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Experiență și expertiză științifică:

2020 - prezent – Asistent de Cercetare Științifică la INFLPR
- 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

2017 - 2019 – Biochimist la INFLPR
- Evaluarea ecotoxicității apelor contaminate și tratate cu plasmă
- Analiza probelor tratate cu plasma prin cromatografie de lichide (HPLC)

Educație și formare:

2019 - Prezent – Doctorand - Universitatea din București, Facultatea de Chimie, Școala Doctorală în Chimie;

2021 – Stagiu de cercetare – Universitatea din Orléans, laboratorul GREMI

2021 – Cursul "Nanomaterials", proiectul "GREENCAM for tomorrow", Universitatea din București;

2021 – 1st PlAgri Training School on plasma agriculture and food technologies, Cost Action 19110;

2017 - 2019 – M.Sc. - Universitatea din București, Facultatea de Biologie
- Titlul lucrării de dizertație: "Modificarea efectelor ecotoxicologice ale apelor contaminate cu compuși organici ca urmare a aplicării unor metode neconvenționale de tratare"
- Cunoștințe avansate privind biologia moleculară și tehnicile asociate
- Înțelegerea proceselor biochimice normale și patologice în organismele vii;

2018 – Stagiu de cercetare – Universitea din Liège, Laboratoire d'Ecologie Animale et d'Ecotoxicologie
- Evaluarea toxicității apelor folosind teste de toxicitate letală, acuta și cronică;

2018 – curs de operare HPLC-QTOF susținut de Agilrom Scientific la INFLPR

2015 – Stagiu de practică – Universitatea din București, Facultatea de Biologie, Dept. de Ecologie Sistemică și Dezvoltare Sustenabilă: studierea proceselor de oxidare avansată;

2014 - 2017 – B.Sc. - Universitatea din București, Facultatea de Biologie
- Titlul lucrării de licență "Manipularea genetică a drojdiilor în scopul obținerii de compuși cu importanță biotehnologică"
- Cunoștințe avansate de bilogie, chimie și biologie.

Articole publicate în Reviste cotate ISI

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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

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.

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.

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.

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.

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.

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.

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.

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

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

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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;

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;

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;

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;

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;

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;

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.

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;

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;

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;

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.

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;

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;

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;

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;

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

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.

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.

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)

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.

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)

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;

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 Therme, Padova, Italia, O-13; prezentare orală;

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

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.

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.

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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 Studențești 2022 - Ediția a XVII-a*, 27-28 mai 2022, București, România. (Premiul III la Secțiunea Doctorat).