

# Curriculum Vitae

## Dr. Tiziana Cappello

**Senior Researcher (TDb)** – S.S.D. BIO/06 (Comparative Anatomy and Cytology)

Dept. of Chemical, Biological, Pharmaceutical and Environmental Sciences

**University of Messina - ITALY**

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**Scopus ID:** 55236662100

**Publons ID:** 1192150



## Education

2021 - to date	<b>Researcher</b> RTD-b art. 24 c. 3-b L. 240/10, S.S.D. BIO/06 - University of Messina, IT
2019 - 2021	<b>Researcher</b> RTD-a art. 24 c. 3-a L. 240/10, S.S.D. BIO/06 - University of Messina, IT
2017	<b>Qualification</b> for the position of <b>Associate Professor</b> , S.S.D. BIO/06
2016	<b>Qualification</b> for position of <b>Researcher</b> , S.S.D. BIO/06 - University of Messina, IT
2014 - 2017	<b>PhD</b> in Applied Biology and Experimental Medicine, curriculum Experimental Medicine, XXIX cycle - University of Messina, IT
2010 - 2013	<b>PhD</b> in Biology and Cellular Biotechnologies, XXV cycle, with mention of <b>Doctor Europaeus</b> - University of Messina, IT
2006 - 2008	<b>Master's Degree</b> in Biology and Ecology of the Coastal Marine Environment - University of Messina, IT
2003 - 2006	<b>Bachelor's Degree</b> in Marine Biology and Ecology - University of Messina, IT

## Research Interests

Dr. Cappello's dissertation research is mainly focused on **ecocytotoxicology** and **biomonitoring** of the natural aquatic environments, by using both invertebrates and lower vertebrates as bioindicators. The target organs primarily investigated to assessing the organisms' recovery capacities and the strategies elicited against the various environmental stresses are the gills, mainly involved in nutrient uptake, gas exchange and neurotransmission, and first organ to suffer from pollutant toxic effects due to their surface at direct and continuous contact with the external medium, and the digestive gland (in invertebrates) and liver (in lower vertebrates) as the major sites for xenobiotic bioaccumulation and detoxification processes. The **biomarkers** applied in order to assess the effects of standard (i.e. metals, hydrocarbons) and emerging (i.e. nanoparticles, pharmaceuticals, microplastics) environmental contaminants on aquatic biota are both of **histological** type, through morphological, histochemical and immunohistochemical investigations; **molecular** type, as RNA extraction, RT-PCR, cloning, sequencing and synthesis of oligonucleidic probes for fluorescent *in situ* hybridization (FISH) technique on histological sections; and **metabolomics** type, by applying proton nuclear magnetic resonance (<sup>1</sup>H NMR) spectroscopy, as well as associated bioinformatics approaches and chemometrics. Environmental metabolomics, based on the simultaneous identification of low molecular weight

metabolites (*metabolite biomarkers*) involved in various metabolic pathways, is a cutting edge approach to assessing the health of organisms and discover novel biomarkers, since it allows to detect changes in the organismal metabolome profile in response to environmental stressors, diseases or exposure to toxicants, thus providing an overview of the metabolic status of a biological system.

## Professional Experiences

- 2017 **Anna Laura Segre Fellowship**, 4 months - Gruppo Italiano Discussione Risonanze Magnetiche (**GIDRM**)
- 2015 **Visiting PhD-student**, 6 months - **IAMC-CNR of Capo Granitola, IT**
- 2013 **Post-Doctoral Research Fellowship**, 12 months - **IAMC-CNR of Messina, IT**
- 2012 **Visiting PhD-student**, 3 months - School of Biosciences, **University of Birmingham, UK**
- 2009 **Bonino-Pulejo Fellowship e Visiting Student**, 6 months - Department of Biology, **Virginia Commonwealth University (VCU, Richmond, USA)**
- 2008 **Formative stage** within the **M.Sc.** - Laboratory of Biomonitoring and Ecocytotoxicology, University of Messina, IT
- 2006 **Formative stage** within the **B.Sc.** - Laboratory of Ecology of the Marine Bacterial Communities, University of Messina, IT
- 2005 **Formative experience** on the N/O Urania - CIESM (Project SUB II)
- 2005 **Formative experience** on marine benthonic species (*Aristeus antennatus*, *Aristaemorpha fogliacea*) in the Central Mediterranean Sea

## Workshops and Practical Courses

- 2016 **2<sup>nd</sup> Metabolomics Sardinian Scientific School** on “How to bridge metabolomics and genomics” - **University of Cagliari, Cagliari (Italy)**
- 2014 **International Workshop** on “Plastics: resource or environmental risk?” - **University of the Eastern Piedmont, Alessandria (Italy)**
- 2012 **EMBO Practical Course** on “Mass Spectrometry and Proteomics” - **University of Southern Denmark, Odense (Denmark)**
- 2011 **2<sup>nd</sup> PRIMO's Next – “Advanced Students Workshop** on Fundamentals of Science, Environment and Health” - **Rio de Janeiro Federal University, Rio de Janeiro (Brazil)**, sponsored by **PRIMO**
- 2011 **International Workshop** on “The Endocrine Disruptors: what scientists, physicians, politicians and people should know about what’s going on in the environment” - **Messina (Italy)**

## Scientific Committee Membership

- 2020 - to date **Member of the Focus Group** for the M.Sc. in Biology of the Health, Applied Technologies and Nutrition at the University of Messina
- 2020 - to date **Member of the *College of Expert Reviewers*** for the European Science Foundation (ESF)
- 2020 - to date **Member of the *Centro de Estudos do Ambiente e do Mar* (CESAM)** at the University of Aveiro, Portugal
- 2020 - to date **Member of the Teaching Committee of the Doctorate** in Applied Biology and Experimental Medicine at the University of Messina

- 2020 - to date **Member of the Thesis Defence Committee** for the M.Sc. in Biology at the University of Messina
- 2018 **Member of the Scientific Committee** and **Invited Co-chair** at the 24° Annual International Sustainable Development Research Conference (ISDRS 2018), Messina, Italy, 13-15 June

