CURRICULUM VITAE

Personal Information

Full name **Konstantinos Koudounas**
Assistant Professor
Agricultural Biotechnologist, MSc, PhD

Working address Laboratory of Agricultural Chemistry
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Current research interests

Molecular and biochemical characterization of enzymes engaged in biosynthesis of plant secondary metabolites with pharmaceutical interest.

Education

2011 – 2016 (Thesis defense 06/05/2016)
PhD in Agricultural Sciences.
Thesis*: **"Molecular and biochemical analysis of the oleuropein β-glucosidase gene during the development and defense of olive"***.
Laboratory of Molecular Biology, Dept. of Biotechnology, Agricultural University of Athens (AUA), Greece. Supervisor: Prof. Polydefkis Hatzopoulos.

2009 – 2011
MSc in **"***Plant Biotechnology and Applications – Molecular Ecology and Detection of Genetically Modified Organisms***"**.
Thesis: "***Molecular analysis of genes involved in the biosynthesis of antioxidants in olive***"
Laboratory of Molecular Biology, Dept. of Biotechnology, AUA, Greece. Supervisor: Prof. Polydefkis Hatzopoulos.

2003 – 2009
Diploma in Agricultural Biotechnology.
Thesis: "***Transcriptomic analysis of the abaxial trichomes of olive leaves***".
Laboratory of Molecular Biology, Dept. of Biotechnology, AUA, Greece. Supervisor: Prof. Polydefkis Hatzopoulos.

Research & Professional Experience

2023 – present Assistant Professor in Biochemistry, School of Agriculture, AUTH, Greece.

2022 Post-Doctoral Researcher, Laboratory of Molecular Biology, Dept. of Biotechnology, AUA, Greece. Project title: "*ELIADA: Characterization and Valorization of Olive Genetic Resources Aiming at Climate Change Adaptation and Production of High Nutritional and Organoleptic Value Products of Olive Oil - Τ2ΕΔΚ-01315*" Supervisor: Dr. Polydefkis Hatzopoulos.

2018 – 2021 Post-Doctoral Researcher, EA2106 - Plant Biomolecules and Biotechnology, University of Tours, France. Project title "*CatharSIS; Bioproduction de Catharanthine: vers un sourcing par ingénierie métabolique des levuures*", Région Centre-Val de Loire, France. Supervisor: Dr. Vincent Courdavault.

2017 (09.2017 – 12.2017) Visiting Researcher, *Short-term scholarship for young researchers (SSHN; French Embassy in Greece),* EA2106 - Plant Biomolecules and Biotechnology, University of Tours, France. Supervisor: Dr. Vincent Courdavault.

2017 (01.2017 – 07.2017) Visiting Researcher, Institute of Biosciences and Bioresources, CNR-IBBR, Perugia, Italy. Project title: "*Bioresources For Oliviculture – BeFOre", Horizon 2020-MSCA-RISE, Grant Agreement n. 645595*. Supervisor: Dr. Luciana Baldoni.

2016 – 2017 Post-Doctoral Researcher, Laboratory of Molecular Biology, Dept. of Biotechnology, AUA, Greece. Project title: "*Genomic and biochemical analysis of the biosynthetic pathway of oleuropein*". IKY-Siemens program of excellence. Supervisor: Dr. Polydefkis Hatzopoulos.

2011 – 2014 Research Scientist, GMO Seed Tests - Laboratory of Molecular Biology, Dept. of Biotechnology, AUA, Greece. Supervisor: Dr. Polydefkis Hatzopoulos.

Teaching Experience

2022 – 2023 Full teaching of the undergraduate course "*Biochemistry*". School of Agriculture, AUTH, Greece.

2021 – 2022 Full teaching of the undergraduate courses "*Plant Biotechnology*" and "*Environmental Biotechnology*". Dept. of Biotechnology, AUA, Greece.

2021 Full teaching of the undergraduate laboratory course (8 hrs.) "*Biotechnology and Bioproduction*". Dept. of Plant Biology, University of Tours, France.

