PERSONAL INFORMATION Silvia Mazzuca

University of Calabria
Head of the Lab. Plant Biology and Plant Proteomics
Department of Chemistry and Chemical Technologies
Ponte Bucci 12, 87036 Rende (IT)
Seagrass Biology and Molecular Biology, Master Degree Course

+390984492967 +393288818339

silvia.mazzuca@unical.it

https://www2.unical.it/portale/portaltemplates/view/view.cfm?56109

https://scholar.google.com/citations?user=toTtasQAAAAJ&hl=it

Research activities

Elucidate the mechanisms of response to abiotic stress of seagrasses species, particularly *Posidonia oceanica* by high-throughput proteomics, transcriptome RNAseq technology and ecophysiology. Application of proteomics to *Cymodocea nodosa* under seawater acidification and to *Halophila stipulacea*; sub-cellular proteome and ultrastructure of chloroplasts of Posidonia oceanica under different light regimes. On the side of translation proteomics, drought stress effects of crops and pesticide resistance mechanism in cyanobacteria have been investigated.

Key words : seagrasses, plant proteomics, plant biology

Previous positions

2002-2011 Associate professor at Department of Ecology, Università della Calabria

1991-2002 Researcher at Department of Ecology, Università della Calabria

Prizes and awards

2015- Distinguished Member of the International Plant Proteomics Organization (INPPO)

1996 CNR Research Fellowship at the Plant Cell Biology laboratory of Professor Dennis Francis, School of Pure and Applied Biology, University of Wales, Cardiff, UK

1990 Two years CNR Research fellowship (declined as she have got academic permanet position)

1989 Research fellowship "Bonino-Pulejo Fundation" at the laboratory of Dr. Maurizio Minetti, Istituto Superiore di Sanità, Rome

Visiting academic positions

-September 2019. Invited visiting scientist at the Laboratoire de Recherche en Sciences Végétales , CNRS Toulouse, France. Research activities on the effect of sea acidification on the Mediterranean marine plants; effects of acidification on cell wall proteomics.

-October 2019. Course training and seminars toward master students: "Ten years of molecular ecology of seagrasses: challenges, achievements, perspective". INRA Auzeville Campus, Toulouse, France

Teaching activity and PhD supervisor

She regularly teaches: 1) Seagrasses biology course at the second level degree « Biodiversity and Natural Systems » ; 2) Laboratory of Plant Biology at the first level degree; 3) Botany at the first level degree.

She has been supervisor of seven doctorate research projects. Currently she is coaching two PhD students

Other work experience

2011-2016. Consultant in quality of seagrass expert at M&L Laboratoires SA (France), Sederma (Italy), IRB Istituto di Ricerche Biotechnologiche S.r.l. (Italy) and University of Calabria

Business or sector : applied research to develop new products containing extracts of marine plants

2018- Consultant in quality of seagrass expert in the lowsuit agaist SMECO company accused of environmental disaster for the spill of sewage along the coasts of the southern Tyrrhenian Sea

2020-2022 Consultant in quality of acquatic plants expert at POR 2014-2020, FESR, FSE, Programma di Azione 2014-2020 "Interventi per la tutela e la conservazione di habitat acquatici e specie nel SIC Foce Neto

(IT9320095)"-,SIC Stagni sotto Timpone San Francesco (IT9320046), SIC Dune di Marinella SIC IT9320100 Piano di Azione 6.5.A.1"Azioni previste nei Prioritized Action Framework (PAF).

Coordination of academic activities

2022 member of the Academic Focus Group of the HRS4R Team to perform the GAP Analysis within the project "Unical longs 4 Excellence"

2012-today member of the School of Doctorate in Life Sciences and Technologies

2018- today member of the Didactis Commitee at Natural Sciences I and II level degree courses

2018-2020 member of the Didactis Commitee at Chemystry I and II levels degree courses

Scientific organisations

2010-2014-Member of the Management Committee of the Core Committee of the COST Action ES0609 "Seagrass productivity: from genes to ecosystem management".