## Didactic activities

- 2021 **Teaching activity** at the High School “Vittorio Emanuele III” in Patti (ME), within the project “Sperimenti...Amo le STEM” (BANDO-STEM2020)
- 2020 - to date **Lecturer** of the course “Animal Biology” (S.S.D. BIO/06) for the B.Sc. in Gastronomic Sciences at the University of Messina
- 2020 - to date **Lecturer** of the course “Systems Biology and applicative biotechnologies” (S.S.D. BIO/06) within the Doctorate in Applied Biology and Experimental Medicine at the University of Messina
- 2020 - to date **Seminar assignment** within the course “Cellular Markers and Animal Morpho-functional Adaptations” (S.S.D. BIO/06) of the M.Sc. in Biological Science, curriculum Environmental Biology - University of Naples Federico II, by Prof. Giulia Guerriero
- 2019 - 2022 **Connoisseur of the subject** and **Member of the Evaluation Committee** for the course “Developmental Biology” (S.S.D. BIO/06)
- 2017 **Seminar assignment** within the Workshop “NMR Day: Fish and seafood applications” organized by the Gruppo Italiano Discussione Risonanze Magnetiche (GIDRM) - University of Salento
- 2016 - 2021 **Seminar assignment** within the course “Biotechnologies in Cytotoxicology” (S.S.D. BIO/06) of the M.Sc. in Biology - University of Messina, by Prof. Maria Maisano
- 2016 **Teaching activity** within the Doctoral School in Agronomy and Environment - **University of Sousse, Tunisia**
- 2016 **Teaching activity** within the Protocol of Agreement between the High School “Leonardo da Vinci” in Reggio Calabria and the University of Messina
- 2016 **Informative tutoring activity** - Struttura Interdipartimentale di Raccordo (SIR), University of Messina
- 2016 **Specialized didactic tutoring activity in Biology** - Struttura Interdipartimentale di Raccordo (SIR), University of Messina
- 2016 **Teaching activity** within the **Summer School** for the enhancement of **Biology** - Centro Orientamento e Placement (COP), University of Messina
- 2016 **Teaching activity** - Department of Biology, **University of Aveiro, Portugal**
- 2015 **Teaching activity** within the **Basic Course of Gemmology**, organized by Centro Analisi Gemmologiche - University of Messina
- 2014 - 2017 **Connoisseur of the subject** and **Member of the Evaluation Committee** for the course “Developmental Biology” (S.S.D. BIO/06)
- 2011 - 2014 **Connoisseur of the subject** and **Member of the Evaluation Committee** for the course “Fundamentals of Cell Biology” (S.S.D. BIO/06)
- 2010 - 2011 **Tutoring activity** for undergraduates of the B.Sc. in Biological Sciences - University of Messina
- 2010 - 2011 **Laboratory tutoring activity** of the courses of “Fundamental of Cell Biology” and “Cytochemistry and Histochemistry” - University of Messina

## Student research supervising/tutoring activities

2021 - to date	<b>Supervisor</b> of the research activities of the PhD-student Imad Krikech - University Abdelmalek Essadi, <b>Morocco</b> , within the Erasmus+ mobility (9 months)
2021	<b>Co-Tutor</b> of Dr. Luigi Crisafulli for the thesis of M.Sc. in Biology
2020	<b>Co-Tutor</b> of Dr. Maria Romano for the thesis of M.Sc. in Biology
2019 - to date	<b>Co-tutoring and research supervision</b> of students from the M.Sc. in Biology – University of Messina
2019 - 2020	<b>Research supervision</b> of the PhD-student Imen Laouati - University Badji Mokhtar Annaba, <b>Algeria</b> (3 months)
2019 - 2020	<b>Research supervision</b> of the PhD-student Islem Zerarguia - University of Chadli Bendjeti El-Tarf, <b>Algeria</b> (3 months)
2019	<b>Research supervision</b> of the PhD-student Sabrine Afsa - Higher Institute of Biotechnology of Monastir, <b>Tunisia</b> , within the Erasmus+ mobility (8 months)
2019	<b>Research supervision</b> of the PhD-student Omayma Missawi - Higher Institute of Biotechnology of Monastir, <b>Tunisia</b> , within the Erasmus+ mobility (7 months)
2019	<b>Research supervision</b> of the PhD-student Nesrine Zitouni - Higher Institute of Biotechnology of Monastir, <b>Tunisia</b> (2 months)
2018	<b>Research supervision</b> of the M.Sc.-student Guilherme Marques Teixeira - University of Aveiro, <b>Portugal</b> , within the Erasmus+ mobility (2 months)

## Educational activities

2021	<b>Speaker</b> within the project REsPoNSo, Reduction of ghost fisheries in Sicily - PO FEAMP 2014/2020 Measure 1.40
2021	<b>Speaker</b> for seminars - Association UNIxME (University students for Messina)
2020	<b>Speaker</b> for the Course preparatory to the exam for the habilitation to the profession of Biologist 2020 - National Order of Biologists
2020	<b>Didactic-formative activities and sensitization</b> for the defence and safety of the sea within the project “Nauticinblu” - Association Marevivo
2020	<b>Speaker</b> within the project “Nauticinblu – For the future of the sea and its professionals” - Association Marevivo
2019	<b>Invited Speaker</b> at the Adunanza Culturale of the Accademia Peloritana dei Pericolanti, II Class Medical-Biological Sciences ( <b>APMB</b> ) - University of Messina
2019	<b>Speaker</b> at the Festival of the Scientific Culture, IV edition, “Make the Future” - High School “Caminiti Trimarchi” in Giardini Naxos, Messina
2019	<b>Speaker</b> at the Festival of the Scientific Culture, IV edition, “Make the Future” - High School “Felice Bisazza” in Messina
2019	<b>Didactic-formative activities, communication and sensitization</b> for the defence and safety of the marine environment and its resources - Association Marevivo
2018	<b>Speaker</b> at the European Day of the Sea - University of Messina and Consortium for Marine Sciences (CoNISMa)
2017	<b>Speaker</b> at the European Day of the Sea - University of Messina and Consortium for Marine Sciences (CoNISMa)
2017	<b>Invited speaker</b> at the Workshop on “NMR Day: Fish and SeaFood Applications”, organized by the Gruppo Italiano Discussione Risonanze Magnetiche (GIDRM) – University of Salento

