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# Agnese Santanatoglia

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## Education and Work Experiences

### ➤ **Postdoc researcher in Food Chemistry (CHIM/10)**

**March 2025 – March 2024**

University of Camerino, Camerino (Italy) - Simonelli Group (Italy)  
Supervisor: Prof. Gianni Sagratini

### ➤ **PhD Candidate in Food Chemistry (CHIM/10)**

**December 2021 – March 2024**

Pharmaceutical, Nutraceutical and Food Sciences  
International School of Advanced Study  
University of Camerino, Camerino (Italy) - Simonelli Group (Italy)

Topic: Research on the characterization of various filter coffee extraction methods (AeroPress, French Press, Pure Brew, V60, Chemex, Moka, Turkish and Clever). Analysis of volatile and non-volatile compounds (HPLC – DAD/ HPLC – MS/MS /QTOF/ GC - MS), exploring the link between these compounds and sensory science. Moreover, assessing the variability of analytes among extraction systems, also from a health perspective.

<https://www.ilsettempedano.it/2024/10/02/da-unicam-agli-usa-la-ricercatrice-agnese-santanatoglia-studia-i-segreti-del-caffe/>

<https://www.comunicaffe.it/santanatoglia-il-futuro-della-ricerca-del-caffe-e-nella-sostenibilita/>

- Developing analytical methods for bioactive and toxic compounds in food matrices using different extraction techniques (SPE, SPME) and instrumental methods (LC-DAD, LC-MS, LC-MS/MS, QTOF, GC-MS).
- Nutraceutical compound characterization from plant-based food matrices.
- Valorization of food industry by-products (e.g., spent coffee grounds).

PhD thesis: "Acidity in coffee: a flavoromics approach comparing multiple extraction methods".

Supervisor: Prof. Sauro Vittori

### ➤ **Postgraduate Course in Molecular Aspects of Nutrition: From Nutrigenomics to Functional Nutrition**

**January 2022 – October 2022**

School of Nutrigenomics  
University of Camerino, Camerino (Italy)

Thesis: "Caffè e salute dal punto di vista nutrigenomico e cardiovascolare". Supervisor: Prof. Gianni Sagratini

### ➤ **Support Senior Tutor for Students with Disabilities and Specific Learning Disabilities (DSA)**

**2022**

University of Camerino, Camerino (Italy)

### ➤ **Research Scholarship in Food Chemistry (CHIM/10)**

**September 2021 – December 2021**

School of Pharmacy  
University of Camerino, Camerino (Italy)

Topic: Stability of dairy products fortified with vitamin D and phytosterols. Development of functional foods fortified with vitamin D or phytosterols/stanols for the prevention of cardiovascular diseases and osteoporosis. Study of dairy product fortification with inulin. Supervisor: Prof. Gianni Sagratini

### ➤ **Master's Degree in Pharmacy and Industrial Pharmacy (LM-13)**

**September 2016 - July 2021**

School of Pharmacy

University of Camerino, Camerino (Italy)

Grade: 110/110 cum laude with academic mention

<https://www.ilsettempedano.it/2021/07/09/farmacia-agnese-santanatoglia-si-laurea-con-110-e-lode/>

Master's degree thesis: "Phytosterols in legumes: Development and application of a new HPLC-DAD method for the analysis of 8 phytosterols in legumes". Supervisor: Prof. Gianni Sagratini

➤ **Qualification to the Profession of Pharmacist**

**November 2021**

University of Camerino, Camerino (Italy)

➤ **Pharmacy Trainee**

**2020**

Pharmacy Kaczmarek

San Severino Marche (Italy)

(Pre-Graduate Internship; 900 hours)

➤ **Support Senior Tutor for "Orientamento Office"**

**2018-2021**

University of Camerino, Camerino (Italy)

➤ **UNICAM Merit Scholarship Winner**

University of Camerino, Camerino (Italy)

