

prof.ssa BASILE Adriana CV

Born in Naples on 9/4/60.

-Researcher at University of Naples, Federico II, from 18/7/1990, Department of Plant Biology.

-Temporary professor from 1995 in Botany from 2000 at the Faculty of Biological Sciences, University of Naples, Federico II.

- Associate Professor in Botany from 2000 at the Faculty of Biological Sciences, University of Naples, Federico II.

-Member of the Italian Botanical Society from 1986 and of American Botanical Society from 1996.

-Member of the Faculty Council for the Interdepartmental PhD in Monitoring and mitigation of environmental risk.

-Professor in Plant Biology and Plant Cytology and Embryology at the Università degli Studi di Napoli Federico II.

-Scientific Director of C.I.S.M.E. Electron Microscopy Interdepartmental Study Center

Main research topics:

- **Bioaccumulation of heavy metals in plants and phytoremediation**
- **morpho-physio-ecological responses of plants to environmental pollution.**

Biological interactions between plant and environment -mosses, lichens and aquatic plants as biomonitors of terrestrial ecosystems and bioaccumulators of heavy metals; effects of heavy metals on the morphogenesis of higher plants and bryophytes; cyto-physio-ecological response of plants to the presence of pollutant; use of aquatic plants in phytoremediation projects. In particular: tissue and cell localization of heavy metals and their influence on morphogenesis and ultrastructure. Biochemical/physiological response of toxic-tolerant plants to heavy metals: phytochelatin, Heat Shock Proteins, activity of the antioxidant enzyme, gene activation/inhibition. Monitoring of heavy metal environmental pollution using mosses, lichens and aquatic plants.

Scientific activity

author of over 120 articles published in peer-reviewed indexed (ISI-WoS) international journals with high impact factors and over 200 communications to International Meetings and Congresses.

Editor in Section Board for Plant Response to Abiotic Stress and Climate Change - Plants - MDPI

-Co-author of the book: Viviana Maresca, Milad Heydari, Adriana Basile, 2019. Chapter 14: Antimony and Plants: Accumulation, Toxic Effects, and Plants Defense Systems Metalloids in Plants. Advances and Future Prospects. © 2020 John Wiley & Sons Ltd. Rupesh Deshmukh. Editors Durgesh K. Tripathi, Gea Guerriero.

-Co-author of the book: "Botanica generale e Diversità Vegetale", Piccin editor, Padova (2007).

-Co-author of the book "Biologia ed ecologia delle briofite" Antonio Delfino editor , Rome (2007).

Guest editor Special Issue: "Molecular Research on Bryophytes" International Journal of Molecular Sciences. MDPI

Guest editor Special Issue: "Essential oils as Antimicrobial and anti-infectious Agents" . Molecules (ISSN 1420-3049; CODEN: MOLEFW) MDPI

-Referee of: , International Journal of Molecular Science, Environmental Pollution, Science of the Total Environment ; Environmental and Experimental Botany, Environmental Science and Pollution Research, Chemosphere, International Journal of Phytoremediation, Natural Product Research, Pharmaceutical Biology, Ecotoxicology and Environmental Safety Trace Elements in Medicine and Biology, Plant Biosystems, Food and Chemistry Toxicology , Journal of Plant Physiology, Chemoterapy.

Selected papers 2008-2020

1. Russi, S., Maresca, V., Zoppoli, P., (...), Falco, G., Laurino, S. 2020 Applied Sciences (Switzerland) Effect of Feijoa sellowiana acetic extract on proliferation inhibition and apoptosis induction in human gastric cancer cells 10(21),7756, pp. 1-11
2. Maresca, V., Sorbo, S., Loppi, S., (...), Del Prete, D., Basile, A. 2020 Biological effects from environmental pollution by toxic metals in the "land of fires" (Italy) assessed using the biomonitor species *Lunularia cruciata* L. (Dum) Environmental Pollution 265,115000
3. Napoli, M.D., Maresca, V., Varcamonti, M., (...), Basile, A., Zanfardino, A. 2020 (+)-(E)-Chrysanthenyl acetate: A molecule with interesting biological properties contained in

the *Anthemis secundiramea* (asteraceae) flowers Applied Sciences (Switzerland) 10(19),6808

