

CV Alessio Valletta (Eng)

Prof. Alessio Valletta earned a Degree in Natural Sciences with honours from the University Sapienza of Rome. He earned a PhD in Plant Sciences with excellent judgment and it is currently University Professor in the Scientific Disciplinary Sector (SSD) BIO/01 (General Botany).

He taught from 2007 to 2012 General Environmental and Botany (2.5 CFU) in the bachelor's degree programme in Techniques of Accident Prevention in the Workplace (Faculty of Medicine, Sapienza University of Rome); since 2008, he taught Botany and Plant Diversity in the bachelor's degree programme in Biological Sciences (Faculty of Mathematical, Physical and Natural Sciences, Sapienza University of Rome); from 2016 he teaches Plant Biology within the teaching of Animal and Plant Biology (9 CFU, bachelor's degree programme in Technologies for Conservation and Restoration of Cultural Heritage, Faculty of Mathematical, Physical and Natural Sciences of Sapienza University of Rome); since 2018 he teaches General Botany (9 CFU, bachelor's degree in Natural Sciences, Faculty of Mathematical, Physical and Natural Sciences of the Sapienza University of Rome).

It carries out its research activities in the Department of Environmental Biology, University Sapienza of Rome. His research activity has mainly focused on the study of plant growth and development, employing cyto-histological, biochemical, molecular, and *in vitro* techniques. He also studied the isolation and characterization of bioactive molecules both in crop and medicinal plants. He carried out several studies on stimulating the production of antitumor, antifungal and antioxidant compounds, using different *in vitro* systems, such plant cell and organ cultures. His research was also focused to the study of the biosynthetic pathways of secondary metabolites and their regulation mechanisms using biochemical and molecular approaches and to the study of the interactions between primary and secondary metabolic pathways through metabolomic approach. Recently, he begun to be interested in the application of nanobiotechnology as a new integrated crop management strategy aimed to obtain food products free of pesticide residues and/or contaminants.

He published 42 full papers in peer-reviewed international journals, 1 paper in an Italian journal *Informatore Botanico*, 1 full paper in the Italian journal *Caesiana* specialized in orchidology; he has also contributed presentations to 50 congresses. He has collaborated as a graphic designer and co-author to the creation of university textbooks: “General Botany and Plant Diversity”, whose first edition was published in 2008, the second in 2010, by the publisher Piccin (Padua) and “Plant Cell Biology and Biotechnology”, whose first edition was published in 2010 by the publisher Piccin (Padova). In 2010, he worked as a co-author to the creation of the text: “The *Ex-Situ* Conservation of Biodiversity and Wild Plant Species Grown in Italy”, published by ISPRA (Institute for

Environmental Protection and Research). In 2014 for the first time, in 2017 for the second time, and in 2018 for the third time, he was awarded the “Prize for Excellent University Teaching” by the Faculty of Mathematical, Physical and Natural Sciences of the University of Rome Sapienza.

Publications

Articles in international scientific journals with Impact Factor:

1. Pasqua, G., Monacelli, B., & Valletta, A*. (2004). Cellular localisation of the anti-cancer drug camptothecin in *Camptotheca acuminata* Decne (Nyssaceae). *European Journal of Histochemistry*, 48(3), 321-328.
2. Monacelli, B., Valletta, A., Rascio, N., Moro, I., & Pasqua, G. (2005). Laticifers in *Camptotheca acuminata* Decne: distribution and structure. *Protoplasma*, 226(3-4), 155.
3. Pasqua, G., Monacelli, B., Valletta, A., Santamaria, A. R., & Fiorillo, F. (2005). Synthesis and/or accumulation of bioactive molecules in the *in vivo* and *in vitro* root. *Plant Biosystems-An International Journal Dealing with all Aspects of Plant Biology*, 139(2), 180-188.
4. Valletta, A.*, Santamaria, A. R., & Pasqua, G. (2007). CPT accumulation in the fruit and during early phases of plant development in *Camptotheca acuminata* Decaisne (Nyssaceae). *Natural Product Research*, 21(14), 1248-1255.
5. Mulinacci, N., Giaccherini, C., Santamaria, A. R., Caniato, R., Ferrari, F., Valletta, A., Vincieri, F. F., & Pasqua, G. (2008). Anthocyanins and xanthenes in the calli and regenerated shoots of *Hypericum perforatum* var. *angustifolium* (sin. Fröhlich) Borkh. *Plant Physiology and Biochemistry*, 46(4), 414-420.
6. Valletta, A.*, Attorre, F., Bruno, F., & Pasqua, G. (2008). *In vitro* asymbiotic germination of *Orchis mascula* L. *Plant Biosystems-An International Journal Dealing with all Aspects of Plant Biology*, 142(3), 653-655.
7. Mulinacci, N., Santamaria, A. R., Giaccherini, C., Innocenti, M., Valletta, A., Ciolfi, G., & Pasqua, G. (2008). Anthocyanins and flavan-3-ols from grapes and wines of *Vitis vinifera* cv.