Academic Years 2017/18, 2018/19, 2019/20, 2020/21

➤ **High School Diploma**

**July 2016**

Classical Studies

Istituto d'Istruzione Superiore Liceo Classico "F. Fielfo", Tolentino (Italy)

**International Experiences**

➤ **Short ERASMUS+ Fellowship**

**December 4-11, 2024**

University of Balearic Islands (UIB) (Spain)

Topic: Practical research in cell culture techniques and gene expression analysis. Supervisor: Prof. Antonio Sureda Gomila <https://www.uib.eu>

➤ **Visiting PhD Student**

**February 2024 – August 2024**

Ohio State University, Columbus (USA)

Flavor Research and Education Center (FREC) <https://frec.osu.edu/home>

Topic: Acidity in coffee. Supervisor: Dr. Devin Peterson

➤ **Blended Intensive Programme (BIP)**

**October 2-6, 2023**

Universidad San Jorge, Zaragoza (Spain) <https://www.usj.es>

Topic: Development of phytopharmaceutical products for pharmacological, cosmetic or food applications.

➤ **ERASMUS+ Fellowship**

**September 2018 – March 2019**

University of Granada, Faculty of Pharmacy (Spain)

<https://www.ugr.es/en/study/undergraduate/programmes/pharmacy>

➤ **English Language Course Fellowship**

**July 2010**

University of Stirling (Scotland)

<https://www.stir.ac.uk>

**Language**

➤ **Native Language:** Italian

**Other Languages:**

➤ **English**

- Reading: Excellent
- Writing: Excellent
- Speaking: Excellent

➤ **Spanish**

- Reading: Excellent
- Writing: Good
- Speaking: Excellent

➤ **French**

- Reading: Basic
- Writing: Basic
- Speaking: Basic

**Scientific activities**

➤ Since 2022, she has participated in research projects in the field of Food Chemistry. Her research work is documented by **27 publications** in international scientific journals (Scholar h-index 7, 148 citations <https://scholar.google.com/citations?user=GTeFauMAAAAJ&hl=it&oi=ao>), as well as **19 full papers** (in proceedings).

**ORAL communications at national/international conferences:**

➤ **"ERASMUS+ KA171 Project"**

**March 10, 2025**

ChIP, Chemistry Interdisciplinary Project (Camerino, Italy)  
The science of coffee flavor: How acidity and extraction define the final cup

➤ **"AVEK – The world of coffee"**

**February 7-11, 2025**

Zappeion Mansion, Athens (Greece)  
Exploring coffee acidity: a flavoromics perspective  
Health and science: behind coffee extraction parameters

➤ **MS Food Day 2024 (8° edition)**

**October 16-18, 2024**

Torre Canne, Brindisi (Italy)  
Assessing chemical drivers of acidity in *arabica* coffee using a flavoromics approach.

➤ **Annual meeting PRIN – NOVELTY Project**

**September 23-24, 2024**

University of Parma (Italy)  
Acorn flour extracts: analysis of bioactive compounds by HPLC-ESI-MS/MS and evaluation of their antioxidant and enzyme inhibitory activities.

➤ **Specialty Coffee Expo**

**April 12-14, 2024**

Chicago (USA)  
Unveiling the Science of Coffee Acidity: From Fundamentals to Extraction Influences.

➤ **Merck Young Chemists' Symposium XXII edition**

**November 13-15, 2023**

Rimini (Italy)  
Acrylamide content and antioxidant activity among 8 filter coffee extraction methods.

➤ **Autumn School in Food Chemistry (2° edition)**

**September 20-22, 2023**

University of Pavia (Italy)

Acrylamide content and antioxidant activity among 8 different filter coffee extraction methods.