2014-today-Member of the Scientific Commitee of International Plant Proteomics Organization World Congress, now in its fifth edition (venue of past and present events : 2014 Hamburg, Germany; 2016 Bratislava, Slovenia; 2018 Padova, Italy; 2020 Toranto, Canada; 2022 Thessaloniki, Greece)

2022 - vice-coordinator and member of the scientific consortium for the COST proposal "R3PO", submitted october 2022

2013 Organization and trainer at "WG1 Training School: Linking seagrass productivity, community metabolism and ecosystem carbon fluxes" COST Action ES0609

2013 Organization and trainer at "Training school on the "Effects of CO2/Ocean Acidification on Seagrass meadows" Vulcano (Aeolian Islands, Italy)

2004-2010 Scientific organization of four Summer Schools within the Working Groups Biotecnologie e Differenziamento and Biologia Cellulare e Molecolare, Società Botanica Italiana

Editorial activity

Academic Editor at : Frontiers in Plant Sciences (Plant Proteomics and Protein Structural Biology)

PlosOne; JOMICS ; Botany and Environmental Science; Plant Science; Open Journal of Marine Science

Research Topics: 2022- Plant Infection and Defense – A Proteomic Perspective

Research Topic Editors Silvia Mazzuca,Dominique Job,Laurence Veronique ,Bindschedler,Wei WANG

Frontiers in Plant Science; Plant Proteomics and Protein Structural Biology

2018- Proceedings of INPPO 2018 - The Frontiers of Plant Proteomics in a Changing World

Topic Editors Silvia Mazzuca,Antonio Masi,Dominique Job,Jenny Renaut,Ganesh Kumar Agrawal

Frontiers in Plant Science; Plant Proteomics and Protein Structural Biology

2014- INPPO World Congress 2014. Topic Editors: Sabine Lüthje,Ganesh Kumar Agrawal,Silvia Mazzuca,Jesus V Jorrin Novo, Joshua L Heazlewood- Frontiers in Plant Science; Plant Proteomics and Protein Structural Biology

Membership of scientific societies

since 1991 member of the Società Botanica Italiana

2014 Member of the International Plant Proteomics Organization

2020- member of the Società Italiana di Biologia Marina

Funding

Misura 1.40- Progetto FEAMP "Protezione e ripopolamento del Sic "Fondali di Isca" (PROSIC)- n° 33/RBC/20, Italian MIPAAF, Calabria Region, FEAMP (UE) N. 508/2014

Misura 1.40- Progetto FEAMP "Monitoraggio SIC in Calabria (MoSiC)" n° 13/RBC/20, Italian MIPAAF, Calabria Region, FEAMP (UE) N. 508/2014

CRIMAC "Centro ricerche ed infrastrutture marine avanzate in Calabria" Call for Project Proposal – 2020. "Turning threats into profit: can biomolecules from invasive *HALophila stipulacea* seagrass help Thwarting marine FOULING? (HALTFOULING)", Fondo FSC 2014-2020 - Piano Stralcio «Ricerca e Innovazione 2015-2017» – Programma Nazionale Infrastrutture di Ricerca (PNIR), linea d'azione 1

Bibliometrics

59 total number of publications (48 in Scopus)

267 total Impact Factor (IF) (3.0 average IF/paper),

1582 total number of citations , 21 H index (15/12/2022, Google scholar)

Selected Publication

Piro, Amalia, Nisticò, Dante Matteo, Oliva, Daniela, Fagà, Francesco Antonio, Mazzuca, Silvia (2022). Physiological and Metabolic Response of *Arthrospira maxima* to Organophosphates. MICROORGANISMS, vol. 10, ISSN: 2076-2607, doi: 10.3390/microorganisms10051063

Piro A., Anagnostopoulou V., Apostolaki E. T., Mazzuca S. (2021). Fine-tuned method to extract high purified proteins from the seagrass Halophila stipulacea to be used for proteome analyses. PLANT BIOSYSTEMS, p. 1-9, ISSN: 1126-3504, doi: 10.1080/11263504.2021.2020355

