

# University Academic Curriculum Vitae

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## Personal information

Name: MARIA CONCETTA TENUTA

## Education since leaving school

- 2011 Degree in Nutritional Science with vote 101/110; University of Calabria - Department of Pharmacy and Health Science and Nutrition
- 2014 Master's degree in Nutritional Science with vote 105/110; University of Calabria - Department of Pharmacy and Health Science and Nutrition
- 2020 PhD in "Translational Medicine" SSD BIO/15 - Pharmaceutical Biology, in cotutorship between the University of Calabria and the Université de Paris, Ecole Doctorale Médicament, Toxicologie, Chimie, Imageries (MTCI ED 563); (18 months spent in Italy - 18 months spent in France). In light of this, I was awarded an Italian PhD in "Pharmaceutical Biology" and French PhD in "Pharmacognosy"
- 2015 Obtained professional qualification as Biologist and nutritionist at University of Calabria - Department of Biology, Ecology and Earth Science- DiBEST

## Present appointment

- Research Fellow
- From May 2022 to September 2022
- University of Modena and Reggio Emilia- Department of Life Science- Supervisor Prof Patrizia Fava
- I am responsible for evaluation of packaging with more eco-compostable materials to reduce the use of plastics in the fruit chain. Moreover, I am responsible for evaluation microbiological and sensory in order to guarantee the same freshness and healthiness found in packages currently present in the market.

## Professional experience

Chronological list of all previous employments (each with job title, starting and finishing dates, level, employer, responsibilities)

| From / to           | Job title       | Name of academic Institution   | Academic level  | responsibilities   |
|---------------------|-----------------|--|-----------------|--|
| May 2021/April 2022 | Research Fellow | University of Modena and Reggio Emilia- Department of Life Science- Supervisor Prof Fabio Licciardello | Research Fellow | I am responsible for evaluation of edible coating to improve shelf life of sour cherries and the treatment of innovative technologies to obtain a better by-product. Moreover, I am responsible for evaluation of effects of treatment (ozone and high hydrostatic pressure) through chemical, microbiological, sensory analysis. I am |

|                              |                     |  |   |   |
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|                              |                     |  |   | responsible to evaluation of the content in bioactive compounds of fresh sour cherries, seeds and processed products by extraction and HPLC-MS analysis   |
| November 2016/ November 2019 | PhD student         | University of Calabria - Department of Pharmacy and Health Science and Nutrition- Supervisor Prof. Rosa Tundis   | PhD student (founded by University of Calabria)   | I was responsible for <i>in vitro</i> biological evaluation (antioxidant, hypolipidemic and hypoglycaemic activities) of edible plants extracts or fractions (fruits and leaves). The latter were processed using maceration, ultrasound, Soxhlet apparatus and decoction to obtain dried extracts.                     |
| March 2018/August 2019       | PhD student         | Université de Paris - Laboratoire de Produit Naturel, Analyse et Synthèse UMR 8038 CNRS - Faculté des Sciences Pharmaceutiques et Biologiques de Paris- Supervisor Prof. Brigitte Deguin | PhD student (founded by University of Calabria)   | I was responsible for the chemical characterisation, using HPLC-MS, of different extracts obtained from fruits and leaves of Mediterranean plants (Arbutus unedo, Cornus mas, Cornus sanguinea and Vaccinium corymbosum). The extracts were finally processed to obtain the fractions rich in polyphenols and iridoids. |
| November 2014/ May 2015      | Pre-doctoral fellow | University of Calabria - Department of Computer Engineering, Modelling, Electronics and Systems- Responsible Prof. Bruno De Cindio   | University bursary in the project PON01_00293 project - Spread Bio Oil - "Development of new technological processes for the production of emulsions based innovative olive oil organic consistency a controlled" - National Operational Programme research and competitiveness for the regions | I obtained a post graduate scholarship to work on a project aimed at studying the oxidative stability of vegetable oils.  |

