

PERSONAL INFORMATION **Mattia Spano****ACTUAL POSITION**

November 2022 – Present

**Post-Doc researcher**

Sapienza University of Rome – Department of Experimental Medicine, P.le Aldo Moro 5, 00185 Rome, Italy.

Supervisor: prof. Lorenzo Maria Donini

November 2021 – October 2022

**Post-Doc researcher**

Sapienza University of Rome – Department of Chemistry and Technologies of Drugs, P.le Aldo Moro 5, 00185 Rome, Italy.

Supervisor: prof. Luisa Mannina

**EDUCATION AND TRAINING**

November 2018 – October 2021

**Ph.D in Pharmaceutical Sciences (XXXIV cycle)**

Sapienza University of Rome – Department of Chemistry and Technologies of Drugs, P.le Aldo Moro 5, 00185 Rome, Italy.

TUTOR: prof. Luisa Mannina

- Thesis title: Metabolomic characterization of food matrices by using high-resolution liquid state NMR

October 2013 – July 2018

**Master's Degree in Pharmaceutical Chemistry and Technology achieved with full marks (110/110 cum laude)**

"G. D'Annunzio" University of Chieti-Pescara – Department of Pharmacy, Via dei Vestini 31, 66013 Chieti, Italy.

TUTOR: prof. Simone Carradori

- Thesis title: Synthesis of new carvacrol derivatives with potential anti-*Helicobacter pylori* activity

**PERIODS ABROAD**

September 2022

**Instituto de Investigación en Ciencias de la Alimentación (CIAL), Universidad Autónoma de Madrid**

TUTOR: prof. Alejandro Cifuentes

April 2021 – July 2021

**Institut de Chimie Radicalaire (ICR), University Aix-Marseille**

TUTOR: prof. Aura Tintaru

**TEACHING**

Free of charge teaching within the ECM training course in "La Cannabis sativa L supply chain: agronomic, chemical-analytical, medical-toxicological, economic-legislative aspects", Sapienza University of Rome (academic year: 2022/2023)

One-year teaching contract at telematic University "Universitas Mercatorum" for the teaching course of "General Chemistry", Ingegneria delle infrastrutture e della mobilità (L-7) (academic year: 2021/2022, 2022/2023)

One-year teaching contract at Sapienza University of Rome for the teaching course of "Instrumental analysis and its applications in the chemistry investigation", 102 ° Course in Merceology and Applied Chemistry (academic year: 2021/2022, 2022/2023)

**AWARDS**

Sapienza University of Rome. Mobility grant for PhD students. Grant (€): 6000

GIDRM Mobility Grant for young researchers. Grant (€): 1750

**PRINCIPAL INVESTIGATOR OF RESEARCH CONTRACTS**

Framework	Sapienza – Progetti per Avvio alla Ricerca - Tipo 2 2021
Title	Analisi metabolomica NMR di urine per l'identificazione di biomarcatori di aderenza alla dieta mediterranea in giovani studenti Sapienza. Grant (€): 2200
Framework	Sapienza – Progetti per Avvio alla Ricerca - Tipo 1 2020
Title	Caratterizzazione chimica di estratti di radice di Gentiana lutea L. e Gentiana dinarica Beck abruzzese attraverso un approccio multimetodologico. Grant (€): 1000

**PARTICIPATION TO PROJECTS**

Framework	<b>Sapienza – University Research Project 2018</b>
Title	“La Canapa industriale: sviluppo e valorizzazione di una nuova filiera agroalimentare ecosostenibile”
Role	Participant; member of the research team.
Framework	<b>Sapienza – University Research Project 2019</b>
Title	“Identificazione di biomarcatori di aderenza alla Dieta Mediterranea in una popolazione universitaria di Sapienza (GONG) mediante analisi metabolomica NMR”
Role	Participant; member of the research team.
Framework	<b>Sapienza – University Research Project 2021</b>
Title	“Dalla valorizzazione degli scarti agroalimentari del comparto ortofruitticolo alla formulazione di integratori alimentari”
Role	Participant; member of the research team.