## P.I. in Research Projects

- 2021 - *submitted* “Impact of microplastics and associated contaminants on reproduction and development: a comparative and multidisciplinary study on mechanisms of action and protective strategies”. **PRIN 2020. Unit Responsible**
- 2020 **FFABR UNIME 2020** – Funding for basic activities related to research
- 2017 “NMR approach and emergent contaminants: Evaluation of the biological effects of microplastics in marine mussels”. Gruppo Italiano Discussione Risonanze Magnetiche (**GIDRM**) – **Anna Laura Segre Fellowship for PhD 2017**
- 2009 “The employment of novel bioindicators and biomarkers to assess the environmental health status”. Bonino-Pulejo Foundation (**FBP**) - **XXXI Fellowship 2008**

## Participation to Research Projects

- 2019 - 2021 “FISH PATH NET - Enhancement of the Sicilian Ichthyopathological Centres”. **PO FEAMP 2014/2020**
- 2013 - 2016 “Systems Biology in the study of xenobiotic effects on marine organisms for evaluation of the environmental health status: biotechnological applications for potential recovery”. **MIUR, PRIN 2010-2011**
- 2013 - 2015 “Neurotoxicity of mercury in fish and association with morphofunctional brain alterations and behavior shifts – NEUTOXMER”. Fundação para a Ciência e a Tecnologia (**FCT**) - **Programme 2013**
- 2012 - 2013 “Characterization of the Daphnid metabolome to discover novel biomarkers for environmental monitoring” **Bio-NMR**
- 2009 - 2011 “Biomonitoring of coastal marine environments: development and application of novel integrated cytochemical and molecular methodologies”. **MIUR, PRIN 2007**

## On-going scientific collaborations

- 2020 - to date **Prof. Aasma Noureen** – Virtual University of Pakistan, **PK**
- 2018 - to date **Prof. Mohamed Banni** - University of Monastir, **TU**
- 2017 - to date **Dr. Ali Ranjbar Jafarabadi** - Tarbiat Modares University, **IR**
- 2016 - to date **Dr. Caroline Vignet** - EAWAG, **CH**
- 2015 - to date **Prof. Jérôme Cachot** - EPOC, UMR CNRS, University of Bordeaux, **FR**
- 2015 - to date **Prof. Cinta Porte** - IDAEA-CSIC, Barcelona, **ES**
- 2015 - to date **Dr. Francesco Filiciotto** - IAMC-CNR Capo Granitola, **IT**
- 2013 - to date **Prof. Maria João Bebianno** - University of Algarve, **PT**
- 2013 - to date **Prof. Mário Pacheco; Dr. Patricia Pereira** - University of Aveiro, **PT**
- 2012 - to date **Prof. Mark Viant** - University of Birmingham, **UK**
- 2009 - to date **Prof. Leonard Smock** - Virginia Commonwealth University, **USA**

## Academic Awards and Distinctions

- 2020 **Erasmus+ EU Grant - KA103** for combined didactic and training activities - University of Aveiro, Portugal
- 2020 **Erasmus+ ICM Grant - KA107** for activities - Higher Institute of Biotechnology, University of Monastir, Tunisia
- 2020 **Highly Cited Paper Award** for the article “Ranjbar Jafarabadi A., Riyahi Bakhtiari A., Yaghoobi Z., Yap C.K., Maisano M., **Cappello T.**, 2019. Distributions and



- compositional patterns of polycyclic aromatic hydrocarbons (PAHs) and their derivatives in three edible fishes from Kharg coral Island, Persian Gulf, Iran. *Chemosphere*, 215: 835-845.” - *Essential Science Indicators*
- 2019 **Best Reviewer 2015-2018** for the journal *Ecotoxicology and Environmental Safety* (EES; Elsevier, IF: 3.974)
- 2018 **Invited Review** for the section of “Environmental & Ecological NMR” of eMagRes
- 2018 **Publons Peer Review Award 2018** as one of the top 1% of peer reviewers in Environment/Ecology - Publons
- 2017 **Publons Peer Review Award 2017** as one of the top 1% of peer reviewers in Multidisciplinary - Publons
- 2017 **Anna Laura Segre Fellowship for PhD - Gruppo Italiano Discussione Risonanze Magnetiche (GIDRM)**
- 2017 **Highly Cited Paper Award** for the article “Cappello T.\*, Brandão F., Guilherme S., Santos M.A., Maisano M., Mauceri A., Canario J., Pacheco M., Pereira P., 2016. Insights into the mechanisms underlying mercury-induced oxidative stress in gills of wild fish *Liza aurata* combining <sup>1</sup>H NMR metabolomics and conventional biochemical assays. *Sci.Total Environ.* 548-549: 13-24” - *Essential Science Indicators*
- 2016 **Highly Cited Research Award** for the article “Cappello T., Maisano M., D’Agata A., Natalotto A., Mauceri A., Fasulo S., 2013. Effects of environmental pollution in caged mussels (*Mytilus galloprovincialis*). *Mar. Environ. Res.* 91: 52-60” - *Marine Environmental Research*
- 2016 **Participation Grant** for the **2<sup>nd</sup> Metabolomics Sardinian Scientific School** on “How to bridge metabolomics and genomics” - University of Cagliari, Italy
- 2016 “Brandão F., Cappello T.\*<sup>1</sup>, Raimundo J., Santos M.A., Maisano M., Mauceri A., Pacheco M., Pereira P., 2015. Unravelling mechanisms of mercury hepatotoxicity in wild fish (*Liza aurata*) through a triad approach: bioaccumulation, metabolomic profiles, and oxidative stress. *Metallomics*, 7: 1352-1363” added in **Metallomics Metals in Marine Biochemistry online collection** <<http://rsc.li/29KfqIX>>
- 2015 **Conference Student Travel Award** - 18<sup>th</sup> International Symposium on Pollutant Responses in Marine Organisms (PRIMO18)
- 2015 **Conference Registration and Travel Grant** - 25<sup>th</sup> SETAC Europe Annual Meeting (SETAC)
- 2015 Classified among the **first top 10 candidates** for the fellowship “L’Oréal Italia – per le donne e la Scienza”, 2014-2015
- 2014 **Conference Travel Grant** - 24<sup>th</sup> Congress of the Italian Society of Ecology (S.It.E.)
- 2013 **Doctor Europaeus Mention** (PhD European Label) awarded with the title of *Philosophiae Doctor* (PhD)
- 2012 **Erasmus Student Mobility Grant** 2012/2013 for research activities - University of Algarve, Faro, Portugal
- 2012 **Participation Grant** for the **EMBO Practical Course** on “Mass Spectrometry and Proteomics” - University of Southern Denmark, Odense, Denmark
- 2011 **Participation Grant** for the **2<sup>nd</sup> PRIMO’s Next** on “Advanced Students Workshop on Fundamentals of Science, Environment and Health” - Biophysics Institute of the Rio de Janeiro Federal University, Rio de Janeiro, Brazil
- 2011 **Qualification** to exercise the profession of **Biologist** - University of Messina, IT
- 2009 **Bonino-Pulejo Fellowship** - XXXI Call of the Bonino-Pulejo Foundation