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|                      |                 |   | of convergence  |  |
| March 2013/June 2013 | Erasmus student | University of Aberdeen - Rowett Institute of Nutrition and Health-Scotland- Supervisor Prof. Garry Duthie | Erasmus student | I was awarded an Erasmus placement scholarship to work on project aimed at characterising the oxidative stability of vegetable oils (olive oil and rapeseed oil), this study represented half of my experimental Master's thesis entitled: "Oxidative stability and biological properties of vegetable oils: rapeseed oil" |

### Experience in academic teaching

- Temporary contract (December 2017/February 2018) of continuous collaboration as a tutor to support the degree course in SCIENTIFIC INFORMATION ON DRUGS AND HEALTH PRODUCTS to University of Calabria - Department of Pharmacy and Health Science and Nutrition - Responsible Prof. Monica Rosa Loizzo. The course I was responsible for, belonging to the SSD AGR/15 was as follow: Innovative food technology.
- Temporary contract (November 2015/ November 2016) of continuous collaboration as a tutor to support the degree course in PHARMACEUTICAL CHEMISTRY AND TECHNOLOGY to University of Calabria - Department of Pharmacy and Health Science and Nutrition - Responsible Prof. Francesca Aiello. The courses I was responsible for, belonging to the SSD CHIM/08 were as follow: Drug Analysis and Drug Extraction and Synthesis Laboratory.
- Co-supervisor in two different Master thesis in SSD AGR/15 (Food Science and Technology) to University of Modena and Reggio Emilia- Department of Life Science. The thesis titles are:
  - Technological interventions to extend shelf-life and enhancing of the "Amarena Brusca di Modena"
  - Packaging solutions aiming to extend cherries and fresh cut grapes post-harvest shelf life

### Publications

- (\* ) 1) **Tenuta MC**, Deguin B, Loizzo MR, Cuyamendous C, Bonesi M, Sicari V, Trabalzini L, Mitaine-Offer AC, Xiao J, Tundis R. An overview of traditional uses, phytochemical compositions and biological activities of edible fruits of European and Asian *Cornus* species. *Foods*, **2022**, 11, 1240. doi:10.3390/foods11091240.
- (\* ) 2) **Tundis R**, **Tenuta MC**, Loizzo MR, Bonesi M, Finetti F, Trabalzini L, Deguin B. *Vaccinium* Species (Ericaceae): From Chemical Composition to Bio-Functional Activities. *Applied Science*, **2021**, 11, 5655. doi:10.3390/app11125655.
- 3) **Bonesi, M**, Saab AM, **Tenuta MC**, Leporini M, Saab MJ, Loizzo MR, Tundis R. Screening of traditional Lebanese medicinal plants as antioxidants and inhibitors of key enzymes linked to type 2 diabetes. *Plant Biosystem*, **2020**, 154, 656-662, doi: 10.1080/11263504.2019.1674400.

