

Curriculum Vitae

Ricarda Kriechbaum

Born: 02.09.1993 – Linz, Austria
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PROFESSIONAL EXPERIENCE

TU Wien

04/2024 – to date

Project Assistant

- At the IBD Group of Prof. Oliver Spadiut
- Supervision of BSc and MSc Students
- Establishing an analytical toolbox for FFG project partners to determine wastewater composition in sustainable aquaculture
- Lecture: Microalgae and Cyanobacteria in “Biology and Genetics of Industrial Microorganisms”

Cooperations:

- **FFG Project CICA** – Chlorella in Circular Aquaculture with Blue Planet Ecosystems GmbH

TU Wien

03/2020 – 03/2024

University Assistant

- At the IBD Group of Prof. Oliver Spadiut
- Establishing standard operating procedures for microalgal and cyanobacterial growth on waste streams
- Sustainable extraction of bioplastics from cyanobacterial biomass
- Supervision of BSc and MSc Students
- Tutoring of lab courses “Biochemistry and Biotechnology” and “Bioprocess Technology and Bioanalytics”
- Lecture: Microalgae and Cyanobacteria in “Biology and Genetics of Industrial Microorganisms”

Cooperations:

- **BDI Biolife Sciences:** Lab evolution of *Haematococcus pluvialis* by cell sorting
- **Plastocyan ATCZ 260** - Funded Project by Interreg (European Union): Establishing a sustainable extraction process for PHB in *Synechocystis* sp.

BOKU

09/2018 – 02/2020

Scientific Employee at the Department of Applied Genetics and Cell Biology

- PI: Dr. Alexandra Castilho
- Plant Glycoengineering
- Transient expression of recombinant proteins in *Nicotiana benthamiana*
- Identification and characterization of plant native β -galactosidases
- RNA interference to reduce β -galactosidase activity *in planta*

BOKU

10/2016 – 06/2018

Student Employee at the Department of Chemistry

- Tutor: Lab Course Analytical Chemistry
- Tutor: Lab Course Instrumental, Analytical and Physical Chemistry
- Tutor: Lab Course Introduction to Chemistry

- analyse BioLab GmbH** **06/2017**
Summer Intern
- Bacteriology and Microbiology
 - Preparation and testing of urological, gynecological and gastroenterological samples
- Linz AG Kläranlage** **09/2016**
Summer Intern
- Taking samples of clarifiers in sewage treatment plant
 - Analysis of municipal wastewaters (BOD, COD, TOC, N_{total}, NH₄N, P_{total})
- Erema GmbH** **07/2015**
Summer Intern
- Determining chemical and material properties of recycled plastics samples
 - Testing quality attributes of plastics
- Almi GesmbH & Co KG** **09/2014**
Summer Intern
- Product development
 - Analytics of food components (vitamins, lipids, carbohydrates)

EDUCATION

- TU Wien** **03/2020 – 01/2025**
PhD in Technical Chemistry
- Dissertation: Wastestream Valorization: Upcycling of municipal and industrial effluents with microalgae and cyanobacteria
 - Supervision: Prof. Oliver Spadiut
- BOKU** **10/2016 – 10/2019**
MSc in Biotechnology
- Master Thesis: Identification and characterization of β -galactosidases acting on N-glycans in *Nicotiana benthamiana*
 - Supervision: Dr. Alexandra Castilho and Prof. Richard Strasser
 - Graduated with distinction
- BOKU** **10/2012 – 06/2016**
BSc in Food- and Biotechnology
- Bachelor Thesis: Bispecific HIV Antibodies
 - Supervisor: Prof. Florian Rüker
- BG/BRG Khevenhüllerstraße** **2003 - 2011**
Austrian State Exam
- 2008: Student Exchange at EC Glass Highschool in Lynchburg VA (USA)

SKILLS

Languages

German (native), English (fluent)

Software

MS Office, Origin, Chromeleon, MODDE, Snapgene, Eve, Adobe Photoshop, Adobe Lightroom

Techniques

HPLC, IC, GCMS, ICPOES, Molecular Cloning, Western Blot, Lectin Blot, Enzyme Kinetics, Bioreactor Cultivations (*E. coli*, Microalgae, Cyanobacteria), Confocal Microscopy, Flow Cytometry, Real time qPCR, PCR, SDS PAGE, Extractions (Proteins, Amino Acids, Fatty Acids, Pigments, Carbohydrates, PHB)