4. Paoli, L., Guttová, A., Sorbo, S., (...), Loppi, S., Fačková, Z. 2020 Does air pollution influence the success of species translocation? Trace elements, ultrastructure and photosynthetic performances in transplants of a threatened forest macrolichen. Ecological Indicators 117,106666
5. Piscopo, M., Tenore, G.C., Notariale, R., (...), Sorbo, S., Basile, A. 2020 Antimicrobial and antioxidant activity of proteins from *Feijoa sellowiana* Berg. fruit before and after in vitro gastrointestinal digestion Natural Product Research 34(18), pp. 2607-2611
6. Maresca, V., Lettieri, G., Sorbo, S., Piscopo, M., Basile, A. 2020 Biological responses to cadmium stress in liverwort *Conocephalum conicum* (Marchantiales) International Journal of Molecular Sciences 21(18),6485, pp. 1-12
7. Winkler, A., Contardo, T., Vannini, A., (...), Basile, A., Loppi, S. 2020 Magnetic emissions from brake wear are the major source of airborne particulate matter bioaccumulated by lichens exposed in Milan (Italy) Applied Sciences (Switzerland) 10(6),2073
8. Bellini, E., Maresca, V., Betti, C., (...), Basile, A., Di Toppi, L.S. 2020 The moss *Leptodictyum riparium* counteracts severe cadmium stress by activation of glutathione transferase and phytochelatin synthase, but slightly by phytochelatin International Journal of Molecular Sciences 21(5),1583
9. Heydari M., Maresca V., Rigano D., Taleei A., Shahnejat-Bushehri A.A., Hadian J., Sorbo S., Guida M., Manna C., Piscopo M., Notariale R., De Ruberto F., Fusaro F. and

- Basile A.,* 2019 Salicylic Acid and Melatonin Alleviate the Effects of Heat Stress on Essential Oil Composition and Antioxidant Enzyme Activity in *Mentha × piperita* and *Mentha arvensis* L. **Antioxidants**. 8(11),547 DOI: 10.3390/antiox8110547
10. Dell’Olmo, E. , Gaglione, R. , Pane, K. , Sorbo, S. , Basile, A*., Esposito, S*., Arciello, A. 2019 Fighting multidrug resistance with a fruit extract: anti-cancer and anti-biofilm activities of *Acca sellowiana* **Natural Product Research** DOI: 10.1080/14786419.2019.1624961
11. Di Napoli M., Varcamonti M., Basile A., Bruno M., Maggi F., Zanfardino A. 2019 Chemical composition and antimicrobial activities of *Conium maculatum* (Apiaceae) essential oil. **Natural Product Research** 1-5. DOI: 10.1080/14786419.2018.1477151
12. Tortora, F., Notariale, R. , Maresca, V. , Good, K.V. , Sorbo, S. , Basile, A. , Manna, C. Volume 8, Issue 7, 2019, Phenol-rich *Acca sellowiana* (Pineapple guava) extracts protect human red blood cells from mercury-induced cellular toxicity. **Antioxidants** Volume 8, Issue 7, 2019 DOI: 10.3390/antiox8070220
13. De Guglielmo, V., Puoti, R., Notariale, R., (...) Basile A., , Febbraio, F., Piscopo, M. 2019 Alterations in the properties of sperm protamine-like II protein after exposure of *Mytilus galloprovincialis* (Lamarck 1819) to sub-toxic doses of cadmium **Ecotoxicology and Environmental Safety** 169, pp. 600-606
14. Di Napoli, M., Maresca, V., Sorbo, S., (...), Basile, A., Zanfardino, A. 2019 Proteins of the fruit pulp of *Acca sellowiana* have antimicrobial activity directed against the bacterial membranes **Natural Product Research** DOI: 10.1080/14786419.2019.1675655
15. Maresca V., Fusaro L., Sorbo S., Siciliano A., Loppi S., Paoli L., Monaci F., Asadi karam E., Piscopo M., Guida M., Galdiero E., Insolubile M., Basile A.* 2018 Functional and structural biomarkers to monitor heavy metal pollution of one of the most contaminated freshwater sites in Southern Europe. **Ecotoxicology and Environmental Safety** 163, 665-673 <https://doi.org/10.1016/j.ecoenv.2018.07.122>