- (\*) 4) **Tenuta MC**, Malfa GA, Bonesi M, Acquaviva R, Loizzo MR, Dugay A, Bouzidi C, Barbara Tomasello, Tundis R, Deguin B. LC-ESI-QTOF-MS profiling, protective effects on oxidative damage, and inhibitory activity of enzymes linked to type 2 diabetes and nitric oxide production of *Vaccinium corymbosum* L. (Ericaceae) extracts. *Journal of Berry Research*, **2020**, 10, 603-622, doi: 10.3233/JBR-200536.
- (\*) 5) **Tenuta MC**, Deguin B, Loizzo MR, Dugay A, Acquaviva R, Malfa GA, Bonesi M, Bouzidi C, Tundis R. Contribution of flavonoids and iridoids to the hypoglycaemic, antioxidant, and nitric oxide (NO) inhibitory activities of *Arbutus unedo* L. *Antioxidants*, **2020**, 9, 184, doi: 10.3390/antiox9020184.
- 6) *Bonesi M*, Leporini M, **Tenuta MC**, Tundis R. The role of anthocyanins in drug discovery: recent developments. *Current Drug Discovery Technologies*, **2020**, 17, 286-298, doi: 10.2174/1570163816666190125152931.
- 7) *Maggio A*, Loizzo MR, Riccobono L, Bruno M, **Tenuta MC**, Leporini M, Falco T, Leto C, Tuttolomondo T, Cammalleri I, La Bella S, Tundis R. Comparative chemical composition and bioactivity of leaves essential oils from nine Sicilian accessions of *Myrtus communis* L. *Journal of Essential Oil Research*, **2019**, 31, 546-555, doi: 10.1080/10412905.2019.1610089.
- (\*) 8) *Bonesi M*, **Tenuta MC**, Loizzo MR, Sicari V, Tundis R. Potential application of *Prunus armeniaca* L. and *P. domestica* L. leaf essential oils as antioxidant and of cholinesterases inhibitors. *Antioxidants*, **2019**, 8, 2, doi: 10.3390/antiox8010002.
- (\*) 9) **Tenuta MC**, Tundis R, Xiao J, Loizzo MR, Dugay A, Deguin B. *Arbutus* species (Ericaceae) as source of valuable bioactive products. *Critical Review in Food Science and Nutrition*, **2018**, 59, 864-881, doi: 10.1080/10408398.2018.1551777.
- 10) *Leporini M*, Loizzo MR, **Tenuta MC**, Sicari V, Pellicanò TM, Tundis R. Calabrian extra-virgin olive oil from Frantoio cultivar: chemical composition and health properties. *Emirate Journal of Food and Agriculture*, **2018**, 30, 631-637. doi: 10.9755/ejfa.2018.v30.i7.1743.
- (\*) 11) *Bonesi M*, Loizzo MR, Leporini M, **Tenuta MC**, Passalacqua NG, Tundis R. Comparative evaluation of petitgrain oils from six *Citrus* species alone and in combination as potential functional anti-radicals and antioxidant agents. *Plant Biosystems*, **2017**, 152, 986-993, doi: 10.1080/11263504.2017.1403396.
- (\*) 12) *Tundis R*, **Tenuta MC**, Loizzo MR, Bonesi M, Menichini F, Duthie G. Natural compounds and vegetable powders improve the stability and antioxidant properties of *Brassica napus* L. var. oleifera (rapeseed) oil. *European Journal of Lipid Science and Technology*, **2017**, 119, 1600228, doi: 10.1002/ejlt.201600228.
- (\*) 13) *Loizzo MR*, Bonesi M, Menichini F, **Tenuta MC**, Leporini M, Tundis R. Antioxidant and carbohydrate-hydrolysing enzymes potential of *Sechium edule* (Jacq.) Swartz (Cucurbitaceae) peel, leaves and pulp fresh and processed. *Plant Foods for Human Nutrition*, **2016**, 71, 381-387, doi: 10.1007/s11130-016-0571-4.
- (\*) 14) *Loizzo MR*, Pugliese A, Bonesi M, **Tenuta MC**, Menichini F, Xiao J, Tundis R. Edible flowers: a rich source of

phytochemicals with antioxidant and hypoglycaemic activity. *Journal of Agricultural and Food Chemistry*, **2016**, 64, 2467-2474, doi: 10.1021/acs.jafc.5b03092.