PUBLICATIONS

Kriechbaum R., Kronlachner L., Limbeck A., Kopp J., Spadiut O.; Towards a circular economy – repurposing side streams from the potato processing industry by *Chlorella vulgaris*. *Journal of Environmental Management* (2024). DOI: <https://doi.org/10.1016/j.jenvman.2024.121796>

Kriechbaum R., Spadiut O., Kopp J.; Bioconversion of Furanic Compounds by *Chlorella vulgaris* – Unveiling Biotechnological Potentials. *Microorganisms* (2024). DOI: <https://doi.org/10.3390/microorganisms12061222>

Grivalský T, Lakatos GE, Štěrbová K, Manoel JAC, Beloša R, Divoká P, Kopp J, **Kriechbaum R**, Spadiut O, Zwirzitz A, Trenzinger K, Masojídek J (2024) Poly- β -hydroxybutyrate production by *Synechocystis* MT_a24 in a raceway pond using urban wastewater. *Applied Microbiology and Biotechnology* 108 (1):1-12. doi:10.1007/s00253-023-12924-3

Kriechbaum R, Loaiza SS, Friedl A, Spadiut O, Kopp J (2023) Utilizing straw-derived hemicellulosic hydrolysates by *Chlorella vulgaris*: Contributing to a biorefinery approach. *Journal of Applied Phycology*. doi:10.1007/s10811-023-03082-0

Doppler P, **Kriechbaum R**, Spadiut O (2022) High-throughput characterization of the filamentous cyanobacterium *Anabaena* sp. using flow cytometry. *J Microbiol Methods* 199:106510. doi:10.1016/j.mimet.2022.106510

Doppler P, Gasser C, **Kriechbaum R**, Ferizi A, Spadiut O (2021) In Situ Quantification of Polyhydroxybutyrate in Photobioreactor Cultivations of *Synechocystis* sp. Using an Ultrasound-Enhanced ATR-FTIR Spectroscopy Probe. *Bioengineering* 8 (9):129

Doppler P, **Kriechbaum R**, Käfer M, Kopp J, Remias D, Spadiut O (2022) *Coelastrella terrestris* for Adonixanthin Production: Physiological Characterization and Evaluation of Secondary Carotenoid Productivity. *Marine Drugs* 20 (3):175

Doppler P, **Kriechbaum R**, Singer B, Spadiut O (2021) Make microalgal cultures axenic again – a fast and simple workflow utilizing fluorescence-activated cell sorting. *Journal of Microbiological Methods* 186:106256. doi:<https://doi.org/10.1016/j.mimet.2021.106256>

Kriechbaum R, Ziaee E, Grünwald-Gruber C, Buscaill P, van der Hoorn RAL, Castilho A (2020) BGAL1 depletion boosts the level of β -galactosylation of N- and O-glycans in *N. benthamiana*. *Plant Biotechnol J* 18 (7):1537-1549. doi:10.1111/pbi.13316

CONFERENCES AND WORKSHOPS

AlgaEurope – Athens, Greece

12/2024

Poster Presentation: „*Chlorella* in Circular Aquaculture – Quantification and Prediction of Analytes in Fish Wastewater”

Workshop Kreislauf Alge – Vom Abwasser zur Ressource

06/2024

Oral Presentation and Co-Host

AlgaEurope – Prague, Czechia

12/2023

Poster Presentation: *“Repurposing side streams from the potato processing industry by Chlorella vulgaris”*

AlgaEurope – Rome, Italy

12/2022

Oral Presentation: *“Potential of Lignocellulosic Waste as Substrate for Microalgal Cultivation”*

Poster Presentation: *“Novel Tools and Strategies for the Production of Bioplastic in Cyanobacteria”*

Netzwerk Algen – Vienna, Austria

09/2022

Oral Presentation: *“Waste-to-Value: Das Potential von Lebensmittelabfällen für die Mikroalgenkultivierung”*

Elevating Nordic Algal Biotechnology – Turku, Finland

06/2022

Oral Presentation: *“Lignocellulosic waste stream hydrolysis: Formation of inhibitors and dealing with them during microalgal cultivation”*

BioProScale – Berlin, Germany

03/2022

Poster Presentation: *“Waste-to-Value: Cultivating Chlorella vulgaris in hemicellulosic hydrolysates from wheat straw”*

DACH Algen Summit – Vienna, Austria

10/2021

Poster Presentation: *„In Situ Quantification of Polyhydroxybutyrate in Photobioreactor Cultivations of Synechocystis sp. using an Ultrasound-Enhanced ATF-FTIR Spectroscopy Probe”*