- Cesanese d'Affile. *Natural Product Research*, 22(12), 1033-1039.
8. Tocci, N., Ferrari, F., Santamaria, A. R., Valletta, A., Rovardi, I., & Pasqua, G. (2010). Chitosan enhances xanthone production in *Hypericum perforatum* subsp. *angustifolium* cell cultures. *Natural Product Research*, 24(3), 286-293.
 9. Valletta, A.*, Trainotti, L., Santamaria, A. R., & Pasqua, G. (2010). Cell-specific expression of tryptophan decarboxylase and 10-hydroxygeraniol oxidoreductase, key genes involved in camptothecin biosynthesis in *Camptotheca acuminata* Decne (Nyssaceae). *BMC Plant Biology*, 10(1), 69.
 10. Santamaria, A. R., Antonacci, D., Caruso, G., Cavaliere, C., Gubbiotti, R., Laganà, A., Valletta, A. & Pasqua, G. (2010). Stilbene production in cell cultures of *Vitis vinifera* L. cvs Red Globe and Michele Palieri elicited by methyl jasmonate. *Natural Product Research*, 24(15), 1488-1498.
 11. Santamaria, A. R., Mulinacci, N., Valletta, A., Innocenti, M., & Pasqua, G. (2011). Effects of elicitors on the production of resveratrol and viniferins in cell cultures of *Vitis vinifera* L. cv Italia. *Journal of Agricultural and Food Chemistry*, 59(17), 9094-9101.
 12. Tocci, N., Simonetti, G., D'Auria, F. D., Panella, S., Palamara, A. T., Valletta, A., & Pasqua, G. (2011). Root cultures of *Hypericum perforatum* subsp. *angustifolium* elicited with chitosan and production of xanthone-rich extracts with antifungal activity. *Applied Microbiology and Biotechnology*, 91(4), 977-987.
 13. Santamaria, A. R., Innocenti, M., Mulinacci, N., Melani, F., Valletta, A., Sciandra, I., & Pasqua, G. (2012). Enhancement of viniferin production in *Vitis vinifera* L. cv. *Alphonse Lavallée* cell suspensions by low-energy ultrasound alone and in combination with methyl jasmonate. *Journal of Agricultural and Food Chemistry*, 60(44), 11135-11142.
 14. Valletta, A.*, Santamaria, A. R., Canini, A., Canuti, L., & Pasqua, G. (2013). Trichomes in *Camptotheca acuminata* Decaisne (Nyssaceae): morphology, distribution, structure, and

secretion. *Plant Biosystems-An International Journal Dealing with all Aspects of Plant Biology*, 147(3), 548-556.

