanodispersed essential oils as biodegradable and biocompatible treatments to improve sanitization and fermentation of the organic fraction of municipal solid waste"  
M.G. Fabiano\*, J. Forte, F. Rinaldi, S. Garzoli, C. Marianecci, M. Carafa
- 3) 14th Central European Symposium on Pharmaceutical Technology, Ohrid (North Macedonia) - 28-30 Settembre 2023  
"pH-sensitive niosomal ATRA delivery as a promising approach to inhibit Pin1 in High-Grade Serous Ovarian Cancer"  
M.G. Fabiano\*, M. V. Giuli, P.N. Hanieh, J. Forte, F. Rinaldi, S. Checquolo, C. Marianecci, M. Carafa
- 4) Biophysics@Rome2023, CNR Roma "Research on the path to sustainability" - 19-20 Aprile 2023  
"Optimization of oil in water nanoemulsions by different surfactants/oils"  
M.G. Fabiano\*, J. Forte, F. Rinaldi, S. Garzoli, C. Marianecci, M. Carafa
- 5) 4th European Conference on Pharmaceutics - Advanced technologies enabling new therapies, Marsiglia (Francia) - 20-21 Marzo 2023  
"Essential Oil Nanoemulsions to biostabilize the organic fraction of massive Municipal Solid Waste (MSW)" M.G. Fabiano\*, J. Forte, F. Rinaldi, P.N. Hanieh, S. Garzoli, S. Manna, F. Manna, C. Marianecci, M. Carafa
- 6) XXI Scuola Dottorale in Tecnologia Farmaceutica "Strategie terapeutiche per le patologie vascolari: il ruolo della tecnologia farmaceutica", Università degli Studi di Roma "La Sapienza", ADRITELF, Società Chimica Italiana - 5-7 settembre 2022  
"Surfactant-based nanoencapsulation of Cannabidiol oil: preparation, characterization and preliminary evaluation of antibacterial activity"  
M.G. Fabiano\*, J. Forte, P.N. Hanieh, F. Rinaldi, C. Longhi, L. Maurizi Marianecci, M. Carafa
- 7) SYNC Congress 2022, First Symposium for young Chemist: Innovation and Sustainability - Sapienza Università di Roma, Dip. di Chimica - 20-23 Giugno 2022  
"Nanoemulsions of satureja Montana Essential Oil: Antimicrobial and Antibiofilm activity against avian Escherichia Coli strains"  
M. Gioia Fabiano\*, Federica Rinaldi, Linda Maurizi, Antonietta Lucia Conte, Massimiliano Marazzato, Alessandro Maccelli, Maria Elisa Crestoni, Patrizia Nadia Hanieh, Jacopo Forte, Maria Pia Conte, Carlo Zagaglia, Catia Longhi, Carlotta Marianecci, Maria Grazia, Ammendolia and Maria Carafa

#### **Presentazioni poster come autore**

- 1) AMYC-BIOMED 2024 - 23-25 Settembre 2024  
"A multidisciplinary approach to design and characterize essential oil-based nanoemulsions with antibacterial activity"  
Eleonora D'Intino\*, Maria Gioia Fabiano, Jacopo Forte, Bruno Casciaro, Maria Luisa mangoni, Federica Rinaldi, Maria Carafa, Carlotta Marianecci