➤ **SINUT (Società Italiana Nutraceutica)**

**September 14-16, 2023**

Bologna (Italy)

Estrazione di antiossidanti dal caffè: comparazione tra otto differenti sistemi di estrazione filtro. Book of Abstract pp. [https://pmail.prosperomultilab.com/Upload/planning.it/Attachments/pharmanutrition\\_n\\_3-settembre-2023\\_80312.pdf](https://pmail.prosperomultilab.com/Upload/planning.it/Attachments/pharmanutrition_n_3-settembre-2023_80312.pdf).

➤ **"Brew your best"**

**February 15-19, 2023**

Zappeion Mansion, Athens (Greece)

Pure Brew Project.

➤ **Autumn School in Food Chemistry (1° edition)**

**October 17-18, 2022**

University of Pavia (Italy)

A new analytical method for the resolution of 8 phytosterols in legumes.

➤ **SINUT (Società Italiana Nutraceutica)**

**September 14-16, 2022**

Bologna (Italy)

Study and production of an inulin-functionalized giuncata: a source of prebiotic fiber with fat-replacer action. Book of Abstract pp.

[https://pmail.prosperomultilab.com/Upload/planning.it/Attachments/pharmanutrition\\_n\\_3 settembre 2022 r2 20005.pdf](https://pmail.prosperomultilab.com/Upload/planning.it/Attachments/pharmanutrition_n_3_settembre_2022_r2_20005.pdf).

➤ **Fame Lab**

**Camerino, with two talks about "Food Chemistry". April 2021.**

[https://www.ilsettempedano.it/2021/04/18/unicam-agnese-santanatoglia-fra-i-vincitori-del-famelab/WINNER\\_FIRST\\_PRIZE](https://www.ilsettempedano.it/2021/04/18/unicam-agnese-santanatoglia-fra-i-vincitori-del-famelab/WINNER_FIRST_PRIZE)

Link: <https://www.youtube.com/watch?v=d17Uohtr8Oc>

Link: <https://www.youtube.com/watch?v=fDktyqZvraq0>

**POSTERS communications:**

➤ **MS Food Day 2024 (8° edition)**

**October 16-18, 2024**

Torre Canne, Brindisi (Italy)

Influence of geographical origin, post-harvest processing and brewing methods on quercetin derivatives in roasted *arabica* coffee.

➤ **XXVIII Congresso Nazionale della Società Chimica Italiana**

**August 26-30, 2024**

Milano (Italy)

In-depth study of coffee's acidity among eight brewing methods: chemical, sensory and statistical evaluation.

➤ **Autumn School in Food Chemistry (2° edition)**

**September 20-22, 2023**

University of Pavia (Italy)

Development of new analytical methods for the quantification of caffeine, organic and chlorogenic acids from Espresso coffee using SPE And HPLC-DAD

➤ **NuGOweek 2023**

**September 20-22, 2023**

Senigallia (Italy)

Acrylamide content and Antioxidant activity among 8 different filter coffee extraction methods.

➤ **XIII National Congress of Food Chemistry (CHIMALI 2023)**

### **May 29-31,2023**

Villa Favorita, Marsala (Italy)

Development and Application of a novel analytical method for the determination of 8 plant sterols/stanols in 22 legumes samples.

### **> XIII National Congress of Food Chemistry (CHIMALI 2023)**

#### **May 29-31,2023**

Villa Favorita, Marsala (Italy)

Medium roasting specialty coffee fingerprint: discrimination among different brewing methods.

### **> MS Food Day 2022 (7° edition)**

#### **October 5-7,2022**

Florence (Italy)

A comprehensive comparative study of the Newly developed Pure Brew method with classical ones for filter coffee production.

WINNER OF THE YOUNG SCIENTIST FELLOWSHIP.

### **Others:**

Laura Acquaticci, **Agnese Santanatoglia**, Elena Giovanna Vittadini, Daniela Beghelli, Antonietta La Terza, Gokhan Zengin, Giovanni Caprioli; poster communication at **MS FOOD DAY** (Brindisi). Poster name: Acorn flour extracts: analysis of bioactive compounds by HPLC-ESI-MS/MS and evaluation of their antioxidant and enzyme inhibitory activities. October 2024.