Piro Amalia, Letizia Bernardo, Ilia Anna Serra, Isabel Barrote, Irene Olivé, Monya M. Costa, Luigi Lucini, Rui Santos, Silvia Mazzuca, João Silva (2020). Leaf proteome modulation and cytological features of seagrass Cymodocea nodosa in response to long-term high CO2 exposure in volcanic vents. SCIENTIFIC REPORTS, vol. 10, ISSN: 2045-2322, doi: https://doi.org/10.1038/s41598-020-78764-7

Jahnke Marlene, Daniela D' Esposito, Luigi Orrù, Antonella Lamontanara, Silvia Mazzuca, Gabriele Procaccini, Luisa Orsini (2018). Adaptive responses along a depth and a latitudinal gradient in the endemic seagrass Posidonia oceanica. HEREDITY, ISSN: 0018-067X, doi: 10.1038/s41437-018-0103-0

Procaccini Gabriele, Miriam Ruocco, Lázaro Marín-Guirao, Emanuela Dattolo, Amalia Piro, Christophe Brunet, Daniela D'Esposito, Chiara Lauritano, MAZZUCA S, et al (2017). Depth-specific fluctuations of gene expression and protein abundance modulate the photophysiology in the seagrass Posidonia oceanica. SCIENTIFIC REPORTS, vol. 7, 42890, ISSN: 2045-2322, doi: 10.1038/srep42890

D'Esposito Daniela, Luigi Orrù, Emanuela Dattolo, Letizia Bernardo, Antonella Lamontara, Luisa Orsini, Ilia Serra, MAZZUCA, Silvia, Gabriele Procaccini (2016). Transcriptome characterisation and SSR markers development in the seagrass Posidonia oceanica. SCIENTIFIC DATA, vol. 3, 160115, ISSN: 2052-4463

Piro Amalia, Lázaro Marín Guirao, Ilia Anna Serra, Antonia Spadafora, José Miguel Sandoval Gil, Jaime Bernardeau Esteller, Juan Manuel Ruiz_Fernandez, MAZZUCA, Silvia (2015). The modulation of leaf metabolism plays a role in salt tolerance of Cymodocea nodosa exposed to hypersaline stress in mesocosms: a proteomic view. FRONTIERS IN PLANT SCIENCE, vol. 6, p. 1-12, ISSN: 1664-462X, doi: 10.3389/fpls.2015.00464

Felisberto Paulo, Sérgio M. Jesus, Friedrich Zabel, Rui Santos, João Silva, Sylvie Gobert, Sven Beer, Mats Björk, MAZZUCA, Silvia, Gabriele Procaccini, John W. Runcie, Willy Champenois, Alberto V. Borges (2015). Acoustic monitoring of O2 production of a seagrass meadow. JOURNAL OF EXPERIMENTAL MARINE BIOLOGY AND ECOLOGY, vol. 464, p. 75-87, ISSN: 0022-0981, doi: 10.1016/j.jembe.2014.12.013

Piro A, Serra IA, Spadafora A, Cardilio M, Bianco L, Perrotta G, Rui S, MAZZUCA, Silvia (2015). Purification of intact chloroplasts from marine plant Posidonia oceanica suitable for organelle proteomics. PROTEOMICS, vol. 15, p. 4159-4174, ISSN: 1615-9853, doi: 10.1002/pmic.201500246

Dattolo E., M. Ruocco, C. Brunet, M. Lorenti, C. Lauritano, D. D'Esposito, P. De Luca, R. Sanges, MA ZZUCA, Silvia, G. Procaccini (2014). Response of the seagrass Posidonia oceanica to different light environments: Insights from a combined molecular and photo-physiological study. MARINE ENVIRONMENTAL RESEARCH, vol. 101, p. 225-236, ISSN: 0141-1136, doi: can be foun10.1016/j.marenvres.2014.07.010.