- 2) The XIV European Multicolloquium of Parassitology–Current parasitology multy-disciplinarity, 26-30 Agosto 2024, Wroclaw, Polonia  
 "Characterization of extracellular vesicles from three zoonotic nematodes: Anisakis, Ascaris and Dirofilaria"  
 Serena Cavallero\*, Ilaria Bellini, Simona Gabrielli, Marco Pombi, Luigi Venco, Antonio Varcasia, Ettore Napoli, Emanuele Brianti, Claudia Chiovoloni, Silvia Rondon, Agostina Pietrantoni, Claudia Tamponi, Anna Kashkanova, Federica Rinaldi, Maria Gioia Fabiano, Eleonora D'Intino, Stefano D'Amelio
- 3) 1st SITELF National PhD summer school, Pavia, Italia - 2-4 Settembre 2024  
 "Soft and hard nanoparticles as a delivery strategy for the treatment of bacterial infections" Eleonora D'Intino\*, Jacopo Forte, Maria Gioia Fabiano, Rossella Puglisi, Gianfranco Mattia, Federica Rinaldi, Maria Carafa, Carlotta Marianecci
- 4) CRS 2024 Annual Meeting and Expo, Bologna, Italia - 8-12 July 2024  
 Gentamicin-loaded niosomes as a promising intravesical approach to treat intracellular urinary tract infections (UTIs)"  
 Eleonora D'Intino\*, Maria Gioia Fabiano, Jacopo Forte, Linda Maurizi, Catia Longhi, Federica Rinaldi, Maria Carafa, Carlotta Marianecci
- 5) XIII Meeting Paul Ehrlich Euro - PhD Network & COST Action One Health Drugs - Sapienza Università di Roma, Rome, Italia - 17-19 Giugno 2024  
 "From magic bullets to nanomedicine: where do we stand?"  
 Eleonora D'Intino\*, Maria Gioia Fabiano, Jacopo Forte, Federica Rinaldi, Maria Carafa, Carlotta Marianecci
- 6) Biophysics@Rome2023 - CNR Roma "Research on the path to sustainability"  
 "Different approaches for the scalable manufacturing of Niosomes: a focus on microfluidics and thin layer evaporation method"  
 J. Forte\*, M.G. Fabiano, F. Rinaldi, C. Marianecci, M. Carafa
- 7) 4th European Conference on Pharmaceutics - Marsiglia, Francia - Advanced technologies enabling new therapies - 20-21 Marzo 2023  
 "Curcumin-loaded O/W nanoemulsions: combining pH-sensitivity with potential effect of natural active compounds"  
 Jacopo Forte\*, Maria Gioia Fabiano, Federica Rinaldi<sup>1</sup>, Maria Grazia Ammendolia, Simone De Corci, Gianfranco Mattia, Carlotta Marianecci, Rossella Puglisi, Maria Carafa.
- 8) XXI Scuola Dottorale in Tecnologia Farmaceutica "Strategie terapeutiche per le patologie vascolari: il ruolo della tecnologia farmaceutica" Sapienza Università di Roma, ADRITELF, Società Chimica Italiana - 5-7 Settembre 2022  
 "pH-sensitive O/W nanoemulsions by oleic acid"  
 J.Forte\*, M.G. Fabiano, F. Rinaldi, G. Pontecorvi, PN Hanieh, A. Carè, M. Bellenghi, V. Tirelli, G. Mattia, C. Marianecci, R. Puglisi, M. Carafa

#### Altri congressi e workshop frequentati

- |                    |                                                                                                                                             |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| [26 - 27 Ott 2022] | Workshop "Nanotechnologies in the Agro-Food sector"<br>CNR - Institute for Biological Systems                                               |
| [9 Set 2022]       | Workshop "PHYTO-BIO Multi-methodological characterization of medicinal plants"<br>Sapienza University of Rome, Laboratory of Food Chemistry |

- [7-8 Set 2022] III Conferenza della Divisione di Tecnologia Farmaceutica "Tecnologia e legislazione farmaceutiche: didattica, ricerca e ruolo nella società"  
Sapienza University of Rome, ADRITELF.
- [7 Giu 2022] Workshop "Novel frontiers in nanocarriers preparation and characterization" -  
Sapienza Università di Roma, Dip. di Chimica e Tecnologie Farmaceutiche,  
Comitato Organizzativo e Segreteria

#### Grants

- [ 2024 ] Vincitrice del bando BT-B2 1/2023  
80 ore di tutoraggio presso la Facoltà di Scienze Farmaceutiche Applicate  
Tutor Prof. Pietro Matricardi  
Sapienza Università di Roma
- [ 2024 ] Vincitrice del bando per il finanziamento di periodi di mobilità all'estero per dottorandi  
(D.R. n. 2592/2023 Prot n. 98821 del 11/10/2023)  
Sapienza Università di Roma
- [ 2023 ] Vincitrice del bando BT-B2 1/2023  
80 ore di tutoraggio presso la Facoltà di Farmacia - Tutoraggio in matematica  
Tutor Prof.ssa Maria Carafa  
Sapienza Università di Roma
- [ 2022 ] Vincitrice del bando BT-B2 2/2022  
80 ore di tutoraggio presso la Facoltà di Farmacia - Tutoraggio in matematica  
Tutor Prof.ssa Maria Carafa  
Sapienza Università di Roma