**ORGANIZATION OF MEETINGS, CONFERENCES, WORKSHOPS**

6 May 2019	New Horizons in cannabis research: medical and food applications– Sapienza University of Rome.
Role	Secretariat
22 September 2020	La canapa industriale: sviluppo e valorizzazione di una nuova filiera agroalimentare ecosostenibile – Sapienza University of Rome.
Role	Secretariat
23-24 June 2022	VII Workshop Applicazioni della risonanza magnetica nella scienza degli alimenti – Sapienza University of Rome.
Role	Secretariat

**SEMINARS**

18 October 2019	“Metodologie avanzate nello studio dei prodotti della filiera della Cannabis Sativa”– Master di II livello in “I Manager Chiave nell’Azienda Nutraceutica e Cosmeceutica”, Sapienza University of Rome.
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**TUTORING ACTIVITY**

University of Chieti-Pescara “G. D’Annunzio”: Tutoring activity for students in Inorganic Chemistry (academic year: 2017/2018)

Sapienza University of Rome: Tutoring activity for high school students for the activity “How to write a scientific paper” (academic years: 2018/2019, 2019/2020, 2020/2021)

Sapienza University of Rome: Tutoring activity for students in Inorganic Chemistry (academic year: 2020/2021)

## MEMBERSHIP

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Member of the Italian Group of Magnetic Resonance Discussion (GIDRM) since 2019

Member of the Italian Chemistry Society (SCI) since 2020

Member of the Italian Society of Food Chemistry (ITACHEMFOOD) since 2020

Member of the Italian Society of Food Sciences (SISA).since 2022

## PARTICIPATION TO SCHOOLS

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XXI Scuola Nazionale di Risonanza Magnetica Nucleare - GIDRM/Università di Torino, Torino, 7-12 July 2019

XXII Scuola Nazionale di Risonanza Magnetica Nucleare - GIDRM/Università di Torino, Modalità telematica, 20-23 July 2020

Giornate di Approfondimento te(le)matico in Chemiometria 2020-DIFAR/Università di Genova, Modalità telematica, 11 e 18 December 2020

Winter School 2022, Introduzione alla spettroscopia NIR – SISNIR, Milano, 11-13 January 2022

## EDITOR ACTIVITY

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Guest Editor for the special issue “Mycotoxins in Feed, Food, Nutraceuticals, and Functional Food”, Toxins, MDPI

## POSTER CONTRIBUTIONS

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1. **M. Spano**, A.P. Sobolev, D. Capitani, E. Campiglia, S. Balducci, C. Ingallina, A.M. Giusti, G. Vinci, S. Ciano, L. Mannina. “NMR characterization of hemp products from Lazio”. *XLVIII National Congress on Magnetic Resonance*. L'Aquila, 11-13 September 2019
2. **M. Spano**, A.P. Sobolev, D. Capitani, E. Campiglia, S. Balducci, C. Ingallina, A.M. Giusti, G. Vinci, S. Ciano, L. Mannina. “Metabolic profile of hemp flowers from Lazio: an NMR study”. *Advances in NMR and MS-based Metabolomics*. Lucca, 20-22 November 2019.
3. **M. Spano**, C. Ingallina, A.P. Sobolev, C. Esposito, C. Santarcangelo, A. Baldi, M. Daglia, L. Mannina. “NMR and UPLC-ESI-MS/MS characterization of potato cultivars from North Italy”. *Foodomics 6th edition*. Cesena, 14-16 October 2020.
4. **M. Spano**, A.P. Sobolev, G. Di Matteo, A. Tintaru, L. Mannina. “NMR metabolite profile of hemp products: the case of inflorescences and hemp seed oil”. *Journées RMN du Grand Sud 2021*. Clermont Ferrand, 1-2 July 2021
5. **M. Spano**, G. Di Matteo, F. Masciulli, D. Ambroselli, E. Romano, L. Mannina. “NMR metabolomic characterization of dandelion and lemon balm plants grown with different conditions”. *Italian-French International Conference on Magnetic Resonance*. Milano, 27-30 September 2022

## ORAL CONTRIBUTIONS

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1. **M. Spano**, A.M. Giusti. “Clorofille e carotenoidi nelle varietà monoiche di *Cannabis sativa* L.: influenza delle pratiche agronomiche”. *La Canapa industriale: sviluppo e valorizzazione di una nuova filiera agroalimentare ecosostenibile. Primo anno di attività*. Viterbo, 4 July 2019
2. **M. Spano**. “Studio del profilo metabolomico di infiorescenze di canapa monoica durante la crescita”. *La Canapa industriale: sviluppo e valorizzazione di una nuova filiera agroalimentare ecosostenibile*. Roma (online meeting), 22 September 2020
3. **M. Spano**. “*Cannabis sativa* L. inflorescences chemical profiling through a multimethodological approach”. *Foodomics 6th edition*. Cesena, 14-16 October 2020
4. **M. Spano**. “Profilo NMR metabolomico di campioni di zucca protetti da biofilm”. *Progetto ORTOPACKHEALTH: Il packaging per gli alimenti ad alto valore nutrizionale: metodologie avanzate per nuove soluzioni*. Roma (online meeting), 16 June 2021
5. **M. Spano**. “NMR metabolite profile of hemp products: the case of inflorescences and hemp seed oil”. *Journées RMN du Grand Sud 2021*. Flash presentation, Clermont Ferrand, 1-2 July 2021
6. **M. Spano**. “Hemp products: NMR characterization of inflorescences and hemp seed oils”. *XLIX National Congress on Magnetic*