16. Esposito S., Loppi S., Monaci F., Paoli L., Vannini A., Sorbo S., Maresca V., Fusaro L., Asadi karam E., Lentini M., De Lillo A., Conte B., Cianciullo P., Basile A.* 2018 In-field and in-vitro study of the moss *Leptodictyum riparium* as bioindicator of toxic metal pollution in the aquatic environment: ultrastructural damage, oxidative stress and HSP70 induction. **PLOS ONE** 13(4),e0195717 doi:10.1371/journal.pone.0195717 Q1
17. d'Aquino L., Staiano M., Gambale E., Basile A. & Tommasi F. (2018): Uptake and distribution of several inorganic ions in *Nephrolepis cordifolia* (L.) C. Presl grown on contaminated soil, **Plant Biosystems** 152(1), pp. 59-69. DOI: 10.1080/11263504.2016.1245217 Q2
18. Fontanini D, Andreucci A., Ruffini M., Castiglione S., Basile A., Sorbo S. Petraglia A., Degola F., Bellini E., Bruno L., Varotto C. 2018. The phytochelatin synthase from *Nitella mucronata* (Charophyta) plays a role in the homeostatic control of iron(II)/(III): **Plant Physiology and Biochemistry** 127, pp. 88-96 Q1
19. Piscopo M., Tenore G.*, Notariale R., Maresca V. , Maisto M., De Ruberto F. , Heidari M., Sorbo S., Rigano D., Basile A.* 2018 Antimicrobial and antioxidant activity of proteins from *Feijoa sellowiana* Berg. fruit before and after in vitro gastrointestinal digestion **Natural Product Research** DOI: 10.1080/14786419.2018.1543686
20. Heydari M., Zanfardino A., Taleei A., Shah-Nejat Boushehri A.A., Hadian J, Maresca V., Sorbo S., Di Napoli M., Varcamonti M., Basile A.*, and Daniela Rigano. 2018 Effect of Heat Stress on Yield, Monoterpene Content and Antibacterial Activity of Essential Oils of *Mentha X piperita* Var. Mitcham and *Mentha arvensis* Var. Piperascens. **Molecules** 2018, 23, 1903; doi:10.3390/molecules23081903
21. **Basile A.**, Loppi S., Piscopo M., Paoli L., Vannini A., Monaci F., Sorbo S., Lentini M., esposito S. Esposito 2017 The biological response chain to pollution: a case study from the "Italian Triangle of Death" assessed with the liverwort *Lunularia cruciata*. **Environmental Science and Pollution Research** 24 (34) : 26185-26193.

Doi: 10.1007/s11356-017-9304-y Q2 I F 2.8

22. Asadi karam E., Maresca V., Sorbo S., Keramat B., **Basile A.*** 2017 Effects of triacontanol on ascorbate-glutathione cycle in *Brassica napus* L. exposed to cadmium-induced oxidative stress. **Ecotoxicology and Environmental Safety** 144:268-274 Q1 I F 3.1
23. Asadi karam E., Keramat B. , Sorbo S., Maresca V. , Asrara Z., Mozafarid H., **Basile A.*** 2017 Interaction of triacontanol and arsenic on the ascorbate-glutathione cycle and their effects on the ultrastructure in *Coriandrum sativum* L. **Environmental and Experimental Botany** 141: 161-169. Q1 IF. 4.3
24. Conte B., Sorbo S., Piscopo M., Rabbito D., De Ruberto F., Guerriero G., Basile A.* 2017 Antioxidant activity and ultrastructural alterations in the biosensor *Lemna minor* L. exposed in bags in *Sarno* river (South Italy) FEBS Fresenius Environmental Bulletin Volume 26: 225-236
25. Vannini A., Paoli L., Ceccarelli S., Sorbo S., Basile A., Carginale V., Nali C., Lorenzini G., Pica M., Loppi S. 2017. Physiological and ultrastructural effects of acute ozone fumigation in the lichen *Xanthoria parietina*: the role of parietin and hydration state **Environmental Science and Pollution Research** 25(9), pp. 8104-8112 DOI 10.1007/s11356-017-9545-9
26. Fusaro L, Palma C C, Salvatori E., **Basile A.**, Maresca V., Asadi karam E., Manes F. 2017. Functional indicators of response mechanisms to nitrogen deposition, ozone, and their interaction in two Mediterranean tree species **Plos One** 127, pp. 88-96
27. Mehdi Sharifi-Rad , Elena Maria Varoni , Bahare Salehi 3, Javad Sharifi-Rad , Karl R. Matthews, Seyed Abdulmajid Ayatollahi, Farzad Kobarfard , Salam A. Ibrahim, Dima Mnayer, Zainul Amiruddin Zakaria, Majid Sharifi-Rad, Zubaida Yousaf, Marcello Iriti, Adriana Basile and Daniela Rigano 2017 Plants of the Genus Zingiber as a Source of Bioactive Phytochemicals: From Tradition to Pharmacy. **Molecules**, 22(12),21-45
28. Vannini A., Guarnieri M., Paoli L., Sorbo S., **Basile A.**, Loppi S. (2016). Bioaccumulation, physiological and ultrastructural effects of glyphosate in the lichen

Xanthoria parietina (L.) Th. Fr. **CHEMOSPHERE**, vol. 164, p. 233-240, ISSN: 0045-6535, doi: 10.1016/j.chemosphere.2016.08.058 –