## Society Memberships

2020 - to date	Aggregate Member of the Accademia Peloritana dei Pericolanti ( <b>APP</b> ), II class of Medical Biological Sciences
2020 - to date	Associazione <b>Marevivo</b>
2017 - to date	Gruppo Embriologico Italiano ( <b>GEI</b> )
2017 - to date	Gruppo Italiano Discussione Risonanze Magnetiche ( <b>GIDRM</b> )
2017 - to date	Società Italiana di Immunobiologia Comparata e dello Sviluppo ( <b>SIICS</b> )
2015 - to date	Society of Environmental Toxicology and Chemistry ( <b>SETAC</b> )
2014 - to date	Società Italiana di Ecologia ( <b>S.It.E.</b> )
2010 - to date	Unione Zoologica Italiana ( <b>U.Z.I.</b> )

## Reviewer Activity (as verified on [publons.com/a/1192150](https://publons.com/a/1192150))

2020 - to date	Environmental Toxicology and Pharmacology ( <b>ETAP</b> ; IF 3.292); Water ( <b>WATER</b> ; IF 2.544); Proceedings of the Zoological Society ( <b>PZOS</b> ; IF 1.676)
2019 - to date	Journal of Hazardous Materials ( <b>HAZMAT</b> ; IF 6.434); Chemosphere ( <b>CHEM</b> ; IF 4.427); Aquatic Toxicology ( <b>AQTOX</b> ; IF 4.344); Environmental Research ( <b>ER</b> ; IF 5.715); The European Zoological Journal ( <b>EZJ</b> ; IF 1.656)
2018 - to date	Environmental Science & Technology ( <b>EST</b> ; IF = 6.653); Environmental Pollution ( <b>ENVPOL</b> ; IF 4.358); Frontiers in Physiology ( <b>FRPH</b> ; IF 3.394); Ecotoxicology ( <b>ECTX</b> ; IF 1.987); Food and Chemical Toxicology ( <b>FCT</b> ; IF 3.977)
2017 - to date	Molecular Ecology ( <b>MEC</b> ; IF 6.086); Marine Pollution Bulletin ( <b>MPB</b> ; IF 3.146); Marine Environmental Research ( <b>MER</b> ; IF 3.101); Journal of Experimental Marine Biology and Ecology ( <b>JEMBE</b> ; IF 1.796); The European Zoological Journal ( <b>IJZ</b> ; IF 0.921)
2016 - to date	Reviews in Aquaculture ( <b>RAQ</b> ; IF 4.769); Ecotoxicology and Environmental Safety ( <b>EES</b> ; IF 3.130); Comparative Biochemistry and Physiology – Part D ( <b>CBP-D</b> ; IF 2.254); PeerJ – Life, Bio, & Health Sciences ( <b>PeerJ</b> ; IF 2.180); Archives of Environmental Contamination and Toxicology ( <b>AECT</b> ; IF 2.039); Continental Shelf Research ( <b>CSR</b> ; IF 2.011); Aquaculture Research ( <b>ARE</b> ; IF 1.606); Fish Physiology and Biochemistry ( <b>FISH</b> ; IF 1.442); International Journal of Environmental Analytical Chemistry ( <b>GEAC</b> ; IF 1.411); Chinese Journal of Natural Medicines ( <b>CJNM</b> ; IF 1.114); Science of the Total Environment ( <b>STOTEN</b> ; IF 4.099)
2015 - to date	Environmental Science and Pollution Research ( <b>ESPR</b> ; IF 2.828); Comparative Biochemistry and Physiology – Part C ( <b>CBP-C</b> ; IF 2.301)

## Reviewer Activity of Projects

2019 - to date	Estonian Research Council ( <b>ETAg</b> ): Postdoctoral Starting Grant (PSG) Programme 2019; PSG Programme 2020
2019 - to date	European Science Foundation ( <b>ESF</b> ): University of Bordeaux Excellence Initiative (IdEx Bordeaux) 2019; Research Foundation Flanders 2020 (FWO-PDOC-2020_Sci-Tech)