#### Borse di ricerca vinte come Principal Investigator (PI)

- [ 2023 ] 'Avvio alla ricerca di tipo1'  
"CBD-based Niosomes and nanoemulsions as a potential therapy to treat breast cancer"  
Sapienza Università di Roma, Maria Gioia Fabiano,  
numero protocollo AR123188B4BBDA38

#### Borse di ricerca vinte come membro

- [ 2023 ] 'Progetti di Ricerca Grandi'  
"New strategies to manage oral mucositis among hematopoietic stem cell transplantation patients: a multidisciplinary approach"  
Sapienza Università di Roma, Carlotta Marianecchi,  
numero protocollo RG123188B474902F
- [ 2023 ] 'Third Mission' project  
Sapienza Università di Roma  
Adolescents and "different brains": gender differences in vulnerability to the effects of abuse substances

[ 2022 ]                      'Avvio alla ricerca'  
"Antimicrobial and antibiofilm activity of ciprofloxacin delivered in niosomes"  
Sapienza Università di Roma, Linda Maurizi,  
numero protocollo AR1221816B8CEE9B

#### Iscrizioni a società scientifiche

[Dal 2023]                      SIROE - Società Italiana per la Ricerca sugli Oli Essenziali

[Dal 2021]                      ADRITELF - Associazione Docenti e Ricercatori di Tecnologie e Legislazione Farmaceutiche

[Dal 2021]                      SCI - Società Chimica Italiana

#### Collaborazioni nazionali ed internazionali

- Collaborazione con la Prof.ssa Paola Russo e la Dott.ssa Giuseppina Adiletta del Dipartimento di Ingegneria Chimica, dei Materiali e Ambientale, Sapienza Università di Roma
- Collaborazione con la Prof.ssa Elena Del Favero, del Dipartimento di Biotecnologie Mediche e Medicina Traslazionale, Università degli Studi di Milano per esperimenti SAXS presso la European Synchrotron Radiation Facility di Grenoble, Francia
- Collaborazione con la Dott.ssa Stefania Garzoli del Dipartimento di Chimica e Tecnologie Farmaceutiche, Sapienza Università di Roma
- Collaborazione con il Prof. Tommy Cedervall dell'Università di Lund (Dipartimento di Biochimica e Biologia Strutturale)

#### Pubblicazioni

- Ijeoma F. Uchegbu et al. (Eds): Fundamentals of Pharmaceutical Nanoscience, Springer Science & Business Media.  
978-3-031-59477-9, 150158\_2\_En, (Chapter 3 - Niosomes)  
Authors: Maria Gioia Fabiano, Jacopo Forte, Patrizia Nadia Hanieh, Federica Rinaldi, Carlotta Marianecchi, Maria Carafa
- Forte J, Hanieh P N, Poerio N, Olimpieri T, Ammendolia M G, Fraziano M, Fabiano M G, Marianecchi C, Carafa M, Bordi F, Sennato S and Rinaldi F 2023 Mucoadhesive Rifampicin-Liposomes for the Treatment of Pulmonary Infection by Mycobacterium abscessus: Chitosan or  $\epsilon$ -Poly-L-Lysine Decoration Biomolecules 13 924
- Giuli M V, Hanieh P N, Forte J, Fabiano M G, Mancusi A, Natiello B, Rinaldi F, Del Favero E, Ammendolia M G, Marianecchi C, Checquolo S and Carafa M 2024 pH-sensitive niosomes for ATRA delivery: A promising approach to inhibit Pin1 in high-grade serous ovarian cancer International Journal of Pharmaceutics 649 123672
- Forte J, Maurizi L, Fabiano M G, Conte A L, Conte M P, Ammendolia M G, D'Intino E, Catizone A, Gesualdi L, Rinaldi F, Carafa M, Marianecchi C and Longhi C 2024 Gentamicin loaded niosomes against intracellular uropathogenic Escherichia coli strains Sci Rep 14 10196

- Forte J, Fabiano M G, Grazia Ammendolia M, Puglisi R, Rinaldi F, Ricci C, Del Favero E, Carafa M, Mattia G and Marianecci C 2024 Bioactive pH-sensitive nanoemulsion in melanoma cell lines International Journal of Pharmaceutics 661 124380
- Maurizi L, Lasalvia A, Fabiano M G, D'Intino E, Del Cioppo F, Fraschetti C, Filippi A, Ammendolia M G, Conte A L, Forte J, Corinti D, Crestoni M E, Carafa M, Marianecci C, Rinaldi F and Longhi C 2024 Lentisk (Pistacia lentiscus) Oil Nanoemulsions Loaded with Levofloxacin: Phytochemical Profiles and Antibiofilm Activity against Staphylococcus spp. Pharmaceutics 16 927
- Effect of Satureja Montana Essential Oil on model lipid membranes  
Simona Sennato, Silvia Trabalzini, Maria Gioia Fabiano, Domenico Truzzolillo, Edouard Chauveau, Cecilia Bombelli, Federica Rinaldi, Maria Carafa  
Biomolecules  
Manuscript ID: biomolecules-3313333