- (\*) 15) Loizzo MR, Sicari V, **Tenuta MC**, Leporini M, Falco T, Pellicanò TM, Menichini F, Tundis R. Phytochemicals content, antioxidant and hypoglycaemic activities of commercial nutmeg mace (*Myristica fragrans* L.) and pimento (*Pimenta dioica* (L.) Merr.). *International Journal of Food Science and Technology*, **2016**, 51, 2057-2063, doi:10.1111/ijfs.13178.
- (\*) 16) Tundis R, Bonesi M, Sicari V, Pellicanò TM, **Tenuta MC**, Leporini M, Menichini F, Loizzo MR. *Poncirus trifoliata* (L.) Raf.: chemical composition, antioxidant properties and hypoglycaemic activity via the inhibition of  $\alpha$ -amylase and  $\alpha$ -glucosidase enzymes. *Journal of Functional Foods*, **2016**, 25, 477-485, doi: 10.1016/j.jff.2016.06.034.
- (\*) 17) Tundis R, Marrelli M, Conforti F, **Tenuta MC**, Bonesi M, Menichini F, Loizzo MR. *Trifolium pratense* and *T. repens* (Leguminosae): edible flower extracts as functional ingredients. *Foods*, **2015**, 4, 338-348, doi: 10.3390/foods4030338.

#### Book Chapter

- 1) **Tenuta MC**, Leporini M. Human health implications of specific group of food additives. Chapter 2. In: *Food Additives and Human Health*, by S.M. Nabavi, M.R. Loizzo, R. Tundis, S.F. Nabavi, K. Pandima Devi, A. Sanchez Silva, Bentham Science Publishers, **2020**, ISBN: 9789811446115.
- 2) Loizzo MR, Aiello F, **Tenuta MC**, Leporini M, Falco T, Tundis R. Pomegranate (*Punica granatum* L.). Chapter 3.46. In: *Nonvitamin and nonmineral nutritional supplements 1st Edition*, by S.M. Nabavi & A. Sanchez Silva, Elsevier, **2018**, ISBN: 9780128124918.

#### Further data

- 1) Tundis R, Passalacqua NG, **Tenuta MC**, Bonesi M, Sicoli G, Trabalzini L, Finetti F, Deguin B, Loizzo MR. *In vitro* hypolipidemic and hypoglycaemic properties of mushroom extracts. The 2nd International Electronic Conference on Foods - Future Foods and Food Technologies for a Sustainable World. October 15-30, **2021**, online.
- 2) Tundis R, **Tenuta MC**, Loizzo MR, Bonesi M, Dugay A, Deguin B. Decoctions of *Cornus mas* L. (cornelian cherry) dried fruits and leaves: development of new nutraceuticals and food supplements. 4th International Symposium on Phytochemicals in Medicine and Food, November 30-December 05, **2020**, Xi'an, China (Presented by myself, Poster).
- 3) Ragusa S, Bonesi M, Loizzo MR, Acquaviva R, **Tenuta MC**, Leporini M, Passalacqua NG, Tundis R. *Juniperus macrocarpa* Sm. and *J. oxycedrus* L. (Cupressaceae) essential oils and extracts as inhibitors of carbohydrates-hydrolysing enzymes. VI International Plant Science Conference, September 4-7, **2019**, Botanical Garden, Padova.
- 4) **Tenuta MC**, Bonesi M, Leporini M, Loizzo MR, Dugay A, Tundis R, Deguin B. *Arbutus unedo* L. decoction exerts *in vitro* antioxidant activity. 26th Young Research Fellows Meeting,

February 20-22, **2019**, Université Paris Descartes, Paris, France  
(Presented by myself, Flash poster).