Laura Acquaticci, Doaa Abouelenein, Eleonora Spinozzi, **Agnese Santanatoglia**, Ahmed M. Mustafa, Giovanni Caprioli; poster communication at **MS FOOD DAY** (Brindisi). Poster name: Analysis of the phenolic compounds, volatile profile and evaluation of the antioxidant activity of different varieties of honey in Italy. October 2024.

Francesca Pompei, **Agnese Santanatoglia**, Cinzia Mannozi, Lauro Fioretti, Sauro Vittori; poster communication at **IUFOST conference** (Rimini). Poster name: Evaluation of different extraction methodology on tea waste obtained from three brewing techniques. September 2024.

Maria Alessia Schouten, **Agnese Santanatoglia**, Simone Angeloni, Massimo Ricciutelli, Laura Acquaticci, Giovanni Caprioli, Sauro Vittori, Santina Romani; oral communication at **IUFOST conference** (Rimini). Intervent name: Study of Acrylamide formation in biscuits with dried and dehydrated fruits addition. September 2024.

Laura Acquaticci, **Agnese Santanatoglia**, Elena Giovanna Vittadini, Daniela Beghelli, Giovanni Caprioli; oral communication at **XXVIII Congresso Nazionale della Società Chimica Italiana** (Milano). Intervent name: Effect of acorn harvesting time on the nutritional profile, polyphenols content, antioxidant activity and volatiles of different acorn flours. August 2024.

Maria Alessia Schouten, **Agnese Santanatoglia**, Simone Angeloni, Massimo Ricciutelli, Laura Acquaticci, Giovanni Caprioli, Sauro Vittori, Santina Romani; oral communication at **AISTEC conference** (Torino). Intervent name: Study of Acrylamide formation in biscuits with dried and dehydrated fruits addition. June 2024.

Maria Alessia Schouten, **Agnese Santanatoglia**, Simone Angeloni, Massimo Ricciutelli, Laura Acquaticci, Giovanni Caprioli, Sauro Vittori, Santina Romani; oral communication at **6° edition of ISEKI e-conference** "Food production based on food safety, sustainable development and circular economy". Intervent name: Effects of dried seeds and black olives as enrichment ingredients on acrylamide concentration in savoury biscuits. November 22-24, 2023.

Giovanni Caprioli, **Agnese Santanatoglia**, Sauro Vittori, Gianni Sagratini. Intervent name: New analytical method for the quantification of cholesterol-lowering phytosterols in 22 legume samples. eIL20, Book of Abstract pp 197. **7-ISPMPF**, August 1-7, 2023, Beijing (China).

### **Publications:**

- 1) Mustafa, A. M., Abouelenein, D., Angeloni, S., Maggi, F., Navarini, L., Sagratini, G., **Santanatoglia, A.** Vittori, S., & Caprioli, G. (2022). A New HPLC-MS/MS Method for the Simultaneous Determination of Quercetin and Its Derivatives in Green Coffee Beans. *Foods*, 11(19), 3033.
- 2) **Santanatoglia, A.**, Nzekoue, F. K., Alesi, A., Ricciutelli, M., Sagratini, G., Suo, X., Vittori, S., & Caprioli, G. (2023). Development of Innovative Vitamin D Enrichment Designs for Two Typical Italian Fresh Cheeses: Burrata and Giuncata. *Molecules*, 28(3), 1049.