## ***CV in English***

### **General information**

|                  |                                  |
|------------------|----------------------------------|
| Name             | Maria Gioia                      |
| Surname          | Fabiano                          |
| Nationality      | Italian                          |
| Email address    | mariagioia.fabiano@uniroma1.it   |
| Spoken Languages | Italian (mother tongue), English |

### **Education**

[1/01/ 2021- 31/12/2024]

Phd Student, XXXVII cycle, in MOLECULAR DESIGN AND CHARACTERIZATION FOR THE PROMOTION OF HEALTH AND WELL-BEING: FROM DRUG TO FOOD

[July 2021]

Qualification to Practice as a Pharmacist – Sapienza University of Rome

Currently registered with the Order of Pharmacists of Rome

[17 March 2021]

Degree in Pharmacy - Sapienza University of Rome.

Grade: 110 cum laude

Experimental thesis: "Coconut oil and Almond oil based nanosystems: preparation, characterization and potential applications"

Supervisor: Professor Maria Carafa

[Academic Year 2013-2014]

Scientific High School "Federigo Enriques"

Grade: 86/100

### **Professional Experience**

[26/10/2024 - 20/12/2024]

Teaching for the Chemistry course (18 hours) - Middle School "Cesare Piva"

Within the framework of D.M. 65/2023, Intervention Line A2 'STEM Orientation', aimed at promoting interest in scientific and technical subjects, with particular attention to female students and overcoming gender biases

[01/06/2021 - 31/12/2021]

Collaborating Pharmacist

Farmacia dei Velieri snc, Rome

### Current Position

Phd Student, XXXVII cycle, in MOLECULAR DESIGN AND CHARACTERIZATION FOR THE PROMOTION OF HEALTH AND WELL-BEING: FROM DRUG TO FOOD

Sapienza University of Rome, Nanomedicine\_Lab

Tutor: Professor Maria Carafa

Project: "Nanodispersed essential oils as biodegradable and biocompatible treatments to improve the sanitization and fermentation of the organic fraction of municipal solid waste"

### Research Skills

The research activity focused on the preparation and characterization of nanocarriers for the delivery of drugs, gases (such as PFC) for theranostics, natural molecules, as well as oils and essential oils. Specifically, the research involved Nanoemulsions, Liposomes, Niosomes, and more recently, Chitosan Nanoparticles. Significant attention was given to the characterization of the nanocarriers to better understand their behavior and properties for various applications. During my experimental thesis and PhD, several nanocarriers have been prepared and characterized for cutaneous, pulmonary, nose-to-brain applications, as well as for compost and food, ensuring their microbiological safety. During my research period abroad, I focused on ecotoxicity, testing the formulations on microalgae cells and *Daphnia magna*.

Technical and Methodological Skills:

- Dynamic Light Scattering (DLS)
- Nanoparticle Tracking Analysis (NTA)
- Infrared Spectroscopy (IR)
- Microfluidics
- Analytical methods using UV-Vis spectrophotometry and spectrofluorimetry
- Purification techniques using column chromatography, centrifugation, and ultracentrifugation
- Experiments with cellular microalgae, *Daphnia magna*, and shrimps.

### Teaching Experience

- Academic Year 2022-2023: 80 hours of tutoring in mathematics for students in the Chemistry and Pharmaceutical Technology degree program at Sapienza University of Rome.
- Academic Year 2023-2024: 80 hours of tutoring in mathematics for students in Pharmacy degree program at Sapienza University of Rome.
- Academic Year 2024-2025: 80 hours of tutoring in Applied Pharmaceutical Sciences at Sapienza University of Rome, to be completed.
- 18 hours of Chemistry teaching at "Cesare Piva" middle school, (18.10.24 - 20.12.24)
- 21 hours of Chemistry teaching at "Alcide De Gasperi" middle school, to be completed

### National and International Research Experience

[2 April 2024 – 15 October 2024]