Resonance. Online congress, 8-10 September 2021

7. **M. Spano**. "Hemp products: NMR characterization of inflorescences and hemp seed oils". 15th International Conference on the Applications of Magnetic Resonance in Food Science. Aarhus, 7-10 June 2022

8. **M. Spano**. "An  $^1\text{H}$  NMR-Chemometric model for the classification of Italian extra virgin olive oils". SISSG Congress Oli e grassi alimentari: innovazione e sostenibilità nella produzione e nel controllo. Perugia, 15-17 June 2022

9. **M. Spano**. "NMR characterization of hemp inflorescences and hemp seed oils". First Symposium for Young Chemists: Innovation and Sustainability (SYNC2022). Roma, 20-23 June 2022

10. **M. Spano**. "Foodstuffs characterization: a multimethodological approach". Dipartimento di Chimica e Tecnologie del Farmaco, III Workshop sulla ricerca. Roma, 20-21 June 2022

11. **M. Spano**. "Applicazione di un approccio chemiometrico-NMR per la classificazione geografica di oli extra vergine di oliva italiani". VII Workshop Applicazioni della Risonanza Magnetica nella scienza degli alimenti. Roma, 23-24 June 2022

## LIST OF PUBLICATIONS

### Papers in peer-reviewed journals:

Number of publications with first name/co-first name: 9

1. C. Ingallina, A. Cerreto, L. Mannina, S. Circi, S. Vista, D. Capitani, **M. Spano**, A. P. Sobolev, F. Marini. *Extra-virgin olive oils from nine Italian regions: an  $^1\text{H}$  NMR-chemometric characterization*. *Metabolites*, (2019), 9 (4) DOI: 10.3390/metabo9040065.

2. C. Ingallina, A. P. Sobolev, S. Circi, **M. Spano**, A. M. Giusti, L. Mannina. *New Hybrid Tomato Cultivars: An NMR-Based Chemical Characterization*. *Applied sciences*, (2020), 10 (5) 1887 pp. DOI: <https://doi.org/10.3390/app10051887>.

3. C. Ingallina, A. P. Sobolev, S. Circi, **M. Spano**, C. Frascchetti, A. Filippi, A. Di Sotto, S. Di Giacomo, G. Mazzocanti, F. Gasparri, D. Quaglio, E. Campiglia, S. Carradori, M. Locatelli, G. Vinci, M. Rapa, S. Ciano, A. M. Giusti, B. Botta, F. Ghirga, D. Capitani, L. Mannina. *Cannabis sativa L. inflorescences from monoecious cultivars grown in Central Italy: an untargeted chemical characterization over the season*. *Molecules*, (2020), 25 (8) DOI: <https://doi.org/10.3390/molecules25081908>.

4. Veschi, S.; Carradori, S.; De Lellis, L.; Florio, R.; Brocco, D.; Secci, D.; Guglielmi, P.; **Spano, M.**; Sobolev, A.P.; Cama, A. *Synthesis and evaluation of a large library of nitroxoline derivatives as pancreatic cancer antiproliferative agents*. *J. Enzyme Inhib. Med. Chem.* (2020), 35 (1) DOI: <https://doi.org/10.1080/14756366.2020.1780228>.

5. Di Matteo, G.; **Spano, M.**; Grosso, M.; Salvo, A.; Ingallina, C.; Russo, M.; Ritieni, A.; Mannina, L. *Food and COVID-19: Preventive/Co-therapeutic Strategies Explored by Current Clinical Trials and in Silico Studies*. *Foods* (2020), 9 (8) DOI: <https://doi.org/10.3390/foods9081036>.

6. Ingallina, C.; **Spano, M.**; Sobolev, A.P.; Esposito, C.; Santarcangelo, C.; Baldi, A.; Daglia, M.; Mannina, L. *Characterization of Local Products for Their Industrial Use: The Case of Italian Potato Cultivars Analyzed by Untargeted and Targeted Methodologies*. *Foods* (2020), 9 (9) DOI: <https://doi.org/10.3390/foods9091216>.

