

Eleni Giannoutsou CV

Current Position:

Dr. E. Giannoutsou works as a member of the Laboratory Teaching Staff at the Section of Botany at the Biology Department of the National and Kapodistrian University of Athens.

Teaching Experience:

She is a member of the teaching staff for the courses of "Biology of the Plant Cell", "General Botany", while she has also participated in the teaching of "Introduction to General Botany" in the Department of Biology and Pharmacy. She is teaching the lab courses of "Introduction to General Botany", "General Botany", "Biology of the Plant Cell". She is also a trainer (2016-2023) and a jury member (2017, 2019) of the Greek team that participated in the International Biology Olympiad (IBO).

Research Interests:

Her recent research interests are focused on the following areas of Plant Cell Biology:

1. The ontogenesis of the stomatal complexes in monocotyledonous and dicotyledonous plants. Her recent work is focused on the a) study on the factors controlling division plane determination and nuclear polarization preceding asymmetrical division b) the role of auxin and auxin transporters in the transduction of the inductive stimuli in asymmetrical divisions
2. The examination of the role of the plant cell wall in the control of morphogenesis in plant cells as well as its implication on cell polarity and signal transduction. The constant changes in the cell wall matrix materials in epidermal and mesophyll cells seem to facilitate the signal transduction and play a crucial role for the morphogenesis of these cells. Local cell wall differentiation seems to be the first step to a sequence of events leading to structural polarization as well as to asymmetrical division in maize.
3. The examination of the distribution of various cell wall polysaccharides (pectins, AGPS) in wild type and transgenic lines of tomato fruits in order to assess the implication of the cell wall diversification in fruit ripening. The study of the effect of various abiotic stresses (salinity, high temperature) on the cell wall of the tomato fruit pericarp and on Greek varieties of olive plants.
4. The examination of the changes occurring on the plant cell walls after nematodes infection. Examination of the role of various Streptomyces strains isolated from Greek habitats on the biological control of nematodes.

She has participated in many Greek and International Projects that have resulted in 27 publications in peer reviewed journals (Citations: 542, h-index: 15, i10-index: 16. Source: Google Scholar-2023).

Journal Publications

1. Azariadis A, Vouligeas F, Salame E, Kouhen M, Rizou M, Blazakis K, Sotiriou P, Ezzat L, Mekkaoui K, Monzer A, Krokida A, Adamakis I-D, Dandachi F, Shalha B, Kostelenos G, Figgou E, Giannoutsou E, Kalaitzis P. 2023. Response of Prolyl 4 Hydroxylases, Arabinogalactan Proteins and Homogalacturonans in Four Olive Cultivars under Long-Term Salinity Stress in Relation to Physiological and Morphological Changes. *Cells*. 12(11):1466. <https://doi.org/10.3390/cells12111466>
2. Pappas D, Giannoutsou E., Panteris E., Gkelis S., Adamakis I-D.S. 2022. Microcystin-LR and cyanobacterial extracts alter the distribution of cell wall matrix components in rice root cells. *Plant Physiology and Biochemistry*, 191, 78-88.
3. Ntroumpogianni GC, Giannoutsou E, Karagouni AD, Savvides AL. Bacterial Isolates from Greek Sites and Their Efficacy in Degrading Petroleum. *Sustainability*. 2022; 14(15):9562. <https://doi.org/10.3390/su14159562>
4. Saridis P, Georgiadou X, Shtein I, Pouris J, Panteris E, Rhizopoulou S, Constantinidis T, Giannoutsou E, Adamakis I-DS. Stomata in Close Contact: The Case of *Pancratium maritimum* L. (Amaryllidaceae). *Plants*. 2022; 11(23):3377. <https://doi.org/10.3390/plants11233377>
5. Meidani, C., Giannoutsou, E., Telioglanidis, K. et al. PIN1 auxin efflux carrier absence in *Meloidogyne incognita*-induced root-knots of tomato plants. *Eur J Plant Pathol* 161, 987–992 (2021). <https://doi.org/10.1007/s10658-021-02360-2>
6. Apostolakos P., Giannoutsou E. & Galatis B. Callose: a multifunctional (1, 3)- β -D-glucan involved in morphogenesis and function of angiosperm stomata. *J of Biol Res-Thessaloniki* 28, 17 (2021). <https://doi.org/10.1186/s40709-021-00150-9>
7. Beris D., Podia V., Dervisi I., Kapolas G., Isaioglou I., Tsamadou V., Pikoula L., Rovoli M., Vallianou A., Roussis A. et al. 2021. RNAi silencing of the *Arabidopsis thaliana* ULCS1 gene results in pleiotropic phenotypes during plant growth and development. *Int. J. Dev. Biol.* in press.
8. Meidani C, Savvidis A, Lampropoulou E, Sagia A, Katsifas E, Monokrousos N, Hatzinikolaou DG, Karagouni AD, Giannoutsou E, Adamakis IS, Ntalli NG. The Nematicidal Potential of Bioactive *Streptomyces* Strains Isolated from Greek Rhizosphere Soils Tested on *Arabidopsis* Plants of Varying Susceptibility to *Meloidogyne* spp. *Plants (Basel)*. 2020 May 30;9(6):699. doi: 10.3390/plants9060699. PMID: 32486213; PMCID: PMC7355556.
9. Giannoutsou E, Galatis B, Apostolakos (2020) De-esterified homogalacturonan enrichment of the cell wall region adjoining the preprophase cortical cytoplasmic zone in some protodermal cell types of three land plants. *Int J Mol Sci* 21 (1), 81.
10. Giannoutsou E, Sotiriou P, Nikolakopoulou TL, Galatis B, Apostolakos P. (2020) Callose and homogalacturonan epitope distribution in stomatal complexes of *Zea mays* and *Vigna sinensis*. *Protoplasma* 257 (1), 141-156.
11. SC Richardson, M Mytilinaios, R Foskinis, C Kyrou, A Papayannis, I Pyrri, Giannoutsou E, Adamakis UDS. (2019) Bioaerosol detection over Athens, Greece using the laser induced fluorescence technique. *Sci Tot Env* 696, 133906.