## Editorial Board Member

2020 - to date	<b>Guest Associate Editor</b> of the Special Issue “Metabolomics in Aquatic Ecology and Aquaculture” - Guest Editors: Tim Young, Auckland University of Technology, NZ; Bo Peng, Sun Yat-sen University, CHN. <b>Frontiers in Molecular Biosciences – section Metabolomics</b> (ISSN: 2296889X; IF = 4.188) – Frontiers
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2020 - to date	<b>Editorial Board Member</b> in “International Journal of Environmental Research and Public Health” ( <b>IJERPH</b> ; ISSN: 1660-4601; IF = 2.468) – MDPI
2020 - to date	<b>Editorial Board Member</b> in “Journal of Xenobiotics” ( <b>JoX</b> ; ISSN: 2039-4713) – MDPI
2019 - to date	<b>Expanded Editorial Board</b> in “Ecotoxicology and Environmental Safety” ( <b>EES</b> ; ISSN: 0147-6513; IF = 4.527) – Elsevier
2016	<b>Lead Guest Editor</b> for the Special Issue on “Toxic Effects of Metals and Metalloids in Aquatic Organisms” in <b>BioMed Research International</b> (ISSN: 2314-6133; IF = 2.134) – Hindawi
2016 - to date	<b>Editorial Board Member</b> of International Journal of Aquaculture and Fishery Sciences ( <b>IJAFS</b> ), ISSN: 2455-8400 – Peertechz
2016 - to date	<b>Editorial Board Member</b> of SM Journal of Environmental Toxicology ( <b>SMJET</b> ) – SMGroup
2016 - to date	<b>Editorial Board Member</b> of Fishery and Aquaculture Journal ( <b>FAJ</b> ), ISSN: 2150-3508 – OMICS International
2016 - to date	<b>Editorial Board Member</b> of Journal of Aquatic Pollution and Toxicology ( <b>IPJAPT</b> ) – iMedPub
2015 - to date	<b>Review Board Member</b> of Modern Environmental Science and Engineering ( <b>MESE</b> ), ISSN: 2333-2581 – Academic Star
2015 - to date	<b>Review Board Member</b> of Applied Ecology and Environmental Sciences ( <b>AEES</b> ), ISSN: 2328-3912 – Science and Education

## Complementary Qualifications

Computer Skills	Good knowledge of Windows and MacOS X operating systems; MS Office (Word, Excel, PowerPoint, Entourage), iWork (Pages, Numbers, Keynote), Adobe Acrobat, Adobe Photoshop; Web Browsers (Internet Explorer, Safari, Firefox, Google Chrome, Opera) Knowledge of the Axio Vision Release 4.5 software, furnished with the motorized microscope Zeiss Axio Imager Z1; GelDoc software, for analysis of band intensity; GraphPad InStat and Prism softwares for statistical analysis Good knowledge of Chenomx NMR Suite, for characterization of metabolomic profiles; MatLab; ProMetab 3.3 software in MatLab; The Unscrambler X for statistical multivariate analysis; Origin 6.1 software
Technical Skills	Histochemical investigation (i.e. H/E, AB/PAS, Masson, Mallory); Immunohistochemical analysis; Molecular analyses (RNA extraction, PCR, sequencing, probes for FISH); Spectrophotometric and spectrofluorimetric analyses for enzymatic activities; Genotoxic analyses (Micronuclei and Comet Assays); Metabolomic analysis (metabolite extraction, NMR spectrum acquisition, identification and quantification of metabolites); uni- and multi-variate statistical analysis (Student’s <i>t</i> -test, Mann-Whitney U, ANOVA, PCA)
Languages	Fluent speaker of Italian (native language) and English
Courses	- Core Laboratory Safety Training Course, completed with the score of 99.9 out of 99.9. Virginia Commonwealth University (VCU), Richmond, USA (2009); - Physical Hazards Course, completed with the score of 100 out of 100. Virginia Commonwealth University (VCU), Richmond, USA (2009); - Carcinogen Course, completed with the score of 90 out of 100. Virginia Commonwealth University (VCU), Richmond, USA (2009); - Course for the acquisition of safety regulation in scientific laboratory. University of Messina, IT (2004);



- Other
- EJO English Language Course, level Advanced. The Eagle House, Greenwich, England (2004);
  - English Trinity, Grade 7 - Spoken English for Speakers of Other Languages (2002)
  - “Open Water Diver” patent, SSI Level I;
  - Since the 2007/08 academic year, Dr. Cappello has been collaborating with Professors of Cytology, Histology, Cell Biology and Cellular Biotechnologies in conducting practical lab classes and tutoring students from B.Sc. in Biological Sciences, in Biology and Marine Ecology and in Natural Sciences, and students from M.Sc. in Biology and in Biology and Ecology of the Coastal Marine Environment.

## List of Publications

To date, Dr. Cappello has co-authored **48 articles** in International peer-reviewed journals (**17 as first author or co-first author**<sup>1</sup>, **12 as corresponding author\***, and **10 as last author**), **1 Invited monograph**, **2 articles** in National peer-reviewed journals, **6 proceedings** and **2 Editor Notes**. Further **2 articles** are currently under review.

Moreover, to date, Dr. Cappello has co-authored **17 communications/posters in International Conferences** (7 as Speaker\*, 1 Plenary Talk\*, 1 Invited Speaker\* and 3 poster\*), **18 National Conferences** (6 as Speaker\* and 1 poster\*), and **9 Educational events** as Invited Speaker\*.

SCOPUS (S): **H-index: 25; Citations: 1539**

## Peer-reviewed manuscripts (AR)

51. Noureen A., Rehman N., De Marco G., El Askary A., El-kott A.F., Sayed A.A., Jabeen F., Abdel Daim M., **Cappello T.** Extract of *Trigonella foenum-graecum* seeds ameliorates copper oxide nanoparticles (CuO NPs)-induced toxicity in common carp *Cyprinus carpio*. *Aquaculture Reports*, submitted.

[IF = 2.289; OA]

50. Caliani I., De Marco G., **Cappello T.**, Giannetto A., Mancini G., Ancora S., Maisano M., Parrino V., Cappello S., Bianchi N., Oliva S., Luciano A., Mauceri A., Leonzio C., Fasulo S. *Mytilus galloprovincialis* subjected to oil wastewater discharges: Evaluation of prevention strategies by bio-film membrane reactor in mesocosm systems using genotoxicity and oxygen sensing biomarkers. *Aquatic Toxicology*, submitted.

