

MEMORIU ȘTIINȚIFIC DE ACTIVITATE

INFORMAȚII PERSONALE

Nume: BÎLEA

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Naționalitatea: română

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STUDII UNIVERSITARE

Studii universitare de licență

Universitatea	UNIVERSITATEA DIN BUCUREȘTI
Facultatea	FACULTATEA DE BIOLOGIE
Specializarea	BIOCHIMIE
Anul absolvirii	2017
Media generală a anilor de studii	9,66
Titlul lucrării de licență	MANIPULAREA GENETICĂ A DROJDIILOR ÎN SCOPUL OBȚINERII DE COMPUȘI CU IMPORTANTĂ BIOTEHNOLOGICĂ
Media examen licență	9,70

Studii universitare de master

Universitatea	UNIVERSITATEA DIN BUCUREȘTI
Facultatea	FACULTATEA DE BIOLOGIE
Masterul absolvit	BIOCHIMIE ȘI BIOLOGIE MOLECULARĂ
Anul absolvirii	2019
Media generală a anilor de studii	10
Titlul lucrării de disertație	MODIFICAREA EFECTELOR ECOTOXICOLOGICE ALE APELOR CONTAMINATE CU COMPUȘI ORGANICI CA URMARE A APLICĂRII UNOR METODE NECONVENȚIOALE DE TRATARE
Nota examen disertație	10

Studii universitare de doctorat

Universitatea	UNIVERSITATEA DIN BUCUREȘTI
Facultatea	FACULTATEA DE CHIMIE
Școala doctorală	ȘCOALA DOCTORALĂ ÎN CHIMIE
Domeniul	CHIMIE
Perioada	2019-prezent
Titlul lucrării de doctorat	MECANISME DE DEGRADARE CU PLASMĂ A AMESTECURILOR DE CONTAMINANȚI ORGANICI DIN APE

EXPERIENȚA PROFESIONALĂ

Numele angajatorului	INSTITUTUL NATIONAL PENTRU FIZICA LASERILOR, PLASMEI ȘI RADIAȚIEI
Perioada	2017 – 31.12.2019
Poziția ocupată	Biochimist
Activități și responsabilități	- Evaluarea ecotoxicității apelor contaminate și tratate cu plasmă - Analiza probelor tratate cu plasma prin cromatografie de lichide (HPLC)
Perioada	01.01.2020 - prezent
Poziția ocupată	Asistent de Cercetare Științifică (ACS)
Activități și responsabilități	- Operarea unei descărcări corona bifazică pentru degradarea poluanților organici din ape - Analiza cromatografică a probelor pentru investigarea poluanților și intermediarilor de degradare - Dozarea speciilor reactive formate în lichidul expus la plasma

LISTA DE LUCRĂRI ȘTIINȚIFICE – JURNALE ISI

1. A.M. Udrea, **F. Bilea**, S. Avram, A. Staicu, (2025), Laser-Induced Dimeric Photoproducts of Chlorpromazine: LC-MS Identification and Molecular Docking Evidence of Enhanced Anticancer Potential, *International Journal of Molecular Sciences* **26**:14, 6668. <https://doi.org/10.3390/ijms26146668>. **Factor de impact:** 4,9 (2025), AIS: 1,121 (2024).
2. D. Baltag, A. Răducan, **F. Bilea**, V.A. Neașu, C. Bradu, P. Oancea, Oxidative removal of Orange G by homogeneous advanced oxidation processes, (2025), *Journal of Water Process Engineering* **73**:1, 107670. <https://doi.org/10.1016/j.jwpe.2025.107670>. **Factor de impact:** 6,7 (2025), AIS: 0,843 (2024).
3. **F. Bilea**, C. Bradu, M. Cicirma, A. V. Medvedovici, M. Magureanu, (2024). Plasma treatment of