2020 – 2021 Full teaching of the undergraduate courses "*Molecular Biology*", "*Environmental Biotechnology*" and "*Systems Biology*". Dept. of Biotechnology, AUA, Greece.

2009 – 2016 Assistant at the undergraduate laboratory courses: "*Molecular Biology*", "*Plant Biotechnology*", "*Technology of Recombinant DNA*". Dept. of Biotechnology, AUA, Greece.

2009 – 2016 Assistant at the Post-graduate laboratory courses "*Genetically Modified Organisms & Detection Methods*". Dept. of Biotechnology, AUA, Greece.

Educational contributions

2009 – 2023 In collaboration with Prof. Polydefkis Hatzopoulos, training in laboratory techniques, guidance during the writing and correction of the theses of 7 postgraduate and 10 undergraduate students.

Administrative contributions

2017 Support and promotion of the Postgraduate Studies Program entitled "*Systems Biology*" Dept. of Biotechnology, AUA, Greece.

Honors & Awards

2017 Short-term scholarship for young researchers "*Séjours scientifiques de haut niveau*" (SSHN), French Embassy in Greece.

2016 – 2017 Scholarship for Post-doctoral research in Greece, "*IKY-Siemens program of excellence"*, *Greek State Scholarships Foundation* (IKY/SSF).

2011 – 2015 Scholarship for Post-graduate studies, *Greek State Scholarships Foundation* (IKY/SSF).

Contributions to Scientific Journals

2020 – 2022 Member of the editorial board of ***Plant Physiology*** (ISSN 1532-2548, IF: 7.4) as *Assistant Features Editor*.

2021 Guest Editor of the Special Issue «*Influence of Enzymes on Virgin Olive Oil Composition and Quality*». ***Plants*** (ISSN 2223-7747, IF: 4.5).

Member of the Reviewer Board of ***Genes*** (ISSN 2073-4425, IF: 3.5), ***Frontiers in Industrial Microbiology*** (ISSN 2813-7809) and ***Frontiers in Biophysics*** (ISSN 2813-7183).

Served as reviewer for manuscripts submitted for publication in ***Critical Reviews in Biotechnology*** (IF: 9.0), ***Communications Biology*** (IF: 5.9), ***International Journal of Molecular Sciences*** (IF: 5.6), ***Frontiers in Microbiology*** (IF: 5.2), ***Journal of Fungi*** (IF: 4.7), ***Molecules*** (IF:

4.6), ***Plants*** (IF: 4.5), ***Biology*** (IF: 4.2), ***Metabolites*** (IF: 4.1), ***Genes*** (IF: 3.5), ***PeerJ*** (IF: 2.7), ***Applied Sciences*** (IF: 2.7) and ***Genetic Resources and Crop Evolution*** (IF: 2.0).

Publications

Number of Publications: **25**; Citations: **490**; *h*-index: **12**

(19*/10/2023*; *source Scopus*)

(25) Cruz PL, Carqueijeiro I, **Koudounas K**, Bomzan DP, Stander EA, Abdallah C, Kulagina N, Oudin A, Lanoue A, Giglioli-Guivarc'h N, Nagegowda DA, Papon N, Besseau S, Castre M and Courdavault V (**2023**)**.** *Identification of a second 16-hydroxytabersonine-O-methyltransferase suggests an evolutionary relationship between alkaloid and flavonoid metabolisms in Catharanthus roseus*. ***Protoplasma*****,** 260, 607–624.

(24) Plitsi PK, Samakovli D, Roka L, Rampou A, Panagiotopoulos K, **Koudounas K**, Isaioglou I, Haralampidis K, Rigas S, Hatzopoulos P and Milioni D (**2023**). *GA-Mediated disruption of RGA/BZR1 complex requires HSP90 to promote hypocotyl elongation*. ***International Journal of Molecular Sciences***, 24, 88.

