



# ACADEMIC TEACHER PROFESSIONAL EXPERIENCE

## DOCTORAL SCHOOL OF WROCLAW UNIVERSITY OF SCIENCE AND TECHNOLOGY

### 1. Basic information

Name, surname:	Izabela Michalak
Grade / Title:	PhD DSc Eng. Assoc. Prof.
Scientific discipline	<b>inżynieria chemiczna / chemical engineering</b>
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### 2. Publication record

Up to 10 most important papers published over the period of previous 10 years.

No.	Description (authors, publication title, journal / conference, DOI)	Publication year
1.	Olivia Spain, Kevin Hardouin, Nathalie Bourgougnon, Izabela Michalak. Enzyme-assisted extraction of red seaweed <i>Solieria chordalis</i> (C. Agardh) J. Agardh 1842—the starting point for the production of biostimulants of plant growth and biosorbents of metal ions. <i>Biomass Conversion and Biorefinery</i> , 2024, 14, 1621–1635, doi: 10.1007/s13399-022-02456-7.	2024
2.	Natalia Niedzbała, Ewa Lorenc-Grabowska, Piotr Rutkowski, Jacek Chęcmanowski, Anna Szymczycha-Madeja, Maja Wełna, Izabela Michalak. Potential use of <i>Ulva intestinalis</i> -derived biochar adsorbing phosphate ions in the cultivation of winter wheat <i>Triticum aestivum</i> . <i>Bioresources and Bioprocessing</i> , 2024, 11:27, doi:10.1186/s40643-024-00741-z.	2024
3.	Karolina Krautforst, Anna Szymczycha-Madeja, Maja Wełna, Izabela Michalak. Brown seaweed – <i>Fucus vesiculosus</i> as a feedstock for agriculture and environment protection. <i>Scientific Reports</i> , 2023, 13, 10065, doi:10.1038/s41598-023-36881-z.	2023
4.	Choulot Manon, Izabela Michalak, Lun Jing, Anna Szymczycha-Madeja, Maja Wełna, Nathalie Bourgougnon, Cécile Le Guillard. The Enzyme-Assisted Extraction of compounds of interest in agriculture: Case study of the red seaweed <i>Solieria chordalis</i> (C. Agardh) J. Agardh. <i>Algal Research</i> , 2023, 75, 103239, doi:10.1016/j.algal.2023.103239.	2023
5.	Katarzyna Godlewska, Paweł Pacyga, Izabela Michalak, Anita Biesiada, Antoni Szumny, Natalia Pachura, Urszula Piszcz. Systematic investigation of the effects of seven plant extracts on the physiological parameters, yield, and nutritional quality of radish ( <i>Raphanus sativus</i> var. <i>sativus</i> ). <i>Frontiers in Plant Science</i> , 2021, 12, 651152, doi: 10.3389/fpls.2021.651152.	2021
6.	Izabela Michalak, Sylwia Baśladyńska, Malwina Mularczyk, Krzysztof Marycz. Investigation on the potential sorbents – Aluminosilicate, microalga and	2021



	grass hay as feed additives. <i>Environmental Technology &amp; Innovation</i> , 2021, 24, 101816, <a href="https://doi.org/10.1016/j.eti.2021.101816">https://doi.org/10.1016/j.eti.2021.101816</a> .	
7.	Izabela Michalak, Sylwia Baśladyńska, Jakub Mokrzycki, Piotr Rutkowski. Biochar from a freshwater macroalga as a potential biosorbent for wastewater treatment. <i>Water</i> , 2019, 11, 1390; doi:10.3390/w11071390.	2019
8.	Izabela Michalak, Małgorzata Mironiuk, Krzysztof Marycz. A comprehensive analysis of biosorption of metal ions by macroalgae using ICP-OES, SEM-EDX and FTIR techniques. <i>PlosOne</i> , 2018, 13(10): e0205590, <a href="https://doi.org/10.1371/journal.pone.0205590">https://doi.org/10.1371/journal.pone.0205590</a> .	2018
9.	Małgorzata Popko, Izabela Michalak, Radosław Wilk, Mateusz Gramza, Katarzyna Chojnacka, Henryk Górecki. Effect of the new plant growth biostimulants based on amino acids on yield and grain quality of winter wheat. <i>Molecules</i> , 2018, 23, 470; doi:10.3390/molecules23020470.	2018
10.	Izabela Michalak, Katarzyna Chojnacka, Agnieszka Dmytryk, Radosław Wilk, Mateusz Gramza, Edward Rój. Evaluation of supercritical extracts of algae as biostimulants of plant growth in field trials. <i>Frontiers in Plant Science</i> , 2016, 7:1591, doi: 10.3389/fpls.2016.01591.	2016

### 3. Projects and grants

List of the most important 5 projects/grants with basic description including: title, source(s) of funding, name of the call, role in the project (e.g., principal investigator).

