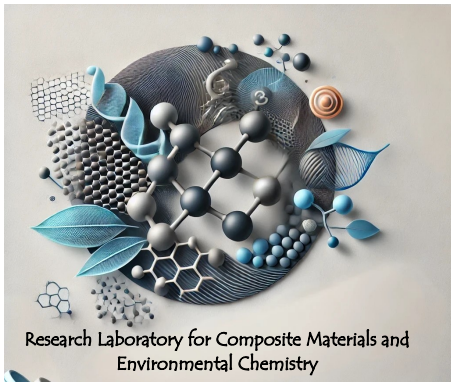
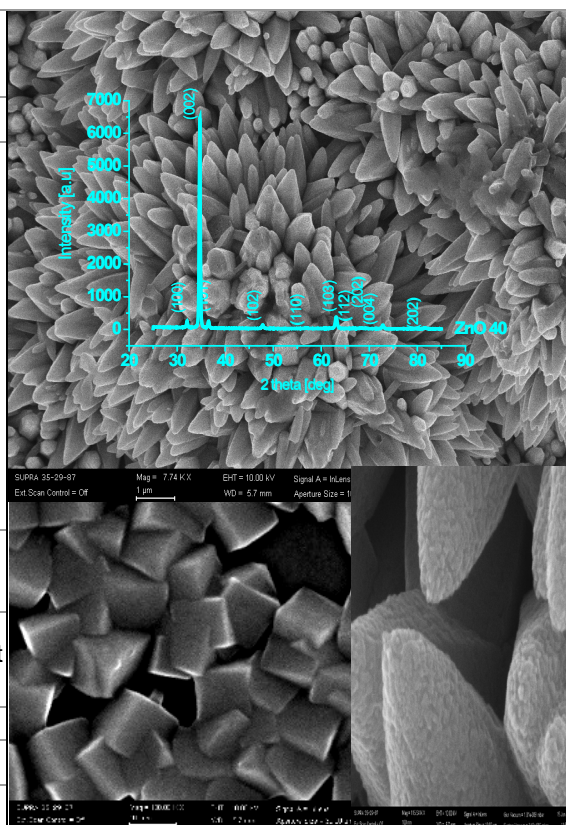


RESEARCH LABORATORY FOR COMPOSITE MATERIALS AND ENVIRONMENTAL CHEMISTRY

Contact details

Name	Research Laboratory for Composite Materials and Environmental Chemistry
Acronym	LCMEC
Logo	
Address	103-105 Muncii Blvd., Room: C 415, 400641 Cluj-Napoca, Romania
Faculty Department	Faculty of Materials and Environmental Engineering, Physics and Chemistry Department
Phone	+40 264 401 778 / +40 743 174 195
Director	Prof. PhD. Eng. Violeta Popescu
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Areas of expertise

- **Materials Science and Engineering:** Polymeric materials, biomaterials, polymer recycling, nanomaterials.
- **Environmental Science and Engineering:** Pollutant separation and degradation through adsorption or photodegradation.

Team

- **Prof. PhD. Eng.** Violeta Popescu
- **Lecturer PhD. Eng.** George Liviu Popescu
- **PhD. Eng.** Pompilia Lopes
- **PhD Students:** Liviu Mare, Felicia Mintean, Valentina Mariana Sicoe, Alina Gadjia

Representative projects

DISDENT: "New materials for minimally invasive treatment of early dental caries and white spots." Code: PN-III-P2-2.1-PED2019-2953/13.08.2020; Period: 2020 – 2022

ENZIPLAST: "Optimization of amino-acid chelate production processes for innovative applications." Code: PN-III-P2-2.1 BG-2016-0204; Period: 2016 – 2018

COMBREG: "Development of methods for organic waste material recycling for fuel and raw material production." Code: CEEX: 761/2006. Period: 2006 – 2009

Significant results

The most representative publications of the past 5 years:

1. Turza, A.; Pășcuță, P.; Mureșan-Pop, M.; Mare, L.; Borodi, G.; Popescu, V. Five Novel Polymorphs of Cardarine/GW501516 and Their Characterization by X-ray Diffraction, Computational Methods, Thermal Analysis, and a Pharmaceutical Perspective. *Pharmaceutics* **2024**, *16* (5), 623. DOI: 10.3390/pharmaceutics16050623.
2. Purcea Lopes, P.M.; Fechet, R.; Mintean, F.; Mare, L.; Moldovan, D.; Moldovan, M.; Cuc, S.; Saroși, C.; Popescu, V. The Influence of Lyophilization Pretreatment and Whey Content on Whey and Gelatin-Based