(23) Koudounas K, Carqueijeiro I, Cruz PL, Perrin J, Lanoue A, Oudin A, Besseau S and Courdavault V (**2022**). *A rapid and efficient vacuum-based Agroinfiltration protocol for transient gene overexpression in leaves of Catharanthus roseus*. In: Courdavault V and Besseau S, eds. *Catharanthus roseus: Methods and protocols*. ***Methods in Molecular Biology***, 2505, 263-279.

(22) Koudounas K (**2022**). *Unexpected metabolic synergies revealed in tomato glandular trichomes.* ***Plant Physiology***, 188, 1403-1404.

(21) Koudounas K, Guirimand G, Hoyos LFR, Carqueijeiro I, Cruz PL, Stander E, Kulagina N, Perrin J, Oudin A, Besseau S, Lanoue A, Atehortùa L, St-Pierre B, Giglioli-Guivarc'h N, Papon N, O'Connor SE and Courdavault V (**2022**). *Tonoplast and peroxisome targeting of γ-tocopherol N-methyltransferase homologs involved in the synthesis of monoterpene indole alkaloids.* ***Plant and Cell Physiology***, 63(2), 200-216.

(20) Djeghdir I, Chefdor F, Bertheau L, **Koudounas K**, Carqueijeiro I, Lemos Cruz P, Courdavault V, Depierreux C, Larcher M, Lamblin F, Héricourt F, Glévarec G, Oudin A and Carpin S (**2021**). *Evaluation of type-B RR dimerization in poplar: A mechanism to preserve signaling specificity?* ***Plant Science***, 313, 111068.

(19) Koudounas K*, Thomopoulou M*, Rigakou A, Angeli E, Melliou E, Magiatis P and Hatzopoulos P (**2021**). *Silencing of oleuropein β-glucosidase abolishes the biosynthetic capacity of secoiridoids in olives*. ***Frontiers in Plant Science***, 12, 1896. ****Equal contribution***.

(18) Kulagina N*, Guirimand G*, Melin C*, Lemos-Cruz P, Carqueijeiro I, De Craene JO, Oudin A, Heredia V, **Koudounas K**, Unlubayir M, Lanoue A, Imbault N, St-Pierre B, Papon N, Clastre M, Giglioli-Guivarc'h N, Marc J, Besseau S and Courdavault V (**2021**). *Enhanced bioproduction of anticancer precursor vindoline by yeast cell factories*. ***Microbial Biotechnology***, 14(6), 2693-2699.

(17) Tsitsekian D*, Daras G*, Karamanou K, Templalexis D, **Koudounas K**, Malliarakis D, Koufakis T, Chatzopoulos D, Goumas D, Ntoukakis V, Hatzopoulos P and Rigas S (**2021**). *Clavibacter michiganensis downregulates photosynthesis and modifies monolignols metabolism revealing a crosstalk with tomato immune responses*. ***International Journal of Molecular Sciences***, 22, 8442.

(16) Yamamoto K, Grzech D, **Koudounas K**, Stander EA, Caputi L, Mimura T, Courdavault V and O'Connor SE (**2021**). *Improved virus-induced gene silencing allows discovery of a serpentine synthase gene in Catharanthus roseus.* ***Plant Physiology***, 187, 846-857.

(15) Koudounas K (**2021**). *Players in pectin production: rhamnose transporters affect the length of rhamnogalacturonan-I*. ***Plant Physiology***, 185, 759–760.

(14) Rodríguez-López CE, Hong B, Paetz C, Nakamura Y, **Koudounas K**, Passeri V, Baldoni L, Alagna F, Calderini O and O'Connor SE (**2021**). *Two bi-functional cytochrome P450 CYP72 enzymes from olive (Olea europaea) catalyze the oxidative C-C bond cleavage in the biosynthesis of secoxy-iridoids - flavor and quality determinants in olive oil*. ***New Phytologist***, 229, 2288-2301.