1.	Role in the project (e.g., principal investigator, work package leader, etc.)	Leader/principal investigator
	Project title	Biomass valorization to enhance efficiency of toxic metals bioremediation from military and industry areas
	Sources of funding	Organisation for the Prohibition of Chemical Weapons (OPCW)
	Name of the call	Capacity Building/Research Project Support Programme
	Implementation period	31.12.2021–31.12.2024
2.	Role in the project (e.g., principal investigator, work package leader, etc.)	Leader/principal investigator
	Project title	Eco-friendly technologies for the management of seaweed biomass for products useful for sustainable agriculture and biosorbents used for the removal of heavy metal ions from the environment
	Sources of funding	National Science Centre (NCN)
	Name of the call	OPUS
	Implementation period	18.02.2020–17.02.2024
3.	Role in the project (e.g., principal investigator, work package leader, etc.)	Leader/principal investigator
	Project title	Valorization of the waste macroalgae biomass into bio-products useful for sustainable agriculture and environment
	Sources of funding	Polish National Agency for Academic Exchange (NAWA)
	Name of the call	CALL FOR JOINT PROJECT PROPOSALS, PROGRAMME CANALETTO, BILATERAL EXCHANGE OF SCIENTISTS
	Implementation period	01.01.2022–31.12.2023



4.	Role in the project (e.g., principal investigator, work package leader, etc.)	Leader/principal investigator
	Project title	The effect of bioactive algae enriched by biosorption in the certain minerals such as Cr(III), Mg(II) and Mn(II) on the status of glucose in the course of metabolic syndrome horses. Evaluation <i>in vitro</i> and <i>in vivo</i>
	Sources of funding	National Science Centre (NCN)
	Name of the call	SONATA-BIS
	Implementation period	15.06.2016- 14.06.2021
5.	Role in the project (e.g., principal investigator, work package leader, etc.)	Leader/principal investigator
	Project title	Development of innovative bio-products based on biomass with plant growth stimulating properties
	Sources of funding	Innovation voucher (Bon na Innowacje), co-financed by the European Regional Development Fund under RPO WD 2014-2020 as part of the Regional Operational Programme for Lower Silesia 2014-2020. Project in cooperation with enterprise – Global Agro Innovations sp. z o.o. (Poland)
	Name of the call	Action 1.2: Innovative enterprises
	Implementation period	01.10.2022–15.03.2023

#### 4. International experience

*Brief description of international cooperation and experience (e.g., research stays, cooperation with foreign entities, coordination or participation in international projects or programmes, keynote speeches and presentations delivered at renowned international conferences, visiting professor stays, invited lectures).*

No.	Description	Year(s)
1.	<b>Erasmus+ KA107</b> “Staff Mobility for Teaching” – University of Bihać, Bihać Bosnia and Herzegovina, 02–08.07.2023	2023
2.	<b>Erasmus+ KA107</b> “Staff Mobility for Teaching” – Kathmandu University, School of Science, Department of Biotechnology, Dhulikhel, Kavre, Nepal, 9–13.09.2019	2019
3.	<b>Erasmus+ KA107</b> “Staff Mobility for Teaching” – University of Elbasan “Aleksandër Xhuvani”, Elbasan, Albania, 6–10.05.2019	2019
4	<b>Erasmus+ KA107</b> “Staff Mobility for Teaching” – The University of Newcastle, Faculty of Science, School of Environmental and Life Sciences, Newcastle, NSW, Australia, 26–30.11.2018	2018
5	<b>Erasmus+ KA107</b> “Staff Mobility for Teaching” – Džemal Bijedić University of Mostar, Agro Mediterranean Faculty, Bosnia and Herzegovina, 23–27.10.2017	2017
6	<b>Erasmus+ KA103</b> “Staff Mobility for Teaching” – Instituto Politécnico de Coimbra, Escola Superior Agrária de Coimbra, Coimbra, Portugal, 7–13.11.2021	2021
7	<b>Erasmus+ KA103</b> “Staff Mobility for Teaching” – Gheorghe Asachi University of Iasi, “Cristofor Simionescu” Faculty of Chemical Engineering and Environmental Protection, Department of Environmental Engineering and Management, Iasi, Romania, 13–19.10.2019	2019