- 3) **Santanatoglia, A.**, Nzekoue, F. K., Sagratini, G., Ricciutelli, M., Vittori, S., & Caprioli, G. (2023). Development and application of a novel analytical method for the determination of 8 plant sterols/stanols in 22 legumes samples. *Journal of Food Composition and Analysis*, 118, 105195.
- 4) **Santanatoglia, A.**, Caprioli, G., Cespi, M., Ciarlantini, D., Cognigni, L., Fioretti, L., ... & Vittori, S. (2023). A comprehensive comparative study among the newly developed Pure Brew method and classical ones for filter coffee production. *LWT*, 114471
- 5) Abouelenein, D., Acquaticci, L., Alessandrini, L., Borsetta, G., Caprioli, G., Mannozi, C., **Santanatoglia, A.**... & Mustafa, A. M. (2023). Volatile Profile of Strawberry Fruits and Influence of Different Drying Methods on Their Aroma and Flavor: A Review. *Molecules*, 28(15), 5810.
- 6) **Santanatoglia, A.**, Alessandrini, L., Fioretti, L., Sagratini, G., Vittori, S., Maggi, F., & Caprioli, G. (2023). Discrimination of Filter Coffee Extraction Methods of a Medium Roasted Specialty Coffee Based on Volatile Profiles and Sensorial Traits. *Foods*, 12(17), 3199.
- 7) **Santanatoglia, A.**, Cespi, M., Perinelli, D. R., Fioretti, L., Sagratini, G., Vittori, S., & Caprioli, G. (2023). Impact of the human factor on the reproducibility of different coffee brewing methods. *Journal of Food Composition and Analysis*, 105698.
- 8) Perinelli DR, **Santanatoglia A**, Caprioli G, Bonacucina G, Vittori S, Maggi F, Sagratini G. (2023). Inulin Functionalized "Giuncata" Cheese as a Source of Prebiotic Fibers. *Foods*; 12(18), 3499.
- 9) Schouten, M. A., **Santanatoglia, A.**, Angeloni, S., Ricciutelli, M., Acquaticci, L., Caprioli, G., Vittori, S., & Romani, S. (2023). Effects of Nuts, Dried Fruits, Dried Seeds and Black Olives as Enrichment Ingredients on Acrylamide Concentrations in Sweet and Savoury Biscuits. *Food and Bioprocess Technology*, 1-14.
- 10) **Santanatoglia, A.**, Angeloni, S., Fiorito, M., Fioretti, L., Ricciutelli, M., Sagratini, G., Vittori, S., & Caprioli, G. (2023). Development of new analytical methods for the quantification of organic acids, chlorogenic acids and caffeine in espresso coffee by using solid-phase extraction (SPE) and high-performance liquid chromatography-diode array detector (HPLC-DAD). *Journal of Food Composition and Analysis*, 105732.
- 11) **Santanatoglia, A.**, Angeloni, S., Bartolucci, D., Fioretti, L., Sagratini, G., Vittori, S., & Caprioli, G. (2023). Effect of Brewing Methods on Acrylamide Content and Antioxidant Activity: Studying Eight Different Filter Coffee Preparations. *Antioxidants*, 12(10), 1888.
- 12) Avşar, Ö. K., Kasbolat, S., Ak, G., Caprioli, G., **Santanatoglia, A.**, Uysal, A., & Zengin, G. (2024). Integrating chemical analysis with in vitro, in silico, and network pharmacology to discover potential functional compounds from *Marrubium astracanicum* subsp. macrodon. *Journal of Molecular Liquids*, 398, 124204
- 13) Quagliardi, M., Frapiccini, E., Marini, M., Panfili, M., **Santanatoglia, A.**, Nguefang, M. L. K., Vittori, S., & Borsetta, G. (2024). Use of grape by-products in aquaculture: New frontiers for a circular economy application. *Heliyon*.
- 14) **Santanatoglia, A.**, Alessandrini, L., Mannozi, C., Marconi, R., Piatti, D., Sagratini, G., Vittori, S., & Caprioli, G. (2024). Valorization of spent coffee ground and coffee silverskin as a source of nutrients and bioactive compounds. *Future Postharvest and Food*.
- 15) El Bernoussi, S., Boujemaa, I., El Guezane, C., El Idrissi, Z. L., **Santanatoglia, A.**, Caprioli, G., & Tabyaoui, M. (2024). Effect of storage conditions on physico-chemical characteristics and antioxidants activity of sweet and bitter almond nuts and seeds of aknoul. *Food Bioscience*, 60, 104488.
- 16) **Santanatoglia, A.**, Angeloni, S., Caprioli, G., Fioretti, L., Ricciutelli, M., Vittori, S., & Alessandrini, L. (2024). Comprehensive investigation of coffee acidity on eight different brewing methods through chemical analyses, sensory evaluation and statistical elaboration. *Food Chemistry*, 454, 139717.
- 17) Acito, M., **Santanatoglia, A.**, Fatigoni, C., Villarini, M., Caprioli, G., Sagratini, G., ... & Moretti, M. (2024). Patata Rossa di Colfiorito IGP (*Solanum tuberosum*, L.) and health-promoting potentialities: Do cooking techniques and storage affect chemical profile and antioxidant activity? *Journal of Functional Foods*, 121, 106380.
- 18) Ibourki, M., Hallouch, O., Ahmed, M. N., Sabraoui, T., Devkota, K., Jadouali, S., **Santanatoglia, A.** ... & Gharby, S. (2024). Minerals and heavy metals profiling of Moroccan saffron (*Crocus sativus* L.): A comparative study across diverse agro-ecological areas. *Journal of Food Composition and Analysis*, 106651.
- 19) **Santanatoglia, A.**, Caprioli, G., Ricciutelli, M., Vittori, S., & Angeloni, S. (2024). Quantification of two