[IF = 4.344]

49. Ranjbar Jafarabadi A., Mashjoor S., Riyahi Bakhtiari A., **Cappello T.**, 2021. Ecotoxic linking of phthalates and flame-retardant combustion byproducts with coral solar bleaching. *Environmental Science & Technology*, 55(9): 5970-5983.

[IF = 7.864] doi.org/10.1021/acs.est.0c08730

[cit. 0 in S]

48. Parrino V., De Marco G., Minutoli R., Lo Paro G., Giannetto A., **Cappello T.**, De Plano L.M., Cecchini S., Fazio F., 2021 Effects of pesticides on *Chelon labrosus* (Risso, 1827) evaluated by enzymatic activities along the north eastern Sicilian coastlines (Italy). *The European Zoological Journal*, 88: 540-548.

[IF = 1.656; OA] doi.org/10.1080/24750263.2021.1905090

[cit. 0 in S]

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## Proceedings

6. Maisano M., Giannetto A., **Cappello T.**, De Marco G., Capparucci F., Marino F., Oliveri Conti G., Zuccarello P., Ferrante M., Oliva S., Parrino V., Mauceri A., Fasulo S. Embryotoxic effects of polystyrene microplastics in zebrafish (*Danio rerio*). *European Journal of Histochemistry* 63 (Suppl. 2), 19. *65<sup>th</sup> GEI Congress 2019*

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## Editor Notes

2. **Cappello T.**, 2018. Environmental Metabolomics in Aquatic Pollution and Toxicology. *Journal of Aquatic Pollution and Toxicology*, 2(1): 22.

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## Scientific Communications as Invited Speaker

9. **Cappello T.**, 2021. SOS plastic: from the sea to our plates! Effects of microplastics on the health of aquatic organisms. REsPoNSo - Reduction of ghost fisheries in Sicily. Sicily, Italy, 16 May 2021.
8. **Cappello T.**, 2021. SOS plastics: from the sea to our plates. Seminars UNIxME. Messina, Italy, 26 February 2021.
7. **Cappello T.**, 2020. The cell: structure and function. Course preparatory to the exam for the habilitation to the profession of Biologist. National Order of Biologists, University of Messina, 29 October 2020.
6. **Cappello T.**, 2020. SOS plastics: from the sea to our plates. Marevivo. Nauticinblu - For the future of the sea and its professionals. Messina, Italy, 05 February 2020.
5. **Cappello T.**, Giannetto A., Parrino V., Maisano M., Mauceri A., Fasulo S., 2019. NMR-based Metabolomics: a holistic approach for monitoring complex biological systems. Accademia Peloritana dei Pericolanti, II Class Medical-Biological Sciences, Messina, Italy, 28 May 2019.
4. **Cappello T.**, 2018. Effects of polystyrene microplastics in marine mussels *Mytilus galloprovincialis* by NMR-based metabolomics. 47<sup>th</sup> National Congress on Magnetic Resonance, Torino, Italy, 19-21 September 2018.
3. **Cappello T.**, 2018. SOS plastics: from the sea to our plates. European Day of the Sea on "Messina and its seas", Messina, Italy, 18 May 2018.
2. **Cappello T.**, 2017. Bioindicators for evaluating the health status of the sea. European Day of the Sea on "Messina e its sea: resources and opportunities", Messina, Italy, 20 May 2017.
1. **Cappello T.**, 2017. Health status of edible aquatic organisms from natural environments by NMR approaches. GIDRM Workshop on "NMR Day: Fish and SeaFood Applications", Lecce, Italy, 19 April 2017.

## Scientific Communications in International Congresses

17. **Cappello T.\*** Impact of climate change on aquatic organisms. International Conference on Post Pandemic Ecological Sustainability: Challenges and Role of IT (PPES 2020); Virtual University of Pakistan (Pakistan), 06-07 October 2020. **(Invited Speaker)**
16. **Cappello T.\***. Biological effects due to climate change on aquatic organisms. International Conference on Ecohealth and Environmental Sustainability (ICEES 2020), 9; Vadodara (India), 24-26 February 2020. **(Plenary Talk)**
15. **Cappello T.\***, Maisano M., Giannetto A., Parrino V., Natalotto A., Oliva S., Cappello S., Mancini G., De Marco G., Mauceri A., Fasulo S. Evaluation of recovery actions applied on petrochemical polluted waters and sediments using marine mussels in mesocosm-scale experiments. 24<sup>th</sup> International Sustainable Development Research Society Conference (ISDRS 2018), 57; Messina (Italy), 13-15 June 2018. **(Speaker)**
14. Vignet C., **Cappello T.**, Fu Q., Lajoie K., Clerandeu C., Mottaz H., Maisano M., Hollender J., Schirmer K., Cachot J. Les premiers stades de médaka japonais (*Oryzias latipes*) sont plus sensibles à l'imidaclopride que les premiers stades de poisson zèbre (*Danio rerio*). 14<sup>th</sup> Colloque International Francophone en écotoxicologie aquatique (EcoBim 2018), 28; Bordeaux (France), 22-24 May 2018. **(Oral)**
13. Vignet C., Lajoie K., Maisano M., Fu Q., Mottaz H., Clerandeu C., **Cappello T.**, Hollender J., Cachot J., Schirmer K. Response of zebrafish and Japanese medaka to imidacloprid: a comparative study. 13<sup>th</sup> Meeting Ecology & Behaviour; Chizé (France), 19-23 June 2017. **(Poster)**
12. Vignet C., Lajoie K., Maisano M., Mottaz H., Clerandeu C., **Cappello T.**, Schirmer K., Cachot J. Response of zebrafish and Japanese medaka to imidacloprid: a comparative study. 27<sup>th</sup> Europe Annual Meeting of the Society of the Environmental Toxicology and Chemistry (SETAC Europe), 298; Brussels (Belgium), 7-11 May 2017. **(Poster)**
11. Maisano M., **Cappello T.\***, Vitale V., Oliva S., Natalotto A., Mauceri A., Fasulo S. NMR-based metabolomics reveals CuO NP-induced interferences in larval morphogenesis, neurotransmission and skeletogenesis of sea urchin embryos. 30<sup>th</sup> Congress of the <sup>new</sup>European Society of Comparative Biochemistry and Physiology (ESCPB<sup>new</sup>), 51; Barcelona (Spain), 4 - 7 September 2016. **(Speaker)**
10. Brandão F., **Cappello T.**, Albuquerque O., Guilherme S., Santos M.A., Maisano M., Mauceri A., Pacheco M., Pereira P. Effects of mercury bioaccumulation in gills of wild fish (*Liza aurata*) assessed by 1H NMR metabolomics and oxidative stress endpoints. 10<sup>th</sup> Iberian and 7<sup>th</sup> Iberoamerican Congress on Environmental Contamination and Toxicology (CICTA), 269-270; Vila Real (Portugal), 14 - 17 July 2015. **(Poster)**
9. Maisano M., **Cappello T.\***, Oliva S., Natalotto A., Giannetto A., Battaglia P., Romeo T., Mauceri A. Evidences of changes in hepatic lipid metabolism in the atlantic bluefin tuna, *Thunnus thynnus*, from the Mediterranean Sea. 18<sup>th</sup> Pollutant Responses In Marine Organisms (PRIMO), PL-055; Trondheim (Norway), 24 - 27 May 2015. **(Speaker)**
8. **Cappello T.\***, Pereira P., Maisano M., Raimundo J., Mauceri A., Pacheco M. 1H NMR-based metabolic profiling reveals tissue-specific responses to mercury toxicity in wild fish *Liza aurata*. 25<sup>th</sup> Europe Annual Meeting of the Society of the Environmental Toxicology and Chemistry (SETAC Europe), 143; Barcelona (Spain), 3-7 May 2015. **(Speaker)**