- Hydrogels. *Gels* **2024**, *10* (4), 229. DOI: 10.3390/gels10040229.
3. Mare, L.; Mureșan-Pop, M.; Purcea Lopes, P.M.; Turza, A.; Borodi, G.; Popescu, V. Crystal Structure and Intermolecular Energy for Some Nandrolone Esters. *Molecules* **2023**, *28*, 7179. DOI: 10.3390/molecules280617179.
 4. Purcea Lopes, P.M.; Moldovan, D.; Fechete, R.; Mare, L.; Barbu-Tudoran, L.; Sechel, N.; Popescu, V. Characterization of a Graphene Oxide-Reinforced Whey Hydrogel as an Eco-Friendly Absorbent for Food Packaging. *Gels* **2023**, *9*, 298. DOI: 10.3390/gels9020298.
 5. Turza, A.; Pascuta, P.; Mare, L.; Borodi, G.; Popescu, V. Structural Insights and Intermolecular Energy for Some Medium and Long-Chain Testosterone Esters. *Molecules* **2023**, *28*. DOI: 10.3390/molecules28073097.
 6. Popescu, V.; Prodan, D.; Cuc, S.; Saroși, C.; Furtoș, G.; Moldovan, A.; Carpa, R.; Bomboș, D. Antimicrobial Poly (Lactic Acid)/Copper Nanocomposites for Food Packaging Materials. *Materials* **2023**, *16*, 1415. DOI: 10.3390/ma16101415.
 7. Lopes, P.M.P.; Moldovan, D.; Fechete, R.; Prodan, D.; Pop, C.R.; Rotar, A.M.; Popescu, V. Swelling and Antimicrobial Activity Characterization of a GO-Reinforced Gelatin—Whey Hydrogel. *Gels* **2022**, *9*, 18. DOI: 10.3390/gels9010018.
 8. Turza, A.; Popescu, V.; Mare, L.; Borodi, G. Structural Aspects and Intermolecular Energy for Some Short Testosterone Esters. *Materials* **2022**, *15*, 7245. DOI: 10.3390/ma15147245.
 9. Purcea Lopes, P.M.; Moldovan, D.; Moldovan, M.; Carpa, R.; Saroși, C.; Pășcuță, P.; Mazilu Moldovan, A.; Fechete, R.; Popescu, V. New Composite Hydrogel Based on Whey and Gelatin Crosslinked with Copper Sulphate. *Materials* **2022**, *15*, 2611. DOI: 10.3390/ma15072611.
 10. Mazilu Moldovan, A.; Popescu, V.; Ionescu, C.V.; Cuc, S.; Craciun, A.; Moldovan, M.; Duda, D.; Mesaros, A.S. Various Aspects Involved in the Study of Tooth Bleaching Procedure: A Questionnaire-Based Study. *International Journal of Environmental Research and Public Health* **2022**, *19*, 3977. DOI: 10.3390/ijerph19073977.
 11. Popescu, V.; Saroși, C.; Dumitrescu, R.S.; Chișnoiu, A.M.; Moldovan, M.; Dumitrescu, L.S.; Prodan, D.; Carpa, R.; Gheorghe, G.F.; Chișnoiu, R.M. Preparation and In Vitro Characterization of Gels Based on Bromelain, Whey and Quince Extract. *Gels* **2021**, *7*, 191. DOI: 10.3390/gels7040191.
 12. Popescu, V.; Molea, A.; Moldovan, M.; Lopes, P.M.; Mazilu Moldovan, A.; Popescu, G.L. The Influence of Enzymatic Hydrolysis of Whey Proteins on the Properties of Gelatin-Whey Composite Hydrogels. *Materials* **2021**, *14*, 3507. DOI: 10.3390/ma14133507.
 13. Dascalu (Rusu), L.M.; Moldovan, M.; Prodan, D.; Ciotlaus, I.; Popescu, V.; Baldea, I.; Carpa, R.; Sava, S.; Chifor, R.; Badea, M.E. Assessment and Characterization of Some New Photosensitizers for Antimicrobial Photodynamic Therapy (APDT). *Materials* **2020**, *13*. DOI: 10.3390/ma13133012.
 14. Voina, C.; Delean, A.; Mureșan, A.; Valeanu, M.; Moldovan, A.M.; Popescu, V.; Petean, I.; Ene, R.; Moldovan, M.; Pandrea, S. Antimicrobial Activity and the Effect of Green Tea Experimental Gels on Teeth Surfaces. *Coatings* **2020**, *10*. DOI: 10.3390/coatings10060537.
 15. Mazilu, A.; Saroși, C.; Moldovan, M.; Miuta, F.; Prodan, D.; Antoniac, A.; Prejmerean, C.; Dumitrescu, L.S.; Popescu, V.; Raiciu, A.D.; et al. Preparation and Characterization of Natural Bleaching Gels Used in Cosmetic Dentistry. *Materials* **2019**, *12*. DOI: 10.3390/ma12132106.

Activity with undergraduate students: More than 24 graduation thesis or dissertation.

Activity with PhD students. Research activity with 14 PhD students: 10 with finalized thesis and 4 in progress.

Activity with postdoctoral students. Research activity of postdoctoral students.

Patent no. RO 127718/2015. M. Moldovan, L. Silaghi-Dumitrescu, G. Furtoș, H. Iovu, C. Petrea, V. Popescu, C. Saroși, S. Boboia, M. Filip, A.L. Colceriu Burtea, R.L. Silaghi-Dumitrescu. "Endodontic composition for filling and sealing root canals."

Patent no. RO128800-A2; RO128800/2017. Prejmerean C, Moldovan M, Prodan D, Silaghi D L, Furtos G, Iovu H, Petrea C, Popescu V, Pascalau V, Sarosi C, Boboia S, Filip M, Colceriu B A L, Silaghi D R L, Damian C M, Sarosi L C, "Organic matrix and indirect restorative composite for use in dentistry."

Products

1. Biodegradable plastic materials (Hydrogels).
2. Diesel fuels from plastic waste.
3. Natural extracts for industrial applications.
4. Biomaterials.

Services for the Economic Environment

Research & Development	Pollutant adsorption and photodegradation material development. Chemical recycling of plastic materials.
Consulting	FT-IR and UV-VIS spectroscopy. Plastic material characterization and recycling.
Training	Rapid identification of organic compounds via ATR-FTIR. Development of UV-VIS spectroscopic quantitative analysis methods. Recycling and valorization of polymers.

Last Updated: January 2025.