- sulfamethoxazole contaminated water: Intermediate products, toxicity assessment and potential agricultural reuse, *Science of the Total Environment* **909**, 168524. <https://doi.org/10.1016/j.scitotenv.2023.168524>. **Factor de Impact:** 8,0; AIS: 1,513
4. **F. Bilea**, C. Bradu, A. V. Medvedovici, D. Hong, M. Magureanu, (2024) Pulsed corona discharge: an advanced treatment method for antibiotic-contaminated water, *Journal of Physics D: Applied Physics* **57**, 435205. <https://doi.org/10.1088/1361-6463/ad6882>. **Factor de Impact:** 3,2; AIS: 0,603.
 5. V.A. Neacșu, A. Tudorache, **F. Bilea**, P. Oancea, A. Răducan, (2024), Cobalt-catalysed bicarbonate-activated peroxide as a promising system for the advanced oxidation of epirubicin in wastewaters, *J. Clean. Prod.*, 142462. <https://doi.org/10.1016/j.jclepro.2024.142462>. **Factor de impact:** 10, AIS: 1,657.
 6. **F. Bilea**, M. Garcia-Vaquero, M. Magureanu, I. Mihaila, V. Mildaziene, M. Mozetic, J. Pawlat, G. Primc, N. Puac, E. Robert, A. Stancampiano, I. Topala, R. Zukiene, (2024), Non-Thermal Plasma as Environmentally-Friendly Technology for Agriculture: A Review and Roadmap, *Critical Reviews in Plant Sciences*, **43**:6, 428-486. <https://doi.org/10.1080/07352689.2024.2410145>. **Factor de impact:** 4,9, AIS: 1,326.
 7. **F. Bilea**, T. Tian, M. Magureanu, H. Rabat, M-A. Antoissi, O. Aubry, DP. Hong, (2023). Removal of a mixture of antibiotics in water using nonthermal plasma, *Plasma Processes and Polymers*, e2300020. <https://doi.org/10.1002/ppap.202300020>. **Factor de Impact:** 2,9; AIS: 0,538.
 8. P. Brault, **F. Bilea**, M. Magureanu, C. Bradu, O. Aubry, H. Rabat, D. Hong, (2023) Plasma degradation of water organic pollutants: Ab initio molecular dynamics simulations and experiments. *Plasma Process Polym.* e2300116, <https://doi.org/10.1002/ppap.202300116>. **Factor de impact:** 2,9, AIS: 0,538.
 9. I. Florescu, I. Radu, A. Teodoru, L. Gurau, C. Chireceanu, **F. Bilea**, M. Magureanu, Positive Effect Induced by Plasma Treatment of Seeds on the Agricultural Performance of Sunflower. *Plants*, **12**:794, 2023, <https://doi.org/10.3390/plants12040794>. **Factor de impact:** 4, AIS: 0,618.
 10. M. Magureanu, **F. Bilea**, C. Bradu, D. Hong, (2021). A review on non-thermal plasma treatment of water contaminated with antibiotics, *Journal of Hazardous Materials* **417**, 125481. <https://doi.org/10.1016/j.jhazmat.2021.125481>. **Factor de Impact:** 14,224; AIS: 1,515.
 11. **F. Bilea**, C. Bradu, M. Magureanu, (2020). Potential of plasma treatment as water reclamation process for irrigation, *J. Phys. D: Appl. Phys.* **53**, 224002, <https://doi.org/10.1088/1361-6463/ab7c05>. **Factor de Impact:** 3,56.
 12. **F. Bilea**, C. Bradu, N.B. Mandache, M. Magureanu, (2019) Characterization of the chemical activity of a pulsed corona discharge above water, *Chemosphere* **236**, 124302, <https://doi.org/10.1016/j.chemosphere.2019.07.033> **Factor de Impact:** 5,108.

CONFERINTE NAȚIONALE ȘI INTERNAȚIONALE

1. **F. Bilea**, M. Magureanu, C. Bradu, N.B. Mandache, V.I. Parvulescu, Correlation between ibuprofen degradation and generation of reactive species in a pulsed corona discharge above liquid, *International Conference on Gas Discharges and Their Applications*, 02-07.09.2018, Novi sad, Serbia, prezentare orală;
2. **F. Bilea**, M. Magureanu, C. Bradu, N.B. Mandache, V.I. Parvulescu, Effect of pulse duration on degradation and mineralization of 2,4-dichlorophenoxyacetic acid in a corona plasma system, *Europhysics Conference on Atomic and Molecular Physics of Ionized Gases (ESCAMPIG)*, 17-22.07.2018; Glasgow, Regatul Unit, poster;
3. **F. Bilea**, M. Magureanu, C. Bradu, N.B. Mandache, V.I. Parvulescu, Effect of pulse duration on the