7. **Cappello T.\***, Maisano M., Natalotto A., Parrino V., Giannetto A., Mauceri A., Fasulo S. Effects of petrochemical contamination on caged marine mussels using a multi-biomarker approach: histopathology, metabolomics, neurotoxicity and DNA damage. 6<sup>th</sup> Bilateral Seminar Italy-Japan (BSIJ), 28; Palermo (Italy), 19 - 20 November 2014. **(Speaker)**
6. Maisano M., Catanese E., Vitale V., **Cappello T.\***, Natalotto A., Giannetto A., Barreca D., Brunelli E., Mauceri A., Fasulo S. Effects of CuO NPs on first developmental stages of the sea urchin *Arbacia lixula*. 2<sup>nd</sup> Marine NanoEcoSafety Workshop (MANET), 25; Palermo (Italy), 17 - 18 November 2014. **(Speaker)**
5. **Cappello T.\***, Maisano M., Corsaro C., Mauceri A., Lo Paro G. and Fasulo S. Cellular responses to environmental pollution in *Mytilus galloprovincialis*. 17<sup>th</sup> Pollutant Responses In Marine Organisms (PRIMO), 11; Faro (Portugal), 5 - 8 May 2013. **(Poster)**
4. **Cappello T.\*** Research activities for assessing the environmental health status using ecotoxicological approaches. EMBO Practical Course in Mass Spectrometry and Proteomics, 19-20; Odense (Denmark), 18 - 25 April 2012. **(Poster)**
3. De Domenico E., D'Agata A., Maisano M., **Cappello T.**, Fasulo S., Mauceri A. Distribution of neurotransmitter in acontia of *Calliactis parasitica* (cnidaria, Anthozoa). 7<sup>th</sup> Workshop of the Hydrozoan Society (H.S.), 23; Porto Cesareo, Lecce (Italy), 10 - 18 September 2010. **(Poster)**
2. Iacono F., **Cappello T.\***, Corsaro C., Branca C., Maisano M., Gioffrè G., De Domenico E., Mauceri A., Fasulo S. Environmental metabolomics and multibiomarkers approaches on biomonitoring of aquatic habitats. 27<sup>th</sup> Congress of the new European Society of Comparative Biochemistry and Physiology (ESCPB<sup>new</sup>), 157 (Suppl. 1), S50; Alessandria (Italy), 5 - 9 September 2010. **(Poster)**
1. McCallister S.L., Franklin R.B., Rivera M.C., Koch B.P., Schmitt-Kopplin P., Fekete A., **Cappello T.** and Neogi S.B. Reconsidering biogeography and environmental controls on microbial communities and biogeochemical cycles in the Atlantic Ocean. 11<sup>th</sup> Symposium on Aquatic Microbial Ecology (S.A.M.E.), 44; Piran (Slovenia), 30 August - 04 September 2009. **(Oral)**