7. **Spano, M.**; Di Matteo, G.; Rapa, M.; Ciano, S.; Ingallina, C.; Cesa, S.; Menghini, L.; Carradori, S.; Giusti, A.M.; Di Sotto, A.; Di Giacomo, S.; Sobolev, A.P.; Vinci, G.; Mannina, L. *Commercial Hemp Seed Oils: A Multimethodological Characterization*. *Appl. Sci.* (2020), 10 (19) DOI: <https://doi.org/10.3390/app10196933>.

8. Ingallina, C.; Maccelli, A.; **Spano, M.**; Di Matteo, G.; Di Sotto, A.; Giusti, A.M.; Vinci, G.; Di Giacomo, S.; Rapa, M.; Ciano, S.; Frascchetti, C.; Filippi, A.; Simonetti, G.; Cordeiro, C.; Silva, M.S.; Crestoni, M.E.; Sobolev, A.P.; Fornarini, S.; Mannina, L. *Chemico-Biological Characterization of Torpedino Di Fondi<sup>®</sup> Tomato Fruits: A Comparison with San Marzano Cultivar at Two Ripeness Stages*. *Antioxidants* (2020), 9 (10) DOI: <https://doi.org/10.3390/antiox9101027>.

9. Sisto, F.; Carradori, S.; Guglielmi, P.; Traversi, C.B.; **Spano, M.**; Sobolev, A.P.; Secci, D.; Di Marcantonio, M.C.; Haloci, E.; Grande, R.; Mincione, G. *Synthesis and Biological Evaluation of Carvacrol-Based Derivatives as Dual Inhibitors of H. pylori Strains and AGS Cell Proliferation*. *Pharmaceuticals* (2020), 13 (11) DOI: <https://doi.org/10.3390/ph13110405>.

10. Di Matteo, G.; **Spano, M.**; Esposito, C.; Santarcangelo, C.; Baldi, A.; Daglia, M.; Mannina, L.; Ingallina, C.; Sobolev, A.P. *NMR Characterization of Ten Apple Cultivars from the Piedmont Region*. *Foods* (2021), 10 (2) DOI: <https://doi.org/10.3390/foods10020289>.

11. Sisto, F.; Carradori, S.; Guglielmi, P.; **Spano, M.**; Secci, D.; Granese, A.; Sobolev, A.P.; Grande, R.; Campestre, C.; Di Marcantonio, M.C.; Mincione, G. *Synthesis and Evaluation of Thymol-Based Synthetic Derivatives as Dual-Action Inhibitors against*

*Different Strains of H. pylori and AGS Cell Line.* *Molecules* (2021), 26 (7) DOI: <https://doi.org/10.3390/molecules26071829>.

12. **Spano, M.**; Di Matteo, G.; Ingallina, C.; Botta, B.; Quaglio, D.; Ghirga, F.; Balducci, S.; Cammarone, S.; Campiglia, E.; Giusti, A.M.; Vinci, G.; Rapa, M.; Ciano, S.; Mannina, L.; Sobolev, A.P. *A Multimethodological Characterization of Cannabis sativa L. Inflorescences from Seven Dioecious Cultivars Grown in Italy: The Effect of Different Harvesting Stages.* *Molecules* (2021), 26 (10) DOI: <https://doi.org/10.3390/molecules26102912>

13. Rotondo, A.; La Torre, G.L.; Gervasi, T.; Di Matteo, G.; **Spano, M.**; Ingallina, C.; Salvo, A. *A Fast and Efficient Ultrasound-Assisted Extraction of Tocopherols in Cow Milk Followed by HPLC Determination.* *Molecules* (2021), 26 (15) DOI: <https://doi.org/10.3390/molecules26154645>

14. **Spano, M.**; Maccelli, A.; Di Matteo, G.; Ingallina, C.; Biava, M.; Crestoni, M.E.; Bardaud, J.-X.; Giusti, A.M.; Mariano, A.; D'Abusco, A.S.; Sobolev, A.P.; Lasalvia, A.; Fornarini, S.; Mannina, L. *Metabolomic Profiling of Fresh Goji (Lycium barbarum L.) Berries from Two Cultivars Grown in Central Italy: A Multi-Methodological Approach.* *Molecules* (2021), 26 (17) DOI: <https://doi.org/10.3390/molecules26175412>

15. Di Matteo, G.; Di Matteo, P.; Sambucci, M.; Tirillò, J.; Giusti, A.M.; Vinci, G.; Gobbi, L.; Prencipe, S.A.; Salvo, A.; Ingallina, C.; **Spano, M.**; Sobolev, A.P.; Proietti, N.; Di Tullio, V.; Russo, P.; Mannina, L.; Valente, M. *Commercial Bio-Packaging to Preserve the Quality and Extend the Shelf-Life of Vegetables: The Case-Study of Pumpkin Samples Studied by a Multimethodological Approach.* *Foods* (2021), 10 (10), DOI: <https://doi.org/10.3390/foods10102440>.