8	<b>Short-term scientific internship</b> – Istituto di Scienze e Tecnologie Chimiche „Giulio Natta”, CNR, Milan, Italy, Programme CANALETTO, Polish National Agency for Academic Exchange (NAWA), 26.06.2022–08.07.2022 and 05–16.06.2023	2022 and 2023
9	<b>Short-term scientific internship</b> – University of Southern Brittany, Laboratory of Marine Biotechnology and Chemistry, Vannes, Lorient, Hoedic, France, 12–22.09.2018	2018
10	<b>Short-term scientific internship</b> – University of Algarve, Faculty of Sciences and Technology, Faro, Portugal, 5–13.11.2016	2016
11	<b>Conference: Invited speaker, oral presentation</b> – 5th India International Seaweed Expo and Conference, New Delhi, India, 19–20.03.2024	2024
12	<b>Conference: Invited speaker, oral presentation</b> – The 2nd Biostimulants Latam & Redagrícola Biocontrol Congress, Lima, Peru, 28–29.09.2022	2022
13	<b>Conference: Invited speaker, plenary lecture, oral presentation</b> – The Biostimulants Latam 2021 Congress. Biostimulants: Key for sustainable agricultural intensification, Chile, on-line, 9–11.06.2021	2021
14	<b>Conference: Invited speaker, oral presentation, session chairman</b> – 4th International Conference on Agricultural and Biological Sciences (ABS 2018), Hangzhou, China, 26–29.06.2018	2018
15	<b>Conference: Invited speaker, oral presentation</b> – 9th Annual World Congress of Industrial Biotechnology, Seoul, South Korea, 16–18.03.2016	2016

## 5. Experience in teaching doctoral students

*Brief description of experience in teaching doctoral students (e.g., courses in doctoral schools and PhD studies, summer/winter schools for doctoral students, tutorials, trainings, etc.).*

No.	Description	Year(s)
1.	Recent research trends in chemical engineering (one lecture within the course)	2022/2023 2023/2024
2.	Statistical analysis in practice (laboratory)	2023/2024

## 6. List of supervised doctoral students

*List of all supervised doctoral students that defended the PhD including: name of the student, dissertation title, year of awarding PhD.*

No.	Name, surname	Dissertation title	Year of awarding PhD
1.	Katarzyna Godlewska	The impact of botanical extracts on the growth, yielding and chemical composition of selected vegetable species (Auxiliary Supervisor; Supervisor Prof. Anita Biesiada, Wrocław University of Environmental and Life Sciences, Wrocław, Poland)	2022
2.	Magdalena Łabowska	Research on the implementation of selected hydrogel biopolymers in the technology of bioplotting for pharmaceutical applications (Co-supervision with Prof. Jerzy Detyna and Dr. Patrycja Szymczyk-Ziółkowska, Wrocław)	2022



		University of Science and Technology, Wrocław, Poland)	
3.	Manon Choulot	Enzyme-Assisted Extraction: a sustainable approach to develop seaweed-based products for agriculture (Co-supervision with Prof. Nathalie Bourgougnon – Université Bretagne Sud, UBS, Vannes, France and Dr. Cécile Le Guillard – Agro Innovation International, The Centre Mondial de l’Innovation Roullier, Saint-Malo, France), Co-tutelle agreement	2023; Defense at UBS
4	Katarzyna Dziergowska	Elaboration of environmentally safe methods of stimulation of seeds germination and plant growth (Co-supervision with Prof. Jerzy Detyna, Wrocław University of Science and Technology, Wrocław, Poland)	2024

## 7. Prizes and awards

*The most important national and international prizes and awards related to research, development and teaching activities.*

No.	Description	Year
1.	Rector Award in recognition of a distinctive contribution to the activities of the University, Wrocław University of Science and Technology, Wrocław, Poland	2022, 2019, 2017
2.	Bronze medal for long-term work at Wrocław University of Science and Technology, Wrocław, Poland	2020
3.	Scholarship from the Minister of Science and Higher Education for outstanding young scientists	2017
4.	The Certificate for Excellent Papers in session – Agricultural Informatics and Animal Agriculture during 3rd International Conference on Biotechnology and Agriculture Engineering (ICBAE 2017), Osaka, Japan	2017
5	I–place in the Competition for Young Scientists at the Second Scientific Conference – Biostimulants in modern crop production, Warsaw University of Life Sciences – SGGW, Warsaw, Poland	2015
6	Best Poster Award WasteEng 2014 sponsored by Springer and Waste and Biomass Valorization, 5th International Conference on Engineering for Waste and Biomass Valorisation, Rio de Janeiro, Brazil	2014
7	The award for the Prize of Aleksander Zamojski in the Polish Chemical Society competition for the best doctoral thesis in 2010	2011
8	Rector of Wrocław University of Technology Award for PhD thesis	2010

## 8. Other significant achievements

*Information on other significant achievements related to research, development and teaching activities.*

1. World’s TOP 2% Scientists (according to the Stanford University) in 2020, 2021 and 2022;
2. Member of first edition of *Academia Professorum Iuniorum* – Internal project of the Wrocław University of Science and Technology, January 2024–December 2025