Dattolo E, Gu J, Bayer EF, MAZZUCA, Silvia, Serra IA, Spadafora A, Bernardo L, Natali L, Cavallini A, Procaccini G. (2013). Acclimation at different depths in the marine angiosperm Posidonia 1 oceanica: transcriptomic and proteomic profiles. FRONTIERS IN PLANT SCIENCE, vol. 4, 101568200, ISSN: 1664-462X, doi: 10.3389/fpls.2013.00195

Mazzuca, Silvia, M. Björk, S. Beer, P. Felisberto, S. Gobert, G. Procaccini, J. Runcie, J. Silva, A. V. Borges, C. Brunet, P. Buapet, W. Champenois, M. M. Costa, D. D'Esposito, M. Gullström, P. Lejeune, G. Lepoint, I. Olivé, L. M. Rasmusson...(2013). Establishing research strategies, methodologies and technologies to link genomics and proteomics to seagrass productivity, community metabolism, and ecosystem carbon fluxes. FRONTIERS IN PLANT SCIENCE, vol. 4, p. 1-19, ISSN: 1664-462X, doi: 10.3389/fpls.2013.00038

Serra IA, Nicastro S, MAZZUCA, Silvia, Natali L, Cavallini A, Innocenti AM (2013). Response to salt stress in seagrasses: PIP1;1 aquaporin antibody localization in Posidonia oceanica leaves. AQUATIC BOTANY, vol. 104, p. 213-219, ISSN: 0304-3770, doi: 10.1016/j.aquabot.2011.05.008

Procaccini G, Beer S, Bjork M, Olsen J, MAZZUCA, Silvia, Santos R. (2012). Seagrass ecophysiology meets ecological genomics: are we ready?. MARINE ECOLOGY, vol. 33, p. 522-527, ISSN: 0173-9565, doi: 10.1111/j.1439-0485.2012.00518.x - Articolo in rivista

Finiguerra A, Spadafora A, Filadoro D, Mazzuca, Silvia.. (2010). Surface-activated chemical ionization time-of-flight mass spectrometry and labeling-free approach: two powerful tools for the analysis of complex plant functional proteome profile. RAPID COMMUNICATIONS IN MASS SPECTROMETRY, vol. 24, p. 1155-1160, ISSN: 0951-4198, doi: doi: 10.1002/rcm.4494 -

Mazzuca Silvia, Spadafora A, Filadoro D, Vannini C, Marsoni M, Cozza, Radiana, Bracale M, Pangaro T, Innocenti A. M. (2009). Seagrass light acclimation: 2-DE protein analysis in posidonia leaves grown in chronic low light conditions. JOURNAL OF EXPERIMENTAL MARINE BIOLOGY AND ECOLOGY, vol. 374, p. 113-122, ISSN: 0022-0981, doi: 10.1016/j.jembe.2009.04.010 –

Spadafora A, Filadoro D, Mazzuca, Silvia, Bracale M, Marsoni M, Cardilio M. and Innocenti AM (2008). 2-DE polypeptide mapping of Posidonia ocanica leaf, a molecular tool for marine environmental analyses. PLANT BIOSYSTEMS, vol. 142, ISSN: 1126-3504, doi: 10.1080/11263500802150316 –

Serra I. A, Procaccini G, Intrieri M. C, Migliaccio M, Mazzuca, Silvia, InnocentiA. M. (2007). Comparison of ISSR and SSR markers for the analysis of genetic diversity in Posidonia oceanica (L.) Delile. MARINE ECOLOGY PROGRESS SERIES, vol. 338, p. 71-79, ISSN: 0171-8630 –

Innocenti A. M, Serra I. A, ProcacciniG, Intrieri M. C, Migliaccio M, Mazzuca, Silvia (2006). Comparative analysis of genetic diversity in Posidonia oceanica (L.) Delile using ISSR and SRR markers". BIOLOGIA MARINA MEDITERRANEA, vol. 13, p. 92-96, ISSN: 1123-4245 –

Serra I. A, Mazzuca Silvia (2011). POSIDONIA OCEANICA: FROM ECOLOGICAL STATUS TO GENETIC AND PROTEOMIC RESOURCES. In: (a cura di): ROBERT S. PIROG, Seagrass: Ecology, Uses and Threats. vol. 2, p. 71-116, Hauppauge, NY 11788 USA:Nova Science Publischers, Inc., ISBN: 978-1-61761-987-8 -