15. Brasili, E., Pratico, G., Marini, F., Valletta, A., Capuani, G., Sciubba, F., Miccheli, A. & Pasqua, G. (2014). A non-targeted metabolomics approach to evaluate the effects of biomass growth and chitosan elicitation on primary and secondary metabolism of *Hypericum perforatum* *in vitro* roots. *Metabolomics*, 10(6), 1186-1196.
16. Valletta, A.*, Chronopoulou, L., Palocci, C., Baldan, B., Donati, L., & Pasqua, G. (2014). Poly (lactic-co-glycolic) acid nanoparticles uptake by *Vitis vinifera* and grapevine-pathogenic fungi. *Journal of Nanoparticle Research*, 16(12), 2744.
17. Zubrická, D., Mišianiková, A., Henzelyová, J., Valletta, A., De Angelis, G., D'Auria, F. D., Simonetti, G., Pasqua, G., & Čellárová, E. (2015). Xanthones from roots, hairy roots and cell suspension cultures of selected *Hypericum* species and their antifungal activity against *Candida albicans*. *Plant Cell Reports*, 34(11), 1953-1962.
18. Iberite, M., Iamónico, D., & Valletta, A.* (2015). Revised typification of the name *Bupleurum gracile* DC. var *rollii* Montel.(Apiaceae) and comparison with *B. asperuloides* Heldr., *B. gracile* D'Urv., *B. marschallianum* CA Mey and *B. uechtritzianum* S. Stoyanov. *Plant Biosystems-An International Journal Dealing with all Aspects of Plant Biology*, 149(1), 7887.
19. Simonetti, G., Tocci, N., Valletta, A., Brasili, E., D'Auria, F. D., Idoux, A., & Pasqua, G. (2016). *In vitro* antifungal activity of extracts obtained from *Hypericum perforatum* adventitious roots cultured in a mist bioreactor against planktonic cells and biofilm of *Malassezia furfur*. *Natural Product Research*, 30(5), 544-550.
20. Valletta, A.*, De Angelis, G., Badiali, C., Brasili, E., Miccheli, A., Di Cocco, M. E., & Pasqua, G. (2016). Acetic acid acts as an elicitor exerting a chitosan-like effect on xanthone biosynthesis in *Hypericum perforatum* L. root cultures. *Plant Cell Reports*, 35(5), 1009-1020.
21. Brasili, E., Miccheli, A., Marini, F., Praticò, G., Sciubba, F., Di Cocco, M. E., Cechinel, V. F., Tocci, N., Valletta, A.* & Pasqua, G. (2016). Metabolic profile and root development of

Hypericum perforatum L. *in vitro* roots under stress conditions due to chitosan treatment and culture time. *Frontiers in Plant Science*, 7, 507.

22. Valletta, A.*, Salvatori, E., Rita Santamaria, A., Nicoletti, M., Toniolo, C., Caboni, E., Bernardini, A., Pasqua, G., & Manes, F. (2016). Ecophysiological and phytochemical response to ozone of wine grape cultivars of *Vitis vinifera* L. *Natural Product Research*, 30(22), 2514-2522.
23. Giannini, B., Mulinacci, N., Pasqua, G., Innocenti, M., Valletta, A., & Cecchini, F. (2016). Phenolics and antioxidant activity in different cultivars/clones of *Vitis vinifera* L. seeds over two years. *Plant Biosystems-An International Journal Dealing with all Aspects of Plant Biology*, 150(6), 1408-1416.
24. Valletta, A.*, Santamaria, A. R., Fabrini, G., Tocci, N., Filho, V. C., Wagner, T., Brasili, E., & Pasqua, G. (2016). Strategies for *ex situ* conservation of *Centaurea cineraria* subsp. *circae* (Asteraceae), an endemic plant from Lazio (Italy). *Plant Biosystems-An International Journal Dealing with all Aspects of Plant Biology*, 150(2), 323-332.
25. Scassellati, E., Pasqua, G., Valletta, A., & Abbate, G. (2016). Salt glands of *Armeria canescens* (Host) Boiss.: Morphological and functional aspects. *Plant Biosystems-An International Journal Dealing with all Aspects of Plant Biology*, 150(6), 1134-1139.
26. Abdelahad, N., Barbato, F., O'Heir, S., Fratini, F., Valletta, A., Ninivaggi, L., & Alfinito, S. (2016). Reproduction of *Sphaerococcus coronopifolius* (Gigartinales, Rhodophyta) in natural populations of the Lazio coasts (central Italy) and in culture. *Cryptogamie, Algologie*. 37(4):265-273.
27. Simonetti, G., D'auria, F. D., Mulinacci, N., Innocenti, M., Antonacci, D., Angiolella, L., Santamaria, A. R., Valletta, A., Donati, L. & Pasqua, G. (2017). Anti-dermatophyte and anti-Malassezia activity of extracts rich in polymeric flavan-3-ols obtained from *Vitis vinifera* seeds. *Phytotherapy Research*, 31(1), 124-131.