- 5) Leporini M, Loizzo MR, Sicari V, **Tenuta MC**, Ortiz S, Dugay A, Tundis R, Deguin B. *Citrus x clementina* (Rutaceae) leaves a source of bioactive compounds. 26th Young Research Fellows Meeting, February 20-22, **2019**, Université Paris Descartes, Paris, France (Presented by myself, Poster).
- 6) Loizzo MR, Tundis R, Leporini M, **Tenuta MC**, Filatova D, Núñez O, Moyano E, Balzano M, Moret S, Conte L, Fiorini D, Frega NG, Lucci P, Pacetti D. Chemical composition and health properties of Arabica and Robusta coffees powder extract. The Quality of coffee: a neverending research” conference, November 30-December 1, **2017**, Camerino University.
- 7) Loizzo MR, Pacetti D, Tundis R, **Tenuta MC**, Filatova D, Núñez O, Moyano E, Balzano M, Frega NG, Moret S, Conte L, Lucci P. Comparative chemical composition and functional properties of selected colombian fruits from Solanaceae family. EuroFoodChem XIX Conference, October 4-6, **2017**, Budapest, Hungary.
- 8) **Tenuta MC**, Bonesi M, Loizzo MR, Deguin B, Tundis R. *In vitro* antioxidant activity of different extracts from *Arbutus unedo* L. (Ericaceae) leaves. The 5th AFERP International Conference "Pharmacognosy from Here and There", July 17-19, **2017**, University of Angers.
- 9) Loizzo MR, Sicari V, Bonesi M, Falco T, **Tenuta MC**, Leporini M, Tundis R. Phenolic profile and health properties of *Citrus x clementina* juice. 8<sup>th</sup> International Conference of Clinical Nutrition, December 8-12, **2016**, Dubai, UAE.
- 10) Loizzo MR, Bruno M, **Tenuta MC**, Leporini M, Bonesi M, Tundis R. Investigation on the cholinesterase inhibitory activity of *Sechium edule* (Jacq.) Swartz (Cucurbitaceae) peel and leaves extracts. SNPF2016, the International Symposium on Natural Products for the Future 2016. September 1-4, **2016**, Tokushima, Japan, p. 120.
- 11) Loizzo MR, Falco T, Bonesi M, **Tenuta MC**, Leporini M, Tundis R. Chemical profile of extra virgin olive oil from Frantoio cultivar growing in Calabria, Italy. P41749 - International Conference on Food Technology, ICFT, May 8-9, **2016**, Dubai.
- 12) Loizzo MR, Skalicka-Woźniak K, **Tenuta MC**, Leporini M, Bonesi M, Menichini F, Tundis R. *Salvia officinalis* L. flowers: a source of healthy phytochemicals. 10<sup>th</sup> International Symposium on Chromatography of Natural Products, June 6-9, **2016**, Medical University of Lublin Department of Pharmacognosy with Medicinal Plant Unit of Medical University of Lublin.

### Statement of interest

In light of my professional experience in the disciplinary sector AGR/15, also witnessed by my role as a tutor and as research fellow in this disciplinary sector, during my PhD, both in Italy and France, I had the opportunity to work on the phytochemical characterisation and evaluation of the biological activity of natural products from different plant species typical of the Mediterranean regions. In consideration of my skills and expertise, I can contribute to investigating the effect of food processing on the chemical composition of the end-products, in order to put in place strategies to improve food quality by modulating their composition. Furthermore, I will be able to, not only assess the

phytochemical properties of foods, but also evaluate the biological activity of specific phytochemical extracts and bioactive compounds using *in vitro* models. In support of this, I have extensive expertise in analytical chemistry, including: Thin Layer Chromatography (TLC), Gas Chromatography (GC), Gas Chromatography-Mass Spectrometry (GC-MS), Medium-pressure liquid chromatography (MPLC), High Performance Liquid Chromatography (HPLC), also spectrophotometric evaluation of total phytochemical contents (total polyphenols, total flavonoids, total iridoids, total carotenoids and total anthocyanins). In terms of my expertise in investigating the biological activities of food extracts and bioactive compounds, my skills include: determination of *in vitro* antioxidant activity (DPPH, ABTS, FRAP and beta-carotene bleaching test); inhibition of alpha-amylase and alpha-glucosidase enzymes, inhibition of pancreatic lipase; cholinesterase activity (inhibition of acetylcholinesterase and butyrylcholinesterase); tyrosinase inhibition. Thus, in consideration of my skills and expertise I feel I could give a substantial contribution to this field for evaluation of chemical profile using the aforementioned analytical techniques and secondly by assessing their biological properties of extracts or bioactive components of the products.

**Language  
competence**

Italian: First Language

English: Level A2

French: Level B1