

<b>Name and surname:</b>	<b>Filip Boratyński</b>
Academic Degree	dr hab. inż. (DSc.)
Institute/Department	Department of Chemistry
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UPWr Base of Knowledge - link	<a href="https://bazawiedzy.upwr.edu.pl/info/seam?id=UPWr87f8e85cba4849a084d427972c2a675d&amp;affil=&amp;lang=pl">https://bazawiedzy.upwr.edu.pl/info/seam?id=UPWr87f8e85cba4849a084d427972c2a675d&amp;affil=&amp;lang=pl</a>
Researchgate:	<a href="https://www.researchgate.net/profile/Filip-Boratynski">https://www.researchgate.net/profile/Filip-Boratynski</a>
Personal website / Working group website:	
Projects in last 5 years (chronological; with distinction into PI (kierownik) and RF (wykonawca)):	<ol style="list-style-type: none"> <li>1. Research project financed by NAWA under Bekker programme nr PPN/BEK/2018/1/00181 „Development of efficient and sustainable enzymatic methods for the oxidative cleavage of alkenes”, 2019-2020, project manager.</li> <li>2. Grant for organization of international consortium under Horyzont 2020 „Investigation, development and application of biocatalyst for food and articles of daily use production”, Support program „International Cooperation for teaching and research in the region mildest and south of Europe (MOEL-SOEL), 2016 - 2017, project contractor.</li> <li>3. Research project under KNOW „Development of rapeseed cake as a medium for microorganisms performing biotransformation of lactones and lactams”, 2016 - 2017, project manager.</li> </ol>
7) Do you plan to engage support of second supervisor or auxiliary supervisor?	YES
	Auxiliary supervisor
Name and surname	Enriqueta Martinez Rojas
Academic Degree	dr (Dr.)
Faculty, Institute/Department	Berlin Institute of Technology (TU-Berlin), Institute of Food Technology and Food Chemistry
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ORCID:	0000-0001-8085-2622
UPWr Base of Knowledge - link or most important publications from last 3 year (JCR) / patents from last 3 years (maximum 5):	<ol style="list-style-type: none"> <li>1. Martinez-Rojas, E., H. Gadhoumib, E. Fuentes and S. Mann. 2021. Stability of lycopene during the beer fermentation process. <i>Biotechnology and Biotechnological Equipment</i>. Vol. 35 S1. 2. Martinez-Rojas, E., Hassan, F., Boratyński, F., Olejniczak, T., Steffens, K. G. and Garbe, L. A. 2018. Antifungal activity of phthalide lactones on plant pathogenic fungi and yeast. <i>Journal of Biotechnology</i>, 280:S28 3. Martinez-Rojas, E., Senz, M. 2018. MEZCAL UND TEQUILA. <i>Mexikanischer Göttertrank</i>. Kleinbrennerei Fachzeitschrift, Verlag Eugen Ulmer. 4. Rupprecht, L., Martinez-Rojas, E., Glass, S., Garbe, L.-A. 2017. Fructans juice as fermentable raw material to improve a beverage with prebiotic and probiotic properties. <i>Journal of Biotechnology</i>, 256: S28</li> </ol>
Researchgate:	<a href="https://www.researchgate.net/profile/E_Martinez-Rojas">https://www.researchgate.net/profile/E_Martinez-Rojas</a>
Personal website / Working group website:	
Projects in last 5 years (chronological; with distinction into PI (kierownik) and RF (wykonawca)):	<ol style="list-style-type: none"> <li>1. Production of antioxidant compound from beer waste, and its neuroprotective potential in transgenic mice for the prevention and/ or treatment of Alzheimer's disease. Cooperation partner: CINVESTAV México. Responsible for the project: Prof. Dr. Claudia Perez Cruz/Dr. Martinez-Rojas. Funded by the Research Council for Health and Beer of Mexico A.C., 01.01.2017 - 01.12.2019.</li> <li>2. Project consortium for biocatalytic processes and their transfer to industrial products (BioTransNB). Cooperation partners: University of Environmental and Life Sciences Wrocław, Poland. Responsible for the project: Prof. Dr. Garbe/Dr. Martinez-Rojas. Funded by BMFB: Funding programme "International cooperation in education and research, Central-Eastern and South-Eastern Europe Region (MOEL-SOEL announcement), 01.11.2016 - 31.10.2017.</li> </ol>
<b>Research topic and funding</b>	
1) PhD topic:	Biocatalytic approach to produce flavour compounds from agroindustrial side-streams
2) Research discipline in Doctoral School	Biological Sciences
3) Short description of the research problem to be solved in the PhD (minimum 1000 characters):	<p>In recent years, particular attention has been paid to exploiting food byproducts and wastes, among them oilseed cakes and brewery spent grain. These residues are abundant in carbohydrates, proteins, fats, and cellulose, therefore are excellent media for microorganisms to metabolize available nutrients in order to produce various enzymes. The aim of the PhD study will be showing the possibility of using low-cost agroindustrial residues as a growth medium for microorganisms to produce flavour compounds. One of the most intensively studied biotransformation is conversion of ferulic acid to vanillin, the most important and widely used flavor in the food industry, which is responsible for the characteristic aroma of vanilla bean extracts. The high demand for natural and environment-friendly products has led to the production of vanillin by microbial transformation from natural substrates like ferulic acid. Considering the wide range of applications of vanillin in the food industry as well as the economic benefits owing to the sustainable management of agricultural byproducts, this approach should gain increasing attention. Solid-state fermentation (SSF) is defined as a technique for growing microorganisms on moistened solid substrates. It has emerged as a technology for the production of fuel, food, pharmaceutical products and industrial chemicals. SSF is applied in bioprocesses such as bioremediation, bioleaching, biobeneficiation, biopulping. Besides, SSF is more efficient and more sustainable than submerged fermentation (SmF). Since growth media account for around 40% of the total cost to produce the enzyme, inexpensive raw materials such as agricultural byproducts are more economical. Therefore, microbial SSF on renewable agroindustrial residues is ideal to efficiently and inexpensively produce biocatalysts.</p>
4) Professional skills for PhD candidate (e.g. master program, specializations, softwares, language, analytical techniques, minimum 500 characters):	The candidate is expected to have a good English skills, readiness to do foreign internships, and a large commitment to do research. Ideally, if the candidate holds a completed biotechnology or related study.
5) Details of the project to support PhD research	
a) Project title:	0
b) Agreement number:	0
c) Number of months in the project to support PhD (in months; starting from 1st of October 2021):	0
6) Project website:	