29. **Basile A.**, Sorbo S., Cardi M., Lentini M., Castiglia D., Cianciullo P., Conte B., Loppi S., Esposito S. (2015). Effects of heavy metals on ultrastructure and Hsp70 induction in *Lemna minor* L. exposed to water along the Sarno River, Italy. **ECOTOXICOLOGY AND ENVIRONMENTAL SAFETY**, vol. 114, p. 93-101, ISSN: 0147-6513, doi: 10.1016/j.ecoenv.2015.01.009 –
30. Paoli L., Guttová A., Grassi A., Lackovičová A., Senko D., Sorbo S., **Basile A.**, Loppi S. (2015). Ecophysiological and ultrastructural effects of dust pollution in lichens exposed around a cement plant (SW Slovakia). **ENVIRONMENTAL SCIENCE AND POLLUTION RESEARCH INTERNATIONAL**, vol. 22, p. 15891-15902, ISSN: 0944-1344, doi: 10.1007/s11356-015-4807-x –
31. Paoli L., Fiorini E., Munzi S., Sorbo S., Basile A., Loppi S. (2014). Uptake and acute toxicity of cerium in the lichen *Xanthoria parietina*. **ECOTOXICOLOGY AND ENVIRONMENTAL SAFETY**, vol. 104, p. 379-385, ISSN: 0147-6513
32. Degola F., De Benedictis M., Petraglia A., Massimi A., Fattorini L., Sorbo S., Basile A., Sanita di Toppi L. (2014). A Cd/Fe/Zn-Responsive Phytochelatin Synthase is Constitutively Present in the Ancient Liverwort *Lunularia cruciata* (L.) Dumort.. **PLANT AND CELL PHYSIOLOGY**, ISSN: 0032-0781
33. Basile A, Sorbo S, Conte B, Cardi M, Esposito S (2013). Ultrastructural changes and Heat Shock Proteins 70 induced by atmospheric pollution are similar to the effects observed under in vitro heavy metals stress in *Conocephalum conicum* (Marchantiales - Bryophyta). **ENVIRONMENTAL POLLUTION**, vol. 182, p. 209-216, ISSN: 0269-7491, doi: 10.1016/j.envpol.2013.07.014

34. Paoli L., Fiorini E., Munzi S., Sorbo S., Basile A., Loppi S. (2013). Antimony toxicity in the lichen *Xanthoria parietina* (L.) Th. Fr.. **CHEMOSPHERE**, vol. 93, p. 2269-2275, ISSN: 0045-6535
35. Basile A., Sorbo S., Conte B., Cobianchi R., Trinchella F., Capasso V., Carginale V. (2012). Toxicity, accumulation, and removal of heavy metals by three aquatic macrophytes. **INTERNATIONAL JOURNAL OF PHYTOREMEDIATION**, vol. 14, p. 374-387, ISSN: 1522-6514 –
36. Basile A., Sorbo S., Pisani T., Paoli L., Munzi S., Loppi S. (2012). Bioaccumulation and ultrastructural effects of Cd, Cu, Pb and Zn in the moss *Scorpiurum circinatum* (Brid.) Fleisch. & Loeske. **ENVIRONMENTAL POLLUTION**, vol. 166, p. 208-211, ISSN: 0269-7491 –
37. Esposito S, Sorbo S, Conte B, Basile A (2012). Effects of heavy metals on ultrastructure and HSP70s induction in the aquatic moss *Leptodictyum riparium* Hedw.. **INTERNATIONAL JOURNAL OF PHYTOREMEDIATION**, vol. 14, p. 443-455, ISSN: 1522-6514, doi: 10.1080/15226514.2011.620904
38. Sorbo S. Sinkkonen A., Aprile G., Strumia S., Cobianchi R. C., Leone A., Basile A.* (2011). Ultrastructural effects of trace elements and environmental pollution in Italian “Triangle of Death” on *Pseudevernia furfuracea* (L.) Zopf.. **PLANT BIOSYSTEMS**, vol. 145, p. 461-471, ISSN: 1724-5575 –
39. Basile A, Sorbo S, Aprile G, Conte B, Castaldo Cobianchi R, Pisani T, Loppi S. (2009). Heavy metal deposition in the Italian “Triangle of death” determined with the moss *Scorpiurium circinatum*. **ENVIRONMENTAL POLLUTION**, vol. 157, p. 2255-2260, ISSN: 0269-7491 –
40. Basile A*, Sorbo S., Aprile G., Conte B., Castaldo Cobianchi R (2008). Comparison of the heavy metal bioaccumulation capacity of an epiphytic moss and an epiphytic lichen. **ENVIRONMENTAL POLLUTION**, vol. 151, p. 401-407, ISSN: 0269-7491 –

41. Sorbo S., Aprile G. G., Castaldo R., Leone A., Strumia S., Basile Adriana* (2008). Trace element accumulation in *Pseudovernia furfuracea* (L.) Zopf exposed in Italy's so-called Triangle of Death. **SCIENCE OF THE TOTAL ENVIRONMENT**, vol. 407, p. 647-654, ISSN: 0048-9697 -