

## Scientific articles MONICA IOANA TOȘA (2016-2025)

1. Fine tuning enzyme activity assays for monitoring the enzymatic hydrolysis of PET

Boros Krisztina, Nagy Blanka Eszter, Tomoiagă Raluca Bianca, Tótós Róbert, Toșa Monica Ioana, Paizs Csaba, Bencze László Csaba

Scientific Reports (2025) 15(1): 7361–7389

DOI: [10.1038/s41598-024-84177-7](https://doi.org/10.1038/s41598-024-84177-7)

2. Towards circular economy: Agro-industrial by-products enabling in situ enzyme production for food and pharmaceutical applications

Martău Gheorghe-Adrian, Odocheanu Răzvan, Dudu Adrian Ioan, Dulf Francisc Vasile, Toșa Monica Ioana, Vodnar Dan Cristian

Sustainable Chemistry and Pharmacy (2025) 44: 7361–7389

DOI: [10.1016/j.scp.2025.101974](https://doi.org/10.1016/j.scp.2025.101974)

3. Optimization of reaction parameters for the synthesis of natural aroma esters by factorial design

Dudu Adrian Ioan, Paizs Csaba, Toșa Monica Ioana

Reaction Chemistry and Engineering (2024) 9(11): 2994–3002

DOI: [10.1039/d4re00265b](https://doi.org/10.1039/d4re00265b)

4. The Biocatalytic Potential of Aromatic Ammonia–Lyase from *Loktanella atrilutea*

Tomoiaga R.B., Ágoston G., Boros K., Nagy L.C., Toșa M.I., Paizs C., Bencze L.C.

ChemBioChem (2024) 25(9): e202400011

DOI: [10.1002/cbic.202400011](https://doi.org/10.1002/cbic.202400011)

5. Immobilization of D-amino acid dehydrogenase from *Ureibacillus thermosphaericus*

Boros K., Gal L., Gal C.A., Wäscher M., Tomoiagă R.B., Toșa M.I., Pietruszka J., Bencze L.C.

Process Biochemistry (2024) 140: 45-55

DOI: [10.1016/j.procbio.2024.02.014](https://doi.org/10.1016/j.procbio.2024.02.014)

6. Transaminase - carbonic anhydrase bi-enzymatic cascade for preparation of (R)-1-arylethan-1-amines and (S)-1-arylethan-1-ols

Barabás L.E., Scrob D.M., Varga A., Kiss L., Toșa M.I., Paizs C.

Reaction Chemistry and Engineering (2023) 8(8): 2001-2010

DOI: [10.1039/d3re00128h](https://doi.org/10.1039/d3re00128h)

7. A robust and efficient lipase based nanobiocatalyst for phenothiazinyl-ethanol resolution

Spelmezan C.-G., Katona G., Bencze L.C., Paizs C., Toşa M.I.

Reaction Chemistry and Engineering (2023) 88(2): 852-862

DOI: [10.1039/d2re00515h](https://doi.org/10.1039/d2re00515h)

8. How to identify and characterize novel transaminases? Two novel transaminases with opposite enantioselectivity for the synthesis of optically active amines

Gal C.A., Barabás L.-E., Varga A., Csuka P., Bencze L.C., Toşa M.I., Poppe L., Paizs C.

Molecular Catalysis (2022) 531(11): 112660

DOI: [10.1016/j.mcat.2022.112660](https://doi.org/10.1016/j.mcat.2022.112660)

9. Deep eutectic solvents-a new additive in the encapsulation of lipase B from: *Candida antarctica*: Biocatalytic applications

Dudu A.I., Bencze L.C., Paizs C., Toşa M.I.

Reaction Chemistry and Engineering (2022) 7(2): 442-449

DOI: [10.1039/d1re00469g](https://doi.org/10.1039/d1re00469g)

10. Preparation and Characterization of Doxycycline-Loaded Electrospun PLA/HAP Nanofibers as a Drug Delivery System

Farkas N.-I., Marinceş L., Barabás R., Bizo L., Ilea A., Turdean G.L., Toşa M., Cadar O., Barbu-Tudoran L.

Materials (2022) 15(6): 2105

DOI: [10.3390/ma15062105](https://doi.org/10.3390/ma15062105)

11. Lipase on carbon nanotubes-an active, selective, stable and easy-to-optimize nanobiocatalyst for kinetic resolutions

Gal C.A., Barabás L.E., Bartha-Vári J.-H., Moisă M.E., Balogh-Weiser D., Bencze L.C., Poppe L., Paizs C., Toşa M.I.