Research period abroad

University of Lund, Sweden – Dep. Of Biochemistry and Structural Biology

Eco-toxicity experiments on microalgae and *Daphnia magna*

[1 July 2023 – 31 December 2023]

Industrial research period at Manna Biochemical srl, Latina (LT), Italy

[20 July 2023 – 24 July 2024]

Research period abroad

European Synchrotron Radiation Facility (ESRF) – Grenoble, France

Small-angle X ray scattering (SAXS) experiments in collaboration with Prof. Elena Del Favero (University of Milan)

### Oral presentations as presenter

- 6) IUFoST 22<sup>nd</sup> World Congress of Food Science and Technology, Rimini, Italy – 8-12 Sept 2024  
"Thymus essential oil o/w nanoemulsions as a treatment to improve compost sanitization"  
M. G. Fabiano\*, J. Forte, E. D'Intino, T. Cedervall, M. Ekvall, S. Garzoli, F. Rinaldi, C. Marianecci, M. Carafa
- 7) IUFoST 22<sup>nd</sup> World Congress of Food Science and Technology, Rimini, Italy – 8-12 Sept 2024  
"Design and characterization of resveratrol and thyme essential oil loaded liposomes as potential additives to improve the microbial safety of food products"  
M. G. Fabiano\*, J. Forte, E. D'Intino, L. Maurizi, C. Longhi, T. Cedervall, M. Ekvall, F. Rinaldi, C. Marianecci, M. Carafa
- 8) 1st SITELF National PhD summer school, Pavia, Italy – 2-4 Sept 2024  
"Essential oil-based soft nanocarriers: exploring their potential application in different fields"  
M. G. Fabiano\*, J. Forte, E. D'Intino, T. Cedervall, M. Ekvall, S. Garzoli, L. Maurizi, C. Longhi, F. Rinaldi, C. Marianecci, M. Carafa
- 9) Younginnovation2023, Sapienza University of Rome, Italy – 20-22 Sept 2023  
Abstract selected as oral invited presentation  
"Inhibiting Pin1 by ATRA-loaded niosomes to treat High-Grade serous Ovarian Cancer"  
M. G. Fabiano\*, M. V. Giuli, P. N. Hanieh, J. Forte, F. Rinaldi, C. Marianecci, M. Carafa
- 10) VII Congresso Nazionale della Società Italiana per la Ricerca sugli Oli Essenziali, Sapienza University of Rome, Italy – 30-1 July 2023  
"Essential oils in nanoemulsions: a promising system for different applications"  
M.G. Fabiano\*, J. Forte, L. Rinaldi, S. Garzoli, C. Marianecci, M. Carafa

### Oral presentations as author

- 4) International Conference on Emerging Technologies in Transdermal Drug Delivery, Naples, Italy – 17-19 April 2023  
"Lentiscus Oil based nanoemulsions for skin infections: characterization and preliminary antibacterial activity evaluation"  
M.G. Fabiano, J. Forte\*, L. Maurizi, C. Longhi, F. Rinaldi, C. Marianecci, M. Carafa

- 5) NanoInnovation 2024 – Conference & Exhibition, Sapienza University of Rome, Italy – 09–13 Sep 2024  
"Application of microfluidic technology to obtain pH-sensitive niosomes for ATRA delivery in High-Grade Serous Ovarian Cancer (HGSOC)" E. D'Intino\*, M. V. Giuli, J. Forte, M. G. Fabiano, F. Rinaldi, E. Del Favero, S. Checquolo, M. Carafa, C. Marianecci.
- 6) NanoInnovation 2024 – Conference & Exhibition, Sapienza University of Rome, Italy – 09–13 Sep 2024  
"Microfluidics technique: an Innovative production of Niosomal Formulations"  
J. Forte\*, M.G. Fabiano, E. D'Intino, F. Rinaldi, C. Marianecci, M. Carafa