12. Meidani C, Ntalli NG, Giannoutsou E, Adamakis IDS. (2019) Cell wall modifications in giant cells induced by the plant parasitic nematode *Meloidogyne incognita* in wild type (Col-0) and the fra 2 *Arabidopsis thaliana* katanin mutant. *Int J Mol Sci* 20 (21), 5465.
13. Apostolakos P., Livanos P., Giannoutsou E., Panteris E., Galatis B. (2018) The intracellular and intercellular crosstalk during subsidiary cell formation in *Zea mays*: existing and novel components orchestrating cell polarization and asymmetrical division. Review in *Annals of Botany*, <https://doi.org/10.1093/aob/mcx193>.
14. Sotiriou P., Giannoutsou E., Panteris E., Apostolakos P. and Galatis B. (2017) Local differentiation of cell wall matrix polysaccharides in sinuous pavement cells: its possible involvement in the flexibility of cell shape. *Plant Biology*, doi: 10.1111/plb.12681.
15. Giannoutsou E., Apostolakos P., Galatis B (2016) Spatio-temporal diversification of the cell wall matrix materials in the developing stomatal complexes of *Zea mays*. *Planta* 244: 1125-1143.
16. Sotiriou P., Giannoutsou E., Panteris E., Apostolakos P. and Galatis B. (2016) Cell wall matrix polysaccharide distribution and cortical microtubule organization: two factors controlling mesophyll cell morphogenesis in land plants. *Annals of Botany*, 117(3):401-19.
17. Livanos P., Giannoutsou E., Apostolakos P. And Galatis B. (2015) Auxin as an inducer of asymmetrical division generating the subsidiary cells in stomatal complexes of *Zea mays*. *Plant Signaling and Behavior*, 10:3, e984531.
18. Giannoutsou E., Sotiriou P., Apostolakos P. and Galatis B. (2014) Polarized endoplasmic reticulum aggregations in the establishing division plane of protodermal cells of the fern *Asplenium nidus*. *Protoplasma*, 252 (1), p. 181-198.
19. Giannoutsou E., Sotiriou P., Apostolakos P. and Galatis B. (2013) Early local differentiation of the cell wall matrix defines the contact sites in lobed mesophyll cells of *Zea mays*. *Annals of Botany*, 112: 1067–1081.
20. Giannoutsou E., Galatis B, Zachariadis M., Apostolakos P. (2012) Formation of an endoplasmic reticulum ring associated with acetylated microtubules in the angiosperm preprophase band. *Cytoskeleton*, 69:252-265.
21. Giannoutsou E.P., Apostolakos P., Galatis B (2011) Actin filament-organized local cortical endoplasmic reticulum aggregations in developing stomatal complexes of grasses. *Protoplasma*, 248 (2):373-90.
22. Giannoutsou E.P., Katsifas, E.A. Geli, A. and Karagouni A.D. (2012) Protein increase and lysine production by a *Paecilomyces variotii* strain grown on two-phase olive mill waste. *World J Microbiol Biotechnol*, 28:849–856.
23. Nikolakopoulou T.L., Giannoutsou E.P., Karabatsou A.A. and Karagouni A.D. (2008) Prevalence of tetracycline resistance gene in Greek seawater habitats. *The Journal of Microbiology*, 46:633-640.

24. Katsifas E.A., Giannoutsou E.P., Lambraki M., Barla M. and Karagouni A.D. (2004) Chromium recycling of tannery waste through microbial fermentation. *Journal of Industrial Microbial Biotechnology*, 31:57-62.
25. Giannoutsou E.P., Meintanis C. and Karagouni A.D. (2004) Identification of yeast strains isolated from a two-phase decanter system with olive oil waste and investigation of their ability for its fermentation. *Bioresource Technology*, 93:301-306.
26. Koukaki M., Giannoutsou E.P., Karagouni A.D. and Diallinas G. (2003) A novel improved method for *Aspergillus nidulans* transformation. *Journal of Microbiological Methods*, 55:687-695.
27. Katsifas E.A., Giannoutsou E.P. and Karagouni A.D. (1999) Diversity of streptomycetes species among specific Greek terrestrial ecosystems. *Letters in Applied Microbiology*, 29:48-51.