Reaction Chemistry and Engineering (2021) 6(12): 2391-2399

DOI: [10.1039/d1re00342a](https://doi.org/10.1039/d1re00342a)

12. Robust, site-specifically immobilized phenylalanine ammonia-lyases for the enantioselective ammonia addition of cinnamic acids

Boros K., Moisă M.E., Nagy C.L., Paizs C., Toşa M.I., Bencze L.C.

Catalysis Science and Technology (2021) 11(16): 5553-5563

DOI: [10.1039/d1cy00195g](https://doi.org/10.1039/d1cy00195g)

13. Green Process for the Enzymatic Synthesis of Aroma Compounds Mediated by Lipases Entrapped in Tailored Sol-Gel Matrices

Dudu A.I., Lacatus M.A., Bencze L.C., Paizs C., Toşa M.I.

ACS Sustainable Chemistry and Engineering (2021) 9(15): 5461-5469

DOI: [10.1021/acssuschemeng.1c00965](https://doi.org/10.1021/acssuschemeng.1c00965)

14. A novel phenylalanine ammonia-lyase from *Pseudozyma antarctica* for stereoselective biotransformations of unnatural amino acids

Varga A., Csuka P., Sonesouphap O., Bánóczy G., Toşa M.I., Katona G., Molnár Z., Bencze L.C., Poppe L., Paizs C.

Catalysis Today (2021) 366(8): 185-194

DOI: [10.1016/j.cattod.2020.04.002](https://doi.org/10.1016/j.cattod.2020.04.002)

15. Hydroxyapatite and silicon-modified hydroxyapatite as drug carriers for 4-aminopyridine

Marincaş L., Turdean G.L., Toşa M., Kovács Z., Kovács B., Barabás R., Farkas N.-I., Bizo L. Crystals (2021) 11(9): 1124

DOI: [10.3390/cryst11091124](https://doi.org/10.3390/cryst11091124)

16. Simultaneous enrichment of grape pomace with  $\gamma$ -linolenic acid and carotenoids by solid-state fermentation with *Zygomycetes* fungi and antioxidant potential of the bioprocessed substrates

Dulf F.V., Vodnar D.C., Toşa M.I., Dulf E.-H.

Food Chemistry (2020) 310(12): 125927

DOI: [10.1016/j.foodchem.2019.125927](https://doi.org/10.1016/j.foodchem.2019.125927)

17. Solvent-Free Biocatalytic Synthesis of 2,5-bis-(Hydroxymethyl)Furan Fatty Acid Diesters from Renewable Resources

Lăcătuş M.A., Dudu A.I., Bencze L.C., Katona G., Irimie F.-D., Paizs C., Toşa M.I.

ACS Sustainable Chemistry and Engineering (2020) 8(3): 1611-1617

DOI: [10.1021/acssuschemeng.9b06442](https://doi.org/10.1021/acssuschemeng.9b06442)

18. Fluorescent enzyme-coupled activity assay for phenylalanine ammonia-lyases

Moisă M.E., Amariei D.A., Nagy E.Z.A., Szarvas N., Toşa M.I., Paizs C., Bencze L.C.

Scientific Reports (2020) 10(1): 18418

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19. Efficient biodiesel production catalyzed by nanobioconjugate of lipase from *Pseudomonas fluorescens*

Bartha-Vári J.-H., Moisă M.E., Bencze L.C., Irimie F.-D., Paizs C., Toşa M.I.

*Molecules* (2020) 25(3): 651

**DOI:** [10.3390/molecules25030651](https://doi.org/10.3390/molecules25030651)

20. Efficient and stable magnetic chitosan-lipase B from *Candida antarctica* bioconjugates in the enzymatic kinetic resolution of racemic heteroarylethanol

Spelmezan C.G., Bencze L.C., Katona G., Irimie F.D., Paizs C., Toşa M.I.

*Molecules* (2020) 25(2): 350

**DOI:** [10.3390/molecules25020350](https://doi.org/10.3390/molecules25020350)

21. Mapping the Hydrophobic Substrate Binding Site of Phenylalanine Ammonia-Lyase from *Petroselinum crispum*

Nagy E.Z.A., Tork S.D., Lang P.A., Filip A., Irimie F.D., Poppe L., Toşa M.I., Schofield C.J., Brem J., Paizs C., Bencze L.C.