(13) Carqueijeiro I*, **Koudounas K***, de Bernonville TD*, Sepúlveda LJ, Mosquera A, Bomzan DP, Oudin A, Lanoue A, Besseau S, Cruz PL, Kulagina N, Stander EA, Eymieux S, Burlaud-Gaillard J, Blanchard E, Clastre M, Atehortùa L, St-Pierre B, Giglioli-Guivarc'h N, Papon N, Nagegowda DA, O'Connor SE and Courdavault V (**2021**). *Alternative splicing creates a pseudo-strictosidine β-D-glucosidase modulating alkaloid synthesis in Catharanthus roseus*. ***Plant Physiology***, 185, 836–856. ****Equal contribution***.

(12) Stander EA*****, Sepúlveda LJ*****, de Bernonville TD, Carqueijeiro I, **Koudounas K**, Cruz PL, Besseau S, Lanoue A, Papon N, Giglioli-Guivarc'h N, Dirks R, O'Connor SE, Atehortùa L, Oudin A and Courdavault V (**2020**). *Identifying genes involved in alkaloid biosynthesis in Vinca minor through transcriptomics and gene co-expression analysis*. ***Biomolecules***, 10, 1595.

(11) **Koudounas K**, Thomopoulou M, Angeli E, Tsitsekian D, Rigas S and Hatzopoulos P (**2020**). *Virus-induced gene silencing in olive tree (Oleaceae)*. In: Courdavault V and Besseau S, eds. *Virus-induced gene silencing in plants*. ***Methods in Molecular Biology***, 2172, 165-182.

(10) **Koudounas K** (**2020**). *Sulfotransferase1 is the enzymatic hub of sulfated salicinoids in poplar*. ***Plant Physiology***, 183, 13-14.

(09) Carqueijeiro I*****, Langley C*****, Grzech D, **Koudounas K**, Papon N, O'Connor SE and Courdavault V (**2020**). *Beyond the semi-synthetic artemisinin: metabolic engineering of plant-derived anticancer drugs*. ***Current Opinion in Biotechnology***, 65, 17-24.

(08) Héricourt F, Larcher M, Chefdor F, **Koudounas K**, Carqueijeiro I, Cruz PL, Courdavault V, Tanigawa M, Maeda T, Depierreux C, Lamblin F, Glévarec G and Carpin S (**2019**). *New insight into HPts as hubs in poplar cytokinin and osmosensing multistep phosphorelays: cytokinin pathway uses specific HPts*. ***Plants***, 8, 12:591.

(07) Roka L*****, **Koudounas K***, Daras G, Zoidakis J, Vlahou A, Kalaitzis P and Hatzopoulos P (**2018**). *Proteome of olive non-glandular trichomes reveals protective protein network against (a) biotic challenge*. ***Journal of Plant Physiology***, 231, 210-218. ****Equal contribution***.

(06) Caputi L, Franke J, Farrow SC, Chung K, Payne RM, Nguyen TD, Dang TTT, Carqueijeiro IST, **Koudounas K**, de Bernonville TD, Ameyaw B, Jones DM, Vieira IJC, Courdavault V and O'Connor SE (**2018**). *Missing enzymes in the biosynthesis of the anticancer drug vinblastine in Madagascar periwinkle*. ***Science***, 360, 1235-1239.

(05) Chefdor F, Héricourt F, **Koudounas K**, Carqueijeiro I, Courdavault V, Mascagni F, Bertheau L, Larcher M, Depierreux C, Lamblin F, Racchi ML and Carpin S (**2018**). *Highlighting type A RRs as potential regulators of the dkHK1 multi-step phosphorelay pathway in Populus*. ***Plant Science***, 277, 68-78.

(04) Carqueijeiro I, Brown S, Chung K, Dang TT, Walia M, Besseau S, de Bernonville TD, Oudin A, Lanoue A, Billet K, Munsch T, **Koudounas K**, Melin C, Godon C, Razafimandimby B, de Craene JO, Glévarec G, Marc J, Giglioli-Guivarc'h N, Clastre M, St-Pierre B, Papon N, Andrade RB, O'Connor SE and Courdavault V (**2018**). *Two tabersonine 6, 7-epoxidases initiate lochnericine-derived alkaloid biosynthesis in Catharanthus roseus*. ***Plant Physiology***, 177, 1473-1486.