16. Corinti, D.; Chiavarino, B.; **Spano, M.**; Tintaru, A.; Fornarini, S.; Crestoni, M.E. *Molecular basis for the remarkably different gas-phase behavior of deprotonated thyroid hormones triiodothyronine (T3) and reverse triiodothyronine (rT3): a clue for their discrimination?* *Analytical Chemistry* (2021), 93 (44), DOI: <https://doi.org/10.1021/acs.analchem.1c03892>

17. **Spano, M.**; Di Matteo, G.; Ingallina, C.; Ambroselli, D.; Carradori, S.; Gallorini, M.; Giusti, A.M.; Salvo, A.; Grosso, M.; Mannina, L. *Modulatory Properties of Food and Nutraceutical Components Targeting NLRP3 Inflammasome Activation.* *Nutrients* (2022), 14, DOI: <https://doi.org/10.3390/nu14030490>

18. Paventi, G.; Di Iorio, M.; Rusco, G.; Sobolev, A.P.; Cerolini, S.; Antenucci, E.; **Spano, M.**; Mannina, L.; Iaffaldano, N. *The Effect of Semen Cryopreservation Process on Metabolomic Profiles of Turkey Sperm as Assessed by NMR Analysis.* *Biology* (2022), 11 (5), DOI: <https://doi.org/10.3390/biology11050642>

19. **Spano, M.**, Andreani, S., Naubron, J.V., Mannina, L., Pricl, S., Muselli, A., Tinataru, A. *Smart IM-MS and NMR study of natural diastereomers: the study case of the essential oil from Senecio transiens.* *Anal Bioanal Chem* (2022). <https://doi.org/10.1007/s00216-022-04232-y>

20. Di Muzio, L., Paolicelli, P., Trilli, J., Petralito, S., Carriero, V.C., Brandelli, C., **Spano, M.**, Sobolev, A.P., Mannina, L., Casadei, M.A. *Insights into the reaction of chondroitin sulfate with glycidyl methacrylate: 1D and 2D NMR investigation.* *Carbohydrate Polymers* (2022), 119916, DOI: <https://doi.org/10.1016/j.carbpol.2022.119916>

21. Sobolev, A.P.; Ingallina, C.; **Spano, M.**; Di Matteo, G.; Mannina, L. *NMR-Based Approaches in the Study of Foods.* *Molecules* (2022), 27, 7906. <https://doi.org/10.3390/molecules27227906>

22. **Spano, M.**; Di Matteo, G.; Ingallina, C.; Sobolev, A.P.; Giusti, A.M.; Vinci, G.; Cammarone, S.; Tortora, C.; Lamelza, L.; Prencipe, S.A.; Gobbi, L.; Botta, B.; Marini, F.; Campiglia, E.; Mannina, L. *Industrial Hemp (Cannabis sativa L.) Inflorescences as Novel Food: The Effect of Different Agronomical Practices on Chemical Profile.* *Foods* (2022), 11, 3658. <https://doi.org/10.3390/foods11223658>

23. Ruggeri, M.; Bianchi, E.; Vigani, B.; Sánchez-Espejo, R.; **Spano, M.**; Totaro Fila, C.; Mannina, L.; Viseras, C.; Rossi, S.; Sandri, G. *Nutritional and Functional Properties of Novel Italian Spray-Dried Cricket Powder.* *Antioxidants* (2023), 12, 112. <https://doi.org/10.3390/antiox12010112>

24. Ingallina, C.; Di Matteo, G.; **Spano, M.**; Acciaro, E.; Campiglia, E.; Mannina, L.; Sobolev, A.P. *Byproducts of Globe Artichoke and Cauliflower Production as a New Source of Bioactive Compounds in the Green Economy Perspective: An NMR Study.* *Molecules* (2023), 28, 1363. <https://doi.org/10.3390/molecules28031363>

25. Vitale, I.; **Spano, M.**; Puca, V.; Carradori, S.; Cesa, S.; Marinacci, B.; Sisto, F.; Roos, S.; Grompone, G.; Grande, R. *Antibiofilm activity and NMR-based metabolomic characterization of cell-free supernatant of Limosilactobacillus reuteri DSM 17938.* *Front. Microbiol* (2023), 14,1128275. doi: 10.3389/fmicb.2023.1128275