## Scientific Communications in National Congresses

18. Giannetto A., Oliva S., Ceccon Lanes C.F., De Araujo Pedron F., Savastanno D., Baviera C., Parrino V., Lo Paro G., Spanò N.C., **Cappello T.**, Maisano M., Mauceri A., Fasulo S. *Hermetia illucens* (Diptera: Stratiomyidae): Molecular basis of different biochemical phenotypes in different developmental larval stages. 80° Congresso Nazionale dell'Unione Zoologica Italiana (U.Z.I.), 9; Roma, 23-26 September 2019. **(Oral)**
17. Maisano M., Giannetto A., **Cappello T.**, De Marco, G., Capparucci F., Marino F., Oliveri Conti G., Zuccarello P., Ferrante M., Oliva S., Parrino V., Mauceri A., Fasulo S. Embryotoxic effects of polystyrene microplastics in zebrafish (*Danio rerio*). 65° Convegno del Gruppo Embriologico Italiano (GEI) – Società Italiana di Biologia dello Sviluppo e della Cellula; Ancona, 24-27 June 2019. **(Oral)**
16. **Cappello T.\***, Maisano M. Effects of polystyrene microplastics in marine mussel *Mytilus galloprovincialis* by NMR-based metabolomics. 47<sup>th</sup> National Congress on Magnetic Resonance (GIDRM), 6; Torino, 19-21 September 2018. **(Speaker)**
15. Giannetto A., **Cappello T.**, Oliva S., Parrino V., De Marco, G., Fasulo S., Mauceri A., Maisano M. Exposure to copper oxide nanoparticles (CuO NPs) modulates the oxidative stress related genes in *Arbacia lixula* embryos. 64° Convegno del Gruppo Embriologico Italiano (GEI), 21-22; L'Aquila, 11-14 June 2018. **(Oral)**
14. **Cappello T.\***, Giannetto A., Oliva S., Parrino V., Fasulo S., Mauceri A., Maisano M. Effects of CuO nanoparticles on early life stages of black sea urchin *Arbacia lixula*. 63° Convegno del Gruppo Embriologico Italiano (GEI), 7; Roma, 12-15 June 2017. **(Speaker)**
13. Maisano M., **Cappello T.**, Vignet C., Lajoie K., Fu Q., De Marco G., Mottaz H., Clerandeanu C., Hollender J., Cachot J., Schirmer K. A comparative study on the effects of imidacloprid in zebrafish and Japanese medaka. 63° Convegno del Gruppo Embriologico Italiano (GEI), 17; Roma, 12-15 June 2017. **(Oral)**
12. Parisi M.G., Maisano M., **Cappello T.**, Oliva S., Mauceri A., Toubiana M., Cammarata M. Assessment of morphological and cellular responses after infection with living bacteria in the marine mussel *Mytilus galloprovincialis*. 18° Congresso della Società Italiana di Immunobiologia Comparata e dello Sviluppo (SIICS), 10; Viterbo, 8-10 February 2017. **(Oral)**
11. **Cappello T.\***, Maisano M., Giannetto A., Parrino V., Oliva S., Cappello S., Mancini G., De Marco G., Mauceri A., and Fasulo S. Environmental Metabolomics as a valuable tool in evaluating the effects of petrochemical contamination and recovery strategies on marine mussels. 1° Congresso congiunto Società Italiana di Ecologia (S.It.E.), Unione Zoologica Italiana (U.Z.I.), Società Italiana di Biogeografia (S.I.B.), 7; Milano, 30 August – 02 September 2016. **(Speaker)**
10. Maisano M., Vitale V., **Cappello T.**, Oliva S., Natalotto A., Fasulo S., Mauceri A. Exposure of sea urchin *Arbacia lixula* embryos to CuO NPs affects larval morphogenesis, neurotransmission and skeletogenesis. 62° Convegno del Gruppo Embriologico Italiano (G.E.I.), 7; Napoli, 20–23 June 2016. **(Oral)**

9. Maisano M., **Cappello T.**, D'Agata A., Natalotto A., Parrino V., Giannetto A., Mauceri A., and Fasulo S. Cellular responses in mussels caged at coastal marine sites impacted by petrochemical industries. 75° Congresso Nazionale dell'Unione Zoologica Italiana (U.Z.I.), 15; Bari, 22–25 September 2014. **(Oral)**
8. Vitale V., Maisano M., Catanese E., **Cappello T.**, Giannetto A., Natalotto A., Mauceri A., and Fasulo S. Interferences on skeletogenesis of *Arbacia lixula* (Echinodermata: Echinoidea) induced by CuO NPs. 75° Congresso Nazionale dell'Unione Zoologica Italiana (U.Z.I.), 41; Bari, 22–25 September 2014. **(Poster)**
7. **Cappello T.\***, Maisano M., D'Agata A., Natalotto A., Parrino V., Giannetto A., Cappello S., Mancini G., Mauceri A. e Fasulo S. Mitili “stressati” dopo stabulazione in un’area marina costiera contaminata da impianti petrolchimici. 24° Congresso Nazionale della Società Italiana di Ecologia (S.It.E.), 100; Ferrara, 15–17 September 2014. **(Speaker)**
6. **Cappello T.\***, Cogliandro D.A., Romeo T., Catanese E., Vitale V., Oliva S., Giannetto A. e Maisano M. Effetti degli inquinanti ambientali sul metabolismo lipidico di esemplari selvatici di tonno rosso del Mar Mediterraneo. 24° Congresso Nazionale della Società Italiana di Ecologia (S.It.E.), 106; Ferrara, 15–17 September 2014. **(Poster)**
5. **Cappello T.\***, Maisano M., Giannetto A., Lo Paro G., Fasulo S. a Mauceri A. Analisi metabolomica in *Mytilus galloprovincialis* trasferiti in ambienti fortemente inquinati da stabilimenti petrolchimici. 74° Congresso Nazionale dell'Unione Zoologica Italiana (U.Z.I.), 24-25; Modena, 30 September – 03 October 2013. **(Speaker)**
4. Giannetto A., Maisano M., **Cappello T.**, Parrino V., Oliva S., Natalotto A. e Fasulo S. Risposte molecolari di *Mytilus galloprovincialis* a condizioni estreme di ipossia. 74° Congresso Nazionale dell'Unione Zoologica Italiana (U.Z.I.), 33; Modena, 30 September – 03 October 2013. **(Poster)**
3. Maisano M., Catanese E., Vitale V., D'Agata A., Natalotto A., **Cappello T.**, Brundo M.V., Ferrante M., Mauceri A., Fasulo S. Effetti embriotossici di nanoparticelle di ossido di rame sull'echinoide *Paracentrotus lividus*. 59° Gruppo Embriologico Italiano (G.E.I.), 33; Varese, 09 - 12 June 2013. **(Oral)**
2. **Cappello T.\***, Mauceri A., Iacono F., Corsaro C., Maisano M., De Domenico E. e Fasulo S. Metabolomica 1H NMR in esemplari di *Mytilus galloprovincialis* in “cages” in ambienti naturali. 21° Congresso della Società Italiana di Ecologia (S.It.E.), 91; Palermo, 03 - 06 October 2011. **(Speaker)**
1. Iacono F., Corsaro C., D'Agata A., De Domenico E., **Cappello T.**, Maisano M., Branca C., Mauceri A., Fasulo S. La Metabolomica Ambientale associata ad un set di biomarkers per la valutazione dell'impatto ambientale. 71° Congresso Nazionale dell'Unione Zoologica Italiana (U.Z.I.), 213; Palermo, 20 - 23 September 2010. **(Oral)**