(03) **Koudounas K**, Thomopoulou M, Michaelidis C, Zevgiti E, Papakostas G, Tserou P, Daras G and Hatzopoulos P (**2017**). *The C-domain of oleuropein β-glucosidase assists in protein folding and sequesters the enzyme in nucleus*. ***Plant Physiology***, 174, 1371-1383.

(02) Koudounas K, Manioudaki M, Kourti A, Banilas G and Hatzopoulos P (**2015**). *Transcriptional profiling unravels potential metabolic activities of the olive leaf non-glandular trichome*. ***Frontiers in Plant Science***, 6, 633.

(01) Koudounas K, Banilas G, Michaelidis C, Demoliou C, Rigas S and Hatzopoulos P (**2015**). *A defence-related Olea europaea β-glucosidase hydrolyses and activates oleuropein into a potent protein cross-linking agent*. ***Journal of Experimental Botany*****,** 66, 2093-2106.

Oral presentations

68th Panhellenic Conference of the HSBMB, Athens, Greece, November 10-12, 2017. Invited Lecture: **Mining the biosynthetic pathway of secoiridoids in olive.** *Koudounas K.*

12th Panhellenic Scientific Conference, Hellenic Botanical Society, Rethymnon, Greece, September 29th – October 2nd, 2011. **A transcriptomic and proteomic analysis to verify the physiological and production status of olive abaxial trichome.** *Koudounas K, Roka L, Vlahou A, Manioudaki M, Kalaitzis P and Hatzopoulos P.*

Meetings & Conferences

72nd Panhellenic Conference of the HSBMB, Patras, Greece, December 2-4, 2022. **Molecular and biochemical properties of a methylesterase (OeEAME) which converts oleuropein aglycone to oleacein in Olea europaea**. *Thomopoulou M, Stathaki IA, Mpaxevanakis I, Pantidi G, Koudounas K and Hatzopoulos P.*

33rd Biotechnocenter Conference, Chaumont-sur-Tharonne, France, October 7-8, 2021. **Enhanced bioproduction of anticancer precursor vindoline by yeast cell factories**. *Kulagina N, Guirimand G, Melin C, Lemos-Cruz P, Carqueijeiro I, De Craene JO, Oudin A, Heredia V, Koudounas K, Unlubayir M, Lanoue A, Imbault N, St-Pierre B, Papon N, Clastre M, Giglioli-Guivarc'h N, Marc J, Besseau S and Courdavault V.*

Plant Biology Europe (PBE) Congress, jointly organized by FESPB and EPSO, Turin, Italy, June 28 – July 01, 2021. **Two bi-functional cytochrome P450 CYP72 enzymes from olive (*Olea europaea*) catalyze the oxidative C-C bond cleavage in the biosynthesis of secoxy-iridoids - flavor and quality determinants in olive oil.** *Rodríguez-López CE, Hong B, Paetz C, Nakamura Y, Koudounas K, Passeri V, Baldoni L, Alagna F, Calderini O and O'Connor SE*.

Plant Biology Europe (PBE) Congress, jointly organized by FESPB and EPSO, Turin, Italy, June 28 – July 01, 2021. **Identification and characterization of key enzymes involved in the metabolism of secoiridoids in *Olea europaea*.** *Thomopoulou M, Koudounas K, Baxevanakis I, Baldou K and Hatzopoulos P.*

Plant Biology Europe (PBE) Congress, jointly organized by FESPB and EPSO, Turin, Italy, June 28 – July 01, 2021. **Tomato reprograms photosynthesis and monolignols metabolism to activate plant defense responses against *Clavibacter michiganensis* infection.** *Tsitsekian D, Daras G, Karamanou K, Templalexis D, Koudounas K, Maliarakis D, Koufakis T, Goumas D, Hatzopoulos P and Rigas S.*