28. Bramosanti, M., Chronopoulou, L., Grillo, F., Valletta, A., & Palocci, C. (2017). Microfluidic-assisted nanoprecipitation of antiviral-loaded polymeric nanoparticles. *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, 532, 369-376.
29. Palocci, C., Valletta, A.*, Chronopoulou, L., Donati, L., Bramosanti, M., Brasili, E., Baldan, B., & Pasqua, G. (2017). Endocytic pathways involved in PLGA nanoparticle uptake by grapevine cells and role of cell wall and membrane in size selection. *Plant Cell Reports*, 36(12), 1917-1928.
30. Simonetti, G., Brasili, E., D' Auria, F. D., Corpolongo, S., Ferrari, F., Pasqua, G., & Valletta, A*. (2017). Prenylated flavonoids and total extracts from *Morus nigra* L. root bark inhibit *in vitro* growth of plant pathogenic fungi. *Plant Biosystems-An International Journal Dealing with all Aspects of Plant Biology*, 151(5), 783-787.
31. Badiali, C., De Angelis, G., Simonetti, G., Brasili, E., de Castro Tobaruela, E., Purgatto, E., Yin, H., Valletta, A.*, & Pasqua, G. (2018). Chitosan oligosaccharides affect xanthone and VOC biosynthesis in *Hypericum perforatum* root cultures and enhance the antifungal activity of root extracts. *Plant Cell Reports*, 37(11), 1471-1484.
32. Donati, L., Ferretti, L., Frallicciardi, J., Rosciani, R., Valletta, A., & Pasqua, G. (2018). Stilbene biosynthesis and gene expression in response to methyl jasmonate and continuous light treatment in *Vitis vinifera* cv. Malvasia del Lazio and *Vitis rupestris* Du Lot cell cultures. *Physiologia Plantarum*. (published online, in press). doi: 10.1111/ppl.12813.
33. Leonelli, F., Valletta, A., Migneco, L. M., & Marini Bettolo, R. (2019). Stemarane Diterpenes and Diterpenoids. *International journal of molecular sciences*, 20(11), 2627.
34. Simonetti, G., Palocci, C., Valletta, A., Kolesova, O., Chronopoulou, L., Donati, L., Di Nitto A., Brasili E., Tomai P., Gentili A., Pasqua, G. (2019). Anti-*Candida* Biofilm Activity of Pterostilbene or Crude Extract from Non-Fermented Grape Pomace Entrapped in Biopolymeric Nanoparticles. *Molecules*, 24(11), 2070.