derivatives of malic acid first-time discovered in coffee: Influence of postharvest processing method. *Food Chemistry*, 460, 140644.

- 20) Caprioli G., Sagratini G., Vittori S. & **Santanatoglia A.** (2025). Espresso coffee preparation and the importance of volatiles. *Coffee in Health and Disease Prevention*.
- 21) Angeloni, S., Caprioli, G., Cespi, M., Acquaticci, L., Mustafa, A. M., **Santanatoglia, A.**, ... & La Terza, A. (2024). An Innovative Formulation to Improve Spent Coffee Characteristics as Soil Fertilizer: Nutrient, Chemical Characterization and Effects on Plant Germination. *Biocatalysis and Agricultural Biotechnology*, 103394.
- 22) Potenza, L., Saltarelli, R., Palma, F., Di Patria, L., Annibalini, G., Burattini, S., **Santanatoglia, A.**... & Barbieri, E. (2024). Morphological Characterization, Polyphenolic Profile, and Bioactive Properties of Limoncella, an Ancient Mediterranean Variety of Sweet Citrus. *Biomolecules*, 14(10), 1275.
- 23) Santanatoglia, A., Schievano, E., Menegazzo, I., Fioretti, L., Caprioli, G., Vittori, S., Sagratini, G. & Alessandrini, L. (2025). Cafestol and kahweol content in different specialty coffee brews: exploration by NMR analysis and evaluation of brewing parameters. *Journal of Food Composition and Analysis*, 106929.
- 24) Acquaticci L., **Santanatoglia A.**, Vittadini E., Beghelli D., La Terza A., Zengin G. & Caprioli. G. (2025). Quantification of Bioactive Compounds by HPLC-ESI-MS/MS and Evaluation of Antioxidant and Enzyme Inhibitory Activities of Acorn Flour Extracts. *Antioxidants*, 13(12), 1526.
- 25) **Santanatoglia, A.**, Navarini, L., Angeloni, S., & Caprioli, G. (2025). Quercetin derivatives in roasted Coffea arabica and its popular beverages. *Food Chemistry*, 143035.
- 26) Burattini, S., Gianfanti, F., Onesimo, F., Zeppa, S. D., Canonico, B., Montanari, M., **Santanatoglia A.**, & Battistelli, M. (2025). Blue elixir of youth and wellness: The multicomponent-multitarget paradigm of Curcuma caesia Roxb. *Journal of Functional Foods*, 125, 106699.