Biomolecules: Research & Development, Markets and Acceptability, Palma, Spain, October 23-25, 2019. **Biotechnological plant and yeast cells for the production of valuable compounds for cosmetics and pharmaceuticals.** *Bose S, Carqueijeiro I, Koudounas K, Munsch T, Billet K, Lanoue A, Drouet S, Hano C, Abbasi BH, Besseau S, Oudin A, de Bernonville TD, Clastre M, Courdavault V and Giglioli-Guivarc'h N.*

32nd Biotechnocenter Conference, Seillac, France, October 10-11, 2019. **Trio Affaire: Three functional tabersonine 16-O-methyltransferase isoforms adds a new complexity level on vindoline's pathway in *Catharanthus roseus*.** *Cruz PM, Carqueijeiro I, Munsch T, Oudin A, de Bernonville TD, Koudounas K, Besseau S, Giglioli-Guivarc'h N, Clastre M and Courdavault V.*

14th TERPNET meeting, Halle (Saale), Germany, August 26-30, 2019. **Alternative splicing directs a zombie strictosidine β-D-glucosidase for the modulation of monoterpene indole alkaloid synthesis in *Catharanthus roseus***. *Koudounas K, Carqueijeiro I, de Bernonville TD, O'Connor SE and Courdavault V.*

69th Panhellenic Conference of the HSBMB, Larissa, Greece, November 23-25, 2018. **Virus-Induced Gene Silencing as a versatile tool for functional genomics in Oleaceae.** *Thomopoulou M, Koudounas*

K, Papakostas G and Hatzopoulos P.

31st Biotechnocenter Conference, Seillac, France, October 11-12, 2018. **Identification of a second isoform of tabersonine 16-O-methyltransferase expressed in flowers of *Catharanthus roseus*.** *Cruz P, Carqueijeiro I, de Bernonville TD, Koudounas K, Restrepo MI, Besseau S, Giglioli-Guivarc'h N, Clastre M and Courdavault V.*

68th Panhellenic Conference of the HSBMB, Athens, Greece, November 10-12, 2017. **Reverse Genetics in olive tree: a Virus Induced Gene Silencing (VIGS) approach for functional enzyme analysis of secondary metabolites.** *Thomopoulou M, Koudounas K, Zevgiti E, Angeli E and Hatzopoulos P.*

42nd FEBS Congress, Jerusalem, Israel, September 10-14, 2017. **Virus-Induced Gene Silencing as a versatile tool for functional genomics in Oleaceae; a case study of oleuropein β-glucosidase.** *Koudounas K, Thomopoulou M, Zevgiti E, Angeli E and Hatzopoulos P.*

67th Panhellenic Conference of the HSBMB, Ioannina, Greece, November 25-27, 2016. **The C-terminal domain is essential for the proper assembly of the active multimeric oleuropein-specific β-glucosidase.** *Koudounas K, Thomopoulou M, Zevgiti E, Papakostas G, Angeli E, Lygizos I and Hatzopoulos P.*

65th Panhellenic Conference of the HSBMB, Athens, Greece, November 28-30, 2014. **Subcellular localization of a defense related β-glucosidase from *Olea europaea*.** *Koudounas K, Thomopoulou M, Tserou P, Michaelidis C and Hatzopoulos P.*

1st International Plant Proteomics Organization World Congress (INPPO), Hamburg, Germany, August 31 - July 4, 2014. **A comparative proteomic analysis to verify the physiological and production status of olive (*Olea europaea* L.) abaxial trichome.** *Roka L, Koudounas K, Vlahou A and Hatzopoulos P.*

Plant Proteomics in Europe: where do we stand and where are we heading to?. COST FA0603 meeting, Dijon, France, May 25-27, 2011. **A transcriptomic and proteomic analysis to verify the physiological and production status of olive abaxial trichome.** *Koudounas K, Roka L, Vlahou A and Hatzopoulos P.*

Languages **English** (CPE - University of Michigan)
Greek (Native)

Military Service Completed