- generation of reactive species in a pulsed corona discharge above liquid, *International Symposium on Non-Thermal/Thermal Plasma Pollution Control Technology and Sustainable Energy (ISNTP-11)*, Padova, Italia, July 01-05.07.2018, poster;
4. **F. Bilea**, M. Magureanu, C. Bradu, Plasma treatment of pesticide-contaminated water: assessment of toxicity and possible use in irrigation, *24th International Symposium on Plasma Chemistry (ISPC 24)*, 09-14.06.2019, Napoli, Italia, poster;
 5. **F. Bilea**, M. Magureanu, C. Bradu, Formation of hydroxyl radicals in a pulsed corona discharge in contact with liquid, *24th International Symposium on Plasma Chemistry (ISPC 24)*, 09-14.06.2019, Napoli, Italia, poster;
 6. **F. Bilea**, C. Bradu, A.V. Medvedovici, M. Magureanu, Removal of mixtures of pharmaceutical pollutants in aqueous solutions using non-thermal plasma, *19th International Conference on Plasma Physics and Applications (CPPA 2021), 1st Workshop on Plasma Applications for Smart and Sustainable Agriculture*, 31.08-03.09.2021, Măgurele, România, prezentare orală;
 7. M. Magureanu, **F. Bilea**, C. Bradu, D. Hong, Plasma degradation of antibiotic contaminants in water, *19th International Conference On Plasma Physics And Applications & 1st Workshop On Plasma Applications For Smart And Sustainable Agriculture*, 31.08-03.0.2021, Magurele, Bucharest, Lecție invitată - M. Magureanu.
 8. P. Brault, M. Magureanu, C. Bradu, **F. Bilea**, Energy decomposition analysis of organic pollutants in water: a way for finding plasma degradation routes, *19th International Conference On Plasma Physics And Applications & 1st Workshop On Plasma Applications For Smart And Sustainable Agriculture*, 31.08-03.0.2021, Măgurele, București, prezentare orală;
 9. **F. Bilea**, C. Bradu, A.V. Medvedovici, M. Magureanu, The influence of chemical and physical parameters on plasma driven antibiotic degradation, *9th International Conference on Plasma Medicine (ICPM9)*, 27.06-01.07.2022, Utrecht, Olanda, O7 D4A1, prezentare orală;
 10. **F. Bilea**, C. Bradu, A.V. Medvedovici, M. Magureanu, Non-thermal plasma method for the degradation of pollutants from complex mixtures, *12th International Symposium on Non-Thermal/Thermal Plasma for Pollution Control Technology & Sustainable Energy (ISNTP 12)*, 28.08-02.09.2022, Otaru, Hokkaido, Japonia, hibrid, O-22, prezentare orală;
 11. M. Magureanu, **F. Bilea**, C. Bradu, D. Hong, Removal of antibiotic pollutants in water by non-thermal plasma, *20th International Balkan Workshop on Applied Physics and Materials Science*, Constanța, România, 12-15.07.2022, S2 L3. Lecție invitată – M. Magureanu.
 12. P. Brault, O. Aubry, D. Hong, H. Rabat, **F. Bilea**, C. Bradu, M. Magureanu, Insights into plasma degradation of phenol and sulfamethoxazole using ab-initio molecular dynamics, *International Conference on Laser, Plasma and Radiation Science and Technology (ICLPR-ST)*, 07-10.06.2022, Bucuresti, Romania, O-01, prezentare orală;
 13. T. Tian, **F. Bilea**, H. Rabat, D. Hong, M. Magureanu, Implementation and characterization of a plasma reactor dedicated to antibiotics removal, *International Conference on Laser, Plasma and Radiation Science and Technology (ICLPR-ST)*, 07-10.06.2022, București, România, O-27, prezentare orală;
 14. **F. Bilea**, C. Bradu, A.V. Medvedovici, M. Magureanu, The potential of pulsed corona discharge for antibiotic removal, *International Conference on Laser, Plasma and Radiation Science and Technology (ICLPR-ST)*, 07-10.06.2022, București, România, P5.10, poster;
 15. I. Florescu, I. Radu, A. Teodoru, L. Gurau, C. Chireceanu, **F. Bilea**, M. Magureanu, Improvement in agricultural performance of sunflower by plasma treatment of seeds, *12th International Symposium on Non-Thermal/Thermal Plasma for Pollution Control Technology & Sustainable Energy (ISNTP 12)*, 28.08-02.09.2022, Otaru, Hokkaido, Japonia, hibrid, O-25, prezentare orală;
 16. I. Florescu, I. Radu, A. Teodoru, L. Gurau, C. Chireceanu, **F. Bilea**, M. Magureanu, Plasma treatment of sunflower seeds positively affects plant growth and crop yield, *International Conference on Laser, Plasma and Radiation Science and Technology (ICLPR-ST)*, 07-10.06.2022, București, România,