*ACS Catalysis* (2019) 9(9): 8825-8834

**DOI:** [10.1021/acscatal.9b02108](https://doi.org/10.1021/acscatal.9b02108)

22. The production of L- and D-phenylalanines using engineered phenylalanine ammonia lyases from *Petroselinum crispum*

Tork S.D., Nagy E.Z.A., Cserepes L., Bordea D.M., Nagy B., Toşa M.I., Paizs C., Bencze L.C.

*Scientific Reports* (2019) 9(1): 20123

**DOI:** [10.1038/s41598-019-56554-0](https://doi.org/10.1038/s41598-019-56554-0)

23. Continuous-flow enzymatic kinetic resolution mediated by a lipase nanobioconjugate

Moisă M.E., Bencze L.C., Paizs C., Toşa M.I.

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**DOI:** [10.24193/subbchem.2019.2.07](https://doi.org/10.24193/subbchem.2019.2.07)

24. Click reaction-aided enzymatic kinetic resolution of secondary alcohols

Moisă M.E., Poppe L., Gal C.A., Bencze L.C., Irimie F.D., Paizs C., Peter F., Toşa M.I.

*Reaction Chemistry and Engineering* (2018) 3(5): 790-798

**DOI:** [10.1039/c8re00091c](https://doi.org/10.1039/c8re00091c)

25. Tailored Mutants of Phenylalanine Ammonia-Lyase from *Petroselinum crispum* for the Synthesis of Bulky l- and d-Phenylalanines

Filip A., Nagy E.Z.A., Tork S.D., Bánóczy G., Toşa M.I., Irimie F.D., Poppe L., Paizs C., Bencze L.C.

ChemCatChem (2018) 10(12): 2627-2633

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26. Eco-Friendly Enzymatic Production of 2,5-Bis(hydroxymethyl)furan Fatty Acid Diesters, Potential Biodiesel Additives

Lăcătuş M.A., Bencze L.C., Toşa M.I., Paizs C., Irimie F.-D.

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27. Modern diversification of the amino acid repertoire driven by oxygen

Granold M., Hajieva P., Toşa M.I., Irimie F.-D., Moosmann B.

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28. Expanding the substrate scope of phenylalanine ammonia-lyase from: *Petroselinum crispum* towards styrylalanines

Bencze L.C., Filip A., Bánóczy G., Toşa M.I., Irimie F.D., Gellért Á., Poppe L., Paizs C.

Organic and Biomolecular Chemistry (2017) 15(17): 3717-3727

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29. Tailored sol-gel immobilized lipase prepartes for the enzymatic kinetic resolution of heteroaromatic alcohols in batch and continuous flow systems

Moisă M.E., Spelmezan C.G., Paul C., Bartha-Vári J.H., Bencze L.C., Irimie F.D., Paizs C., Péter F., Toşa M.I.

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30. Covalently Immobilized Lipases are Efficient Stereoselective Catalysts for the Kinetic Resolution of rac-(5-Phenylfuran-2-yl)- $\beta$ -alanine Ethyl Ester Hydrochlorides

Nagy B., Galla Z., Bencze L.C., Toşa M.I., Paizs C., Forró E., Fülöp F.

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31. Aminated single-walled carbon nanotubes as carrier for covalent immobilization of phenylalanine ammonia-lyase

Bartha-Vári J.H., Bencze L.C., Bell E., Poppe L., Katona G., Irimie F.-D., Paizs C., Toşa M.I.  
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**DOI:** [10.3311/PPch.10417](https://doi.org/10.3311/PPch.10417)

32. Validated LC-MS/MS method for the concomitant determination of amoxicillin and clavulanic acid from human plasma

Balázsi J., Paizs C., Irimie F.-D., Toşa M.I., Bencze L.C., Tótfős R.  
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33. Nanobioconjugates of *Candida antarctica* lipase B and single-walled carbon nanotubes in biodiesel production

Bencze L.C., Bartha-Vári J.H., Katona G., Toşa M.I., Paizs C., Irimie F.-D.  
Bioresource Technology (2016) 200(2): 853-860

**DOI:** [10.1016/j.biortech.2015.10.072](https://doi.org/10.1016/j.biortech.2015.10.072)

34. Influence of the aromatic moiety in  $\alpha$ - And  $\beta$ -arylalanines on their biotransformation with phenylalanine 2,3-aminomutase from: *Pantoea agglomerans*

Varga A., Bánóczy G., Nagy B., Bencze L.C., Toşa M.I., Gellért Á., Irimie F.D., Rétey J., Poppe L., Paizs C.

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