35. Mulinacci, N., Valletta, A., Pasqualetti, V., Innocenti, M., Giuliani, C., Bellumori, M., De Angelis, G., Carnevale, A., Locato, V., Di Venanzio, C., De Gara, L., & Pasqua, G. (2019). Effects of ionizing radiation on bio-active plant extracts useful for preventing oxidative damages. *Natural Product Research*, 1-9.
36. Donati, L., Ferretti, L., Frallicciardi, J., Rosciani, R., Valletta, A., & Pasqua, G. (2019). Stilbene biosynthesis and gene expression in response to methyl jasmonate and continuous light treatment in *Vitis vinifera* cv. Malvasia del Lazio and *Vitis rupestris* Du Lot cell cultures. *Physiologia plantarum*, 166(2), 646-662.
37. Chronopoulou, L., Donati, L., Bramosanti, M., Rosciani, R., Palocci, C., Pasqua, G., & Valletta, A. (2019). Microfluidic synthesis of methyl jasmonate-loaded PLGA nanocarriers as a new strategy to improve natural defenses in *Vitis vinifera*. *Scientific reports*, 9(1), 1-9.
38. Simonetti, G., Pucci, N., Brasili, E., Valletta, A., Sammarco, I., Carnevale, E., ... & Loreti, S. (2020). *In vitro* antimicrobial activity of plant extracts against *Pseudomonas syringae* pv. *actinidiae* causal agent of bacterial canker in kiwifruit. *Plant Biosystems-An International Journal Dealing with all Aspects of Plant Biology*, 154(1), 100-106.
39. Brasili, E., Bavasso, I., Petruccelli, V., Vilardi, G., Valletta, A., Dal Bosco, C., ... & Di Palma, L. (2020). Remediation of hexavalent chromium contaminated water through zero-valent iron nanoparticles and effects on tomato plant growth performance. *Scientific Reports*, 10(1), 1-11.
40. Ingallina, C., Capitani, D., Mannina, L., Carradori, S., Locatelli, M., Di Sotto, A., Di Giacomo S., Toniolo C., Pasqua G., Valletta A., Simonetti G., Parroni A., Beccaccioli M., Vinci G., Rapa M., Giusti A.M., Frascetti C., Filippi A., Maccelli A., Crestoni M.E., Fornarini S., Sobolev A.P (2019). Phytochemical and biological characterization of Italian “sedano bianco di Sperlonga” Protected Geographical Indication celery ecotype: A multimethodological approach. *Food chemistry*, 309, 125649.
41. Petruccelli, V., Brasili, E., Varone, L., Valletta, A., & Pasqua, G. (2020). Antifungal activity of dimethyl sulfoxide against *Botrytis cinerea* and phytotoxicity on tomato and lettuce plants. *Plant Biosystems*, 154(4), 455-462.

42. Valletta, A., Iozia, L. M., & Leonelli, F. (2021). Impact of Environmental Factors on Stilbene Biosynthesis. *Plants*, 10(1), 90.

Articles without I.F. and/or non-indexed in Scopus:

1. Pasqua, G.; Monacelli, B.; Fiorillo, F.; Santamaria, A. R.; Valletta, A. (2005). Biosintesi ed accumulo di metaboliti secondari *in planta* e in sistemi *in vitro*. *Informatore Botanico Italiano*. 37: 664-665.
2. Valletta, A., Moro, I., Rascio, N., & Pasqua, G. (2007). Anthocyanic vacuolar inclusions in cell suspension cultures of *Camptotheca acuminata* Decne. *Caryologia*, 60(1-2), 165-168.
3. Valletta, A., Bruno, F., Attorre, F., Pasqua, G., (2008). Asymbiotic germination of some terrestrial European orchids from the Natural Regional Park of Simbruini Mountains (Central Italy). *Caesiana*, 6(30): 25-33, ISSN: 1123-5217.

Chapters in international scientific books:

1. Simonetti, G., Valletta, A., Kolesova, O., & Pasqua, G. (2018). Plant Products with Antifungal Activity: From Field to Biotechnology Strategies. In *Natural Products as Source of Molecules with Therapeutic Potential* (pp. 35-71). Springer, Cham.

Chapters in national books:

a. Textbooks:

1. Botanica e diversità vegetale – Pasqua, Abbate, Forni – Piccin Editore. Grafico e coautore nelle edizioni I (2008), II (2010), III (2015); autore di 1 capitolo (14. Il frutto), coautore di 2 schede (S. 6.1. La fotosintesi; S. 9.3. Micropropagazione e caulogenesi *in vitro*) e autore di 1 scheda (S. 14. Frutti partenocarpici) nella IV edizione (2019).

2. Biologia cellulare e biotecnologie vegetali – Piccin Editore (2010). Grafico, autore di 3 capitoli (12. Microscopia ottica; 13. Microscopia elettronica; 18. Coltura *in vitro* di cellule e tessuti) e coautore di 1 capitolo (16. Ibridazione *in situ* ed immunocitochimica).

b. Scientific books:

3. Piotto, B., Giacanelli, V., & Ercole, S. (2010). La conservazione *ex situ* della biodiversità delle specie vegetali spontanee e coltivate in Italia: stato dell'arte, criticità e azioni da compiere (Vol. 54). ISPRA–Istituto Superiore per la protezione e la ricerca ambientale (coautore di 1 capitolo). Coautore.