P5.16

17. P. Brault, O. Aubry, D. Hong, H. Rabat, **F. Bilea**, C. Bradu, M. Magureanu, Insights into plasma degradation of organic pollutant molecules using classical and ab-initio molecular dynamics, *25th Europhysics Conference on Atomic and Molecular Physics of Ionized Gases (ESCAMPIG 2022)*, 19-23.07.2022, Paris, Franța.
18. T. Tian, H. Rabat, **F. Bilea**, M. Magureanu, M.A. Antoissi, O. Aubry, D. Hong, Removal of amoxicillin and sulfamethoxazole in water using non-thermal plasma, *17th International Symposium on High Pressure Low Temperature Plasma Chemistry (HAKONE XVII)*, 21-25.08.2022, Olanda.
19. **F. Bilea**, C. Bradu, M. Magureanu, Insight into the degradation products of an organic pollutant during plasma treatment, *1st Romanian-French Workshop on Non-Thermal Plasma*, 31.08-01.09, 2023, Magurele, Romania, prezentare orală; (Premiul pentru cea mai bună comunicare orală)
20. **F. Bilea**, C. Bradu, M. Magureanu, Degradation Of Sulfamethoxazole Using Pulsed Corona Discharge, *21st International Balkan Workshop on Applied Physics and Materials Science*, 11-14.07.2023, Constanța, România.
21. **F. Bilea**, C. Bradu, M. Magureanu, The degradation of amoxicillin using a pulsed corona discharge coupled with ozonation, *XXth International Conference on Plasma Physics and Applications*, 14-16.06.2023, Iași, România. (Premiul pentru cel mai bun poster)
22. **F. Bilea**, C. Bradu, A.V. Medvedovici, M. Magureanu, Exploring the degradation intermediates of sulfamethoxazole during plasma treatment, *18th International Symposium On High Pressure Low Temperature Plasma Chemistry*, 01-06.09.2024, Padova, Italia, O-19, prezentare orală;
23. **F. Bilea**, C. Bradu, M. Magureanu, Plasma degradation of complex mixtures of antibiotics in water, *18th International Symposium on High Pressure Low Temperature Plasma Chemistry*, 01-06.09.2024, Abano Terme, Padova, Italia, O-13; prezentare orală;
24. **F. Bilea**, C. Bradu, M. Magureanu, Plasma treated wastewater for agricultural reuse, *4th Workshop on Plasma Applications for Smart and Sustainable Agriculture*, 20-22.05.2024, Belgrad, Serbia, prezentare orală
25. **F. Bilea**, C. Bradu, M. Cicirma, M. Magureanu, Degradation of sulfonamide antibiotics in water by plasma-ozonation, *2nd International Conference on Laser, Plasma, and Radiation – Science and Technology*, 16-21.06.2024, Delta Dunării, România, P4.27.
26. A.M. Udrea, **F. Bilea**, M. Balas, A. Smarandache, I.R. Andrei, M. A. Badea, M.L. Pascu, A. Staicu, Laser irradiated chlorpromazine: A novel compound in targeted molecular therapy, *2nd International Conference on Laser, Plasma, and Radiation – Science and Technology*, 16-21.06.2024, Delta Dunării, România, P4.24.
27. **F. Bilea**, C. Bradu, M. Magureanu, A.V. Medvedovici, Degradation of multiple organic pollutants from water using a non-thermal plasma-ozonation method, *Sesiunea de Comunicări Științifice Studentești 2022 - Ediția a XVII-a*, 27-28 mai 2022, București, România. (Premiul III la Secțiunea Doctorat).

STAGII/CURSURI/BURSE/MOBILITĂȚI ERASMUS

Tipul de activitate (stagiul/curs/bursă)	Perioada	Instituția unde s-a defășurat stagiul/cursul/bursa)
Stagiu de cercetare	26.11.2018 - 10.12.2018	Universitatea din Liège, Laboratoire d'Ecologie Animale et d'Ecotoxicologie
Curs LC-MS	14-18.05.2018	Curs susținut de Agilrom Scientific la Institutul Național pentru Fizica Laserilor, Plasmei și Radiației
Stagiu de cercetare	01-31.10.2021	Universitatea din Orléans, laboratorul GREMI

DISTINCȚII ONORIFICE ȘI PREMII

1. **Premiul pentru cea mai bună comunicare orală** în cadrul *1st Romanian-French Workshop on Non-Thermal Plasma*, 31.08-01.09, 2023, Magurele, Romania la Sesiunea de Comunicare Științifice Studentești, ediția a 11-a, București, 22;
2. **Premiul pentru cel mai bun poster** în cadrul *XXth International Conference on Plasma Physics and Applications*, 14-16.06.2023, Iași, România;
3. **Premiul III** la secțiunea doctorat în cadrul *Sesiunea de Comunicări Științifice Studentești 2022 - Ediția a XVII-a*, 27-28 mai 2022, București, România.

Data
04.09.2025

Florin Bîlea

