

## **Dr. Khald Blau**

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### **Research activities:**

- Ecology and diversity of antibiotic resistance genes, mobile genetic elements, and horizontal gene spread
- Effects of veterinary antibiotics on the diversity and transferability of antibiotic resistance genes in agricultural soils and the plant associated microbiome
- Structure, diversity and ecology of bacterial communities in soil, rhizosphere and phyllosphere
- Detection and characterization of antibiotic resistant bacteria and human pathogens such as coliform bacteria (i.e., *Escherichia coli*, *Klebsiella pneumoniae*, *Enterobacter spp.*, and *Citrobacter spp.*) and their transferable resistome in treated wastewater and fresh produce.
- Prevalence, diversity and molecular characteristic of *Clostridioides (Clostridium) difficile* in diverse environmental sources (i.e., animal manure, sewage, sewage sludge, surface water)

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### **Professional career & education:**

- Since November 2020, PostDoc at the university of applied sciences Emden/ Leer, Faculty of Technology, Microbiology-Biotechnology, Emden, project “Survival and pathogenicity of *Clostridioides (Clostridium) difficile* in sewage, sewage sludge, surface water, animal manure, fodder, crops and silage-treatment requirements to minimize health risks (SUPER safe)”
- January 2019 - July 2020: Researcher at the Julius Institute (JKI), Federal Research Centre for Cultivated Plants, Institute for Epidemiology and Pathogen Diagnostics, Braunschweig, BMBF-funded project "Use hydroponic systems for resource efficient agricultural water reuse" (O2WAW1402)
- 2014-2019: PhD (Microbiology), Technical University Braunschweig, Faculty of Life Science, Department of Biology, Braunschweig, Germany “the transferable resistome in the agro-ecosystem”
- 2010-2013: Assistant lecturer at Gharian University, Faculty of Sciences, Botany Department, Gharian, Libya

- 2004-2009: MSc. (Microbiology), Mergheb University, Faculty of Sciences, Biology Department, Al-Khoms, Libya “production of single cell protein from cheese whey by the yeast strain *Kluyveromyces marxianus* alone or with *Saccharomyces cerevisiae*”

Publications at ORCID: <https://orcid.org/0000-0002-4955-7390>.

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**Publications:**

Savin M, Bierbaum G, **Blau K**, Parcina M, Sib E, Smalla K, Schmithausen R, Heinemann C, Hammerl JA & Kreyenschmidt J (2020): Colistin-resistant *Enterobacteriaceae* isolated from process waters and wastewater from German poultry and pig slaughterhouses. *Frontiers in microbiology* 11: 2699.

Shintani M, Nour E, Elsayed TS, **Blau K**, Wall I, Jeckalke S, Spröer C, Bunk B, Overmann J & Smalla K (2020): Plant species-dependent increased abundance and diversity of IncP-1 plasmids in the rhizosphere: New insights into their role and ecology. *Frontiers in microbiology*. doi: 10.3389/fmicb.2020.590776.

**Blau K**, Jacquiod S, Sørensen SJ, Su J-Q, Zhu Y-G, Smalla K, Jechalke S (2019): Manure and doxycycline affect the bacterial community and its resistome in lettuce rhizosphere and bulk soil. *Front Microbiol* 10: 725.

González-Plaza JJ, **Blau K**, Milaković M, Jurina T, Smalla K, Udiković-Kolić N (2019): Antibiotic-manufacturing sites are hot-spots for the release and spread of antibiotic resistance genes and mobile genetic elements in receiving aquatic environments. *Environment international* 130: 104735.

**Blau K**, Jechalke S, Smalla K (2019): Detection, isolation, and characterization of plasmids in the environment. *Methods Molecular Biology*, Vol.2075, Fernando de la Cruz (Eds): Horizontal Gene Transfer, 978-1-4939-9876-0, 420000\_1\_En.

Reid CJ, **Blau K**, Jechalke S, Smalla K, Djordjevic SP (2019): Whole genome sequencing of *Escherichia coli* from store bought produce. *Front Microbiol*. doi: 10.3389/fmicb.2019.03050.

**Blau, K.**, Bettermann, A., Jechalke, S., Fornefeld, E., Vanrobaeys, Y., Stalder, T., Top, E., Smalla, K (2018): The transferable resistome of produce. *mBio*. <https://doi.org/10.1101/350629>.

Schierstaedt, J., Bziuk, N., Kuzmanovic, N., **Blau, K.**, Smalla, K., Jechalke, S. (2018): Role of plasmids in plant bacteria interactions. *Curr Issues Mol Biol*. 30:17-38. doi: 10.21775/cimb.030.017.

**Blau, K.**, Casadevall, L., Wolters, B., Van den Meersche, T., Kreuzig, R., Smalla, K., Jechalke, S. (2017): Soil texture-depending effects of doxycycline and streptomycin applied with manure on the bacterial community composition and resistome. *FEMS Microbiology Ecology* doi: 10.1093/femsec/fix14.