#### **Poster presentation as presenter**

- 8) 14th World Meeting on Pharmaceutics, Biopharmaceutics and Pharmaceutical Technology, Vienna, Austria – 8–21 March 2024  
"Cannabidiol (CBD) delivery strategies by surfactant-based "soft" nanocarriers"  
M.G. Fabiano\*; J. Forte; E. Casagni; G. Roda; F. Rinaldi; C. Marianecci; M. Carafa
- 9) XXIII Doctoral School in Pharmaceutical Technology, Trieste, ADRITELF, Italian Chemical Society – 11–15 Sept 2023  
"Nanodispersed essential oils as biodegradable and biocompatible treatments to improve sanitization and fermentation of the organic fraction of municipal solid waste"  
M.G. Fabiano\*, J. Forte, F. Rinaldi, S. Garzoli, C. Marianecci, M. Carafa
- 10) 14th Central European Symposium on Pharmaceutical Technology, Ohrid (North Macedonia) – 28–30 Sept 2023  
"pH-sensitive niosomal ATRA delivery as a promising approach to inhibit Pin1 in High-Grade Serous Ovarian Cancer"  
M.G. Fabiano\*, M. V. Giuli, P.N. Hanieh, J. Forte, F. Rinaldi, S. Checquolo, C. Marianecci, M. Carafa
- 11) Biophysics@Rome2023, CNR Rome "Research on the path to sustainability" – 19–20 April 2023  
"Optimization of oil in water nanoemulsions by different surfactants/oils"  
M.G. Fabiano\*, J. Forte, F. Rinaldi, S. Garzoli, C. Marianecci, M. Carafa
- 12) 4th European Conference on Pharmaceutics –Advanced technologies enabling new therapies, Marseille (France) – 20–21 Mar 2023  
"Essential Oil Nanoemulsions to biostabilize the organic fraction of massive Municipal Solid Waste (MSW)" M.G. Fabiano\*, J. Forte, F. Rinaldi, P.N. Hanieh, S. Garzoli, S. Manna, F. Manna, C. Marianecci, M. Carafa
- 13) XXI Doctoral School in Pharmaceutical Technology "Strategie terapeutiche per le patologie vascolari: il ruolo della tecnologia farmaceutica" Sapienza University of Rome, ADRITELF, Italian Chemical Society – 5–7 Sept 2022  
"Surfactant-based nanoencapsulation of Cannabidiol oil: preparation, characterization and preliminary evaluation of antibacterial activity"  
MG Fabiano\*, J. Forte, PN Hanieh, F. Rinaldi, C. Longhi, L. Maurizi Marianecci, M. Carafa
- 14) SYNC Congress 2022, First Symposium for young Chemist: Innovation and Sustainability - Sapienza University of Rome, Dept. of Chemistry – 20–23 June 2022  
"Nanoemulsions of satureja Montana Essential Oil: Antimicrobial and Antibiofilm activity against avian Escherichia Coli strains"

M. Gioia Fabiano\*, Federica Rinaldi, Linda Maurizi, Antonietta Lucia Conte, Massimiliano Marazzato, Alessandro Maccelli, Maria Elisa Crestoni, Patrizia Nadia Hanieh, Jacopo Forte, Maria Pia Conte, Carlo Zagaglia, Catia Longhi, Carlotta Marianecchi, Maria Grazia, Ammendolia and Maria Carafa

