



COST ACTION GREENERING – DATA COLLECTION

First name, Family Name: Andromachi Tzani

Type (Academic or Industrial): Academic

Country: Greece

Leadership position in the COST: Participant on CA18224

Working Group in which you are involved: WG1 and WG3

E-mail: atzani@central.ntua.gr

Laboratory/Company:

Applied Organic Chemistry Research Group (AppOrgChem Group), Laboratory of Organic Chemistry, Department of Chemical Sciences, School of Chemical Engineering, National Technical University of Athens (NTUA), Greece

Laboratory/Company info:

NTUA (founded in 1837) is the oldest Technical University in Greece and is structured according to the continental European system for training engineers. NTUA operates as a State University with nine Schools.

The Laboratory of Organic Chemistry focuses in Organic Chemistry and its applications on the fields of Green Chemistry and Technology, Medicinal Chemistry and Nanotechnology. Our group is comprised of Chemical Engineers, Chemists, Medical Doctor and Pharmacist (2 Postdoctoral Researchers, 8 PhD students).

Link to the home page of the Laboratory/Company:

School of Chemical Engineering, NTUA:

<https://www.chemeng.ntua.gr>

Applied Organic Chemistry Research Group:

<https://www.researchgate.net/lab/Anastasia-Detsi-Lab-Applied-Organic-Chemistry-Research-Group-Anastasia-Detsi>

Fields of expertise:

- Green Chemistry and Technology: Synthesis and structure characterization of novel ionic liquids (ILs) and deep eutectic solvents (DES), study of their physicochemical properties and biodegradability. Applications of ILs and DES in: (i) organic synthesis, (ii) medicinal chemistry, (iii) nanotechnology and (iv) green extraction processes.
- Nanotechnology: Encapsulation of bioactive molecules and plant extracts in various matrices and their applications in the pharmaceutical, cosmetic and food industry.

5 Main publications or patents:

1. A. Tzani, D. Skarpalezos, A. Papadopoulos, D. Aravopoulou, I. Kleidas, E. Ioannou, E. Voutsas, A. Kyritsis, A. Detsi “Synthesis of novel non-toxic naphthenic and benzoic acid ionic liquids. Structure-properties relationship and evaluation of their biodegradability



- potential”, *Journal of Molecular Liquids*, **2019**, 111927
doi: <https://doi.org/10.1016/j.molliq.2019.111927>
2. S. Koutsoukos, T. Tsiaka, A. Tzani, P. Zoumpoulakis, A. Detsi “Choline Chloride and Tartaric Acid NADES: An Efficient Solvent for the Extraction of Phenolic and Carotenoid Compounds”, *Journal of Cleaner Production*, **2019**, 241, 118384
 3. A. Tzani, S. Koutsoukos, D. Koukouzelis, A. Detsi “Synthesis and characterization of silver nanoparticles using biodegradable protic ionic liquids” *Journal of Molecular Liquids*, **2017**, 243(Supplement C), 212-218
 4. A. Papadopoulou, A. Tzani, D. Alivertis, M.H. Katsoura, A.C. Polydera, A. Detsi, H. Stamatis “Hydroxyl ammonium ionic liquids as green media for biocatalytic oxidations”, *Green Chemistry*, **2016**, 18, 1147-1158
 5. A. Tzani, A. Douka, A. Papadopoulos, E. Pavlatou, E. Voutsas, A. Detsi “Synthesis of biscoumarin analogues using recyclable and biodegradable task-specific ionic liquids”, *ACS Sustainable Chemistry & Engineering*, **2013**, 1 (9), 1180–1185

Collaborations:

National Hellenic Research Foundation, National and Kapodistrian University of Athens, Aristotle University of Thessaloniki, Mediterranean Agronomic Institute of Chania (MAICh), University of Ioannina, Agricultural University of Athens, Demokritus University of Thrace, Biomedical Research Foundation, Academy of Athens, Queen Mary University of London, University of Porto, University of Geneva, University of Lausanne, University of Manchester, CELLCO Chemicals A.E., KORRES S.A. Natural Products.

Facilities:

- MicroRaman Spectrometer
- NMR Spectrometer (300MHz)
- UV-Vis spectrometer
- FT-IR
- Ultrasonic reactor
- MicroWave Reactor
- UltraCentrifuge
- Freeze-drier
- Oxygen meter for BOD evaluation
- LC-ESI/MS
- GC-EI/MS
- Scanning Electron Microscope
- X-Ray Diffraction
- X-Ray Fluorescence spectrometer
- Ion chromatography
- Inductively Coupled Plasma Mass Spectrometer