#### Poster presentation as author

- 9) AMYC-BIOMED 2024 - 23-25 Sett 2024  
"A multidisciplinary approach to design and characterize essential oil-based nanoemulsions with antibacterial activity"  
Eleonora D'Intino\*, Maria Gioia Fabiano, Jacopo Forte, Bruno Casciaro, Maria Luisa mangoni, Federica Rinaldi, Maria Carafa, Carlotta Marianecchi
- 10) The XIV European Multicolloquium of Parassitology–Current parasitology multy-disciplinarity, 26-30 August 2024, Wroclaw, Poland  
"Characterization of extracellular vesicles from three zoonotic nematodes: Anisakis, Ascaris and Dirofilaria"  
Serena Cavallero\*, Ilaria Bellini, Simona Gabrielli, Marco Pombi, Luigi Venco, Antonio Varcasia, Ettore Napoli, Emanuele Brianti, Claudia Chiovoloni, Silvia Rondon, Agostina Pietrantoni, Claudia Tamponi, Anna Kashkanova, Federica Rinaldi, Maria Gioia Fabiano, Eleonora D'Intino, Stefano D'Amelio
- 11) 1st SITELF National PhD summer school, Pavia, Italy - 2-4 September 2024  
"Soft and hard nanoparticles as a delivery strategy for the treatment of bacterial infections" Eleonora D'Intino\*, Jacopo Forte, Maria Gioia Fabiano, Rossella Puglisi, Gianfranco Mattia, Federica Rinaldi, Maria Carafa, Carlotta Marianecchi
- 12) CRS 2024 Annual Meeting and Expo, Bologna, Italy - 8-12 July 2024  
Gentamicin-loaded niosomes as a promising intravesical approach to treat intracellular urinary tract infections (UTIs)"  
Eleonora D'Intino\*, Maria Gioia Fabiano, Jacopo Forte, Linda Maurizi, Catia Longhi, Federica Rinaldi, Maria Carafa, Carlotta Marianecchi
- 13) XIII Meeting Paul Ehrlich Euro - PhD Network & COST Action One Health Drugs - Sapienza University of Rome, Rome, Italy - 17-19 June 2024  
"From magic bullets to nanomedicine: where do we stand?"  
Eleonora D'Intino\*, Maria Gioia Fabiano, Jacopo Forte, Federica Rinaldi, Maria Carafa, Carlotta Marianecchi
- 14) Biophysics@Rome2023 - CNR Rome "Research on the path to sustainability"  
"Different approaches for the scalable manufacturing of Niosomes: a focus on microfluidics and thin layer evaporation method"  
J. Forte\*, M.G. Fabiano, F. Rinaldi, C. Marianecchi, M. Carafa
- 15) 4th European Conference on Pharmaceutics - Marseille, France Advanced technologies enabling new therapies - 20-21 March 2023  
"Curcumin-loaded O/W nanoemulsions: combining pH-sensitivity with potential effect of natural active compounds"  
Jacopo Forte\*, Maria Gioia Fabiano, Federica Rinaldi<sup>1</sup>, Maria Grazia Ammendolia, Simone De Corci, Gianfranco Mattia, Carlotta Marianecchi, Rossella Puglisi, Maria Carafa.

- 16) XXI Doctoral School in Pharmaceutical Technology "Strategie terapeutiche per le patologie vascolari: il ruolo della tecnologia farmaceutica" Sapienza University of Rome, ADRITELF, Italian Chemical Society - 5-7 Sept 2022  
 "pH-sensitive O/W nanoemulsions by oleic acid"  
 J.Forte\*, M.G. Fabiano, F. Rinaldi, G. Pontecorvi, PN Hanieh, A. Carè, M. Bellenghi, V. Tirelli, G. Mattia, C. Marianecchi, R. Puglisi, M. Carafa

#### Other conferences and workshops attended

- [26 - 27 Oct 2022] Workshop "Nanotechnologies in the Agro-Food sector"  
 CNR - Institute for Biological Systems
- [9 Sept 2022] Workshop "PHYTO-BIO Multi-methodological characterization of medicinal plants"  
 Sapienza University of Rome, Laboratory of Food Chemistry
- [7-8 Sept 2022] III Conference of the Division of Pharmaceutical Technology "Tecnologia e legislazione farmaceutiche: didattica, ricerca e ruolo nella società" Sapienza University of Rome, ADRITELF.
- [7 June 2022] Workshop "Novel frontiers in nanocarriers preparation and characterization" - Sapienza University of Rome, Dept. of Pharmaceutical Chemistry and Technologies, Organizing Committee and Secretariat

#### Grants

- [ 2024 ] Winner of tender BT-B2 1/2023 - 80 hours of tutoring at the Faculty of Applied Pharmaceutical Sciences  
 Tutor Prof. Pietro Matricardi  
 Sapienza University of Rome
- [ 2024 ] Winner of the Grant for Funding Mobility periods abroad for PhD Students (D.R. n. 2592/2023 Prot n. 98821 del 11/10/2023)  
 Sapienza University of Rome
- [ 2023 ] Winner of tender BT-B2 1/2023  
 80 hours of tutoring at the Faculty of Pharmacy - Tutoring in mathematics  
 Tutor Prof. Maria Carafa  
 Sapienza University of Rome
- [ 2022 ] Winner of Tender BT-B2 2/2022  
 80 hours of tutoring at the Faculty of Pharmacy - Tutoring in mathematics - Tutoring in mathematics  
 Tutor Prof. Maria Carafa  
 Sapienza University of Rome

#### Research Grants as Principal Investigator (PI)

- [ 2023 ] 'Avvio alla ricerca di tipo1'  
 "CBD-based Niosomes and nanoemulsions as a potential therapy to treat breast cancer"  
 Sapienza University of Rome, Maria Gioia Fabiano,  
 protocol number AR123188B4BBDA38

### Research Grants as member

- [ 2023 ]                    'Progetti di Ricerca Grandi'  
"New strategies to manage oral mucositis among hematopoietic stem cell transplantation patients: a multidisciplinary approach"  
Sapienza University of Rome, Carlotta Marianecchi,  
protocol number RG123188B474902F
- [ 2023 ]                    'Third Mission' project  
Sapienza University of Rome  
Adolescents and "different brains": gender differences in vulnerability to the effects of abuse substances
- [ 2022 ]                    'Avvio alla ricerca'  
"Antimicrobial and antibiofilm activity of ciprofloxacin delivered in niosomes"  
Sapienza University of Rome, Linda Maurizi,  
protocol number AR1221816B8CEE9B

### Scientific society memberships

- [Since 2023]                SIROE - Società Italiana per la Ricerca sugli Oli Essenziali
- [Since 2021]                ADRITELF - Association of Italian Teachers and Researchers of Pharmaceutical Technologies and Legislation
- [Since 2021]                SCI - Italian Chemical Society

### National and international collaborations:

- Collaboration with Prof. Paola Russo and Dr. Giuseppina Adiletta from the Dep. of Chemical, Materials, and Environmental Engineering, Sapienza University of Rome
- Collaboration with Prof. Elena Del Favero, from the Department of Medical Biotechnology and Translational Medicine, University of Milan (Università degli Studi di Milano) for SAXS experiments at the European Synchrotron Radiation Facility in Grenoble, France
- Collaboration with Dr. Stefania Garzoli from the Dep. of Chemistry and Pharmaceutical Technologies, Sapienza University of Rome
- Collaboration with Prof. Tommy Cedervall from Lund University (Dep. Biochemistry and Structural Biology)

### Publication

- Ijeoma F. Uchegbu et al. (Eds): Fundamentals of Pharmaceutical Nanoscience, Springer Science & Business Media.  
978-3-031-59477-9, 150158\_2\_En, (Chapter 3 - Niosomes)  
Authors: Maria Gioia Fabiano, Jacopo Forte, Patrizia Nadia Hanieh, Federica Rinaldi, Carlotta Marianecchi, Maria Carafa  
*In press*

- Forte J, Hanieh P N, Poerio N, Olimpieri T, Ammendolia M G, Fraziano M, Fabiano M G, Marianecci C, Carafa M, Bordi F, Sennato S and Rinaldi F 2023 Mucoadhesive Rifampicin-Liposomes for the Treatment of Pulmonary Infection by Mycobacterium abscessus: Chitosan or  $\epsilon$ -Poly-L-Lysine Decoration Biomolecules 13 924
- Giuli M V, Hanieh P N, Forte J, Fabiano M G, Mancusi A, Natiello B, Rinaldi F, Del Favero E, Ammendolia M G, Marianecci C, Checquolo S and Carafa M 2024 pH-sensitive niosomes for ATRA delivery: A promising approach to inhibit Pin1 in high-grade serous ovarian cancer International Journal of Pharmaceutics 649 123672
- Forte J, Maurizi L, Fabiano M G, Conte A L, Conte M P, Ammendolia M G, D'Intino E, Catizone A, Gesualdi L, Rinaldi F, Carafa M, Marianecci C and Longhi C 2024 Gentamicin loaded niosomes against intracellular uropathogenic Escherichia coli strains Sci Rep 14 10196
- Forte J, Fabiano M G, Grazia Ammendolia M, Puglisi R, Rinaldi F, Ricci C, Del Favero E, Carafa M, Mattia G and Marianecci C 2024 Bioactive pH-sensitive nanoemulsion in melanoma cell lines International Journal of Pharmaceutics 661 124380
- Maurizi L, Lasalvia A, Fabiano M G, D'Intino E, Del Cioppo F, Frascchetti C, Filippi A, Ammendolia M G, Conte A L, Forte J, Corinti D, Crestoni M E, Carafa M, Marianecci C, Rinaldi F and Longhi C 2024 Lentisk (Pistacia lentiscus) Oil Nanoemulsions Loaded with Levofloxacin: Phytochemical Profiles and Antibiofilm Activity against Staphylococcus spp. Pharmaceutics 16 927
- Effect of Satureja Montana Essential Oil on model lipid membranes  
Simona Sennato, Silvia Trabalzini, Maria Gioia Fabiano, Domenico Truzzolillo , Edouard Chauveau, Cecilia Bombelli, Federica Rinaldi, Maria Carafa  
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