

Personal details

Name: Peng Peng
Gender: Male
Date and place of birth: 29 October 1986, Jinan, China
Nationality: Chinese

Education

- 2014.2-2019.9, PhD, Laboratory of Microbiology, Wageningen University, Netherlands
- 2009.9-2012.6, MSc, Environmental Science and Engineering, Shandong University, China
- 2005.9-2009.6, BSc, Water Supply and Sewage Engineering, Shandong Jianzhu University, China

Work/research experience

- 2018.2-2019.9, guest researcher at Laboratory of Microbiology, Wageningen University, Netherlands
- 2012.10-2013.4, guest researcher at Microbial Physiology Group, Groningen Biomolecular Sciences and Biotechnology Institute (GBB), University of Groningen, Netherlands

Brief summary of research

Research at Wageningen University focused on anaerobic microbial (co)metabolization of (in)organic halogen compounds. The main aim of the research was to understand the metabolism, physiology, genomics, genetics, proteomics, biochemistry and ecology of microbes able to (co)metabolize halogen compounds. The microbes studied include bacterial pure cultures (e.g. *Pseudomonas* sp. and organohalide-respiring *Desulfoluna* spp.) and microbial consortia isolated/derived from contaminated and pristine environments.

Research at University of Groningen focused on biochemical study of enzymes responsible for microbial estrogens degradation by *Rhodococcus equi*. Main work included heterologous expression of the estrogen oxygenase genes from *R. equi*, following with purification and *in vitro* dynamic analysis of the oxygenase enzymes.

Master research at Shandong University was aerobic microbial degradation of polycyclic aromatic hydrocarbons (PAHs) and dioxin. Main work included i) isolation and characterization of a dibenzofuran degrader *Rhodococcus* sp. from crude oil polluted soil, ii) genetic study of the responsible dioxygenase genes for initial oxygenation (ring-cleavage reaction) of dibenzofuran by the *Rhodococcus* sp.

Skills

- Enrichment, isolation and cultivation of aerobes and anaerobes from environmental samples
- GC, HPLC, photometric and isotope analysis of microbial metabolic products including organohalogenes, PAHs, organic acids, gases (O₂, NO, N₂O, CO, CO₂, CH₄, H₂S...), ions (ClO₄⁻, ClO₃⁻, Cl⁻, SO₄²⁻, NO₃⁻...)
- DNA, RNA extraction, nucleic acid electrophoresis (conventional one and pulsed-field gel electrophoresis (PFGE)), southern blot, PCR, quantitative PCR (qPCR), quantitative reverse transcription PCR (RT-qPCR)
- Plasmid construction for heterologous gene expression in host microbes, gene expression and protein purification, SDS-PAGE, enzyme assay
- 16S rRNA gene based microbial community analysis

- (Meta)genomic and proteomic analyses.
- Basic knowledge and skills on (meta)genome raw data assembly and annotation.

Publications

Peng, P. (2019). Microbial transformation of organic and inorganic halogen compounds (PhD thesis). Wageningen: Wageningen University. <https://doi.org/10.18174/494863>

Peng P, Goris T, Lu Y, Nijssse B, Burrichter A, Schleheck D, Koehorst JJ, Liu J, Sipkema D, Sinninghe-Damste JS, Stams AJM, Häggblom MM, Smidt H, Atashgahi S (2020). Organohalide-respiring *Desulfoluna* species isolated from marine environments. *The ISME Journal*, 14, 815-827

Peng P, Lu Y, Bosma TNP, Nijenhuis I, Nijssse B, Shetty SA, Ruecker A, Umanetc A, Ramiro-Garcia J, Kappler A, Sipkema D, Smidt H, Atashgahi S (2019). Metagenomic- and cultivation-based exploration of anaerobic chloroform biotransformation in hypersaline sediments as natural source of chloromethanes. *bioRxiv*, 858480. *Under review*

Peng P, Schneidewind U, Haest PJ, Bosma TNP, Danko AS, Smidt H, Atashgahi S (2019). Reductive dechlorination of 1,2-dichloroethane in the presence of chloroethenes and 1,2-dichloropropane as co-contaminants. *Applied Microbiology and Biotechnology*, 103(16), 6837-6849.

Peng P, Zheng Y, Koehorst JJ, Schaap PJ, Stams AJM, Smidt H, Atashgahi S (2017). Concurrent haloalkanoate degradation and chlorate reduction by *Pseudomonas chloritidismutans* AW-1^T. *Applied and Environmental Microbiology*, 83(12), e00325-17.

Peng P, Yang H, Jia RB, Li L (2013). Biodegradation of dioxin by a newly isolated *Rhodococcus* sp. with the involvement of self-transmissible plasmids. *Applied Microbiology and Biotechnology*, 97(12), 5585-5595.

Atashgahi S, Lu Y, Ramiro-Garcia J, **Peng P**, Maphosa F, Sipkema D, Smidt H, Springael D (2017). Geochemical parameters and reductive dechlorination determine aerobic cometabolic vs aerobic metabolic vinyl chloride biodegradation at oxic/anoxic interface of hyperheic zones. *Environmental Science & Technology*, 51(3), 1626-1634.

Sun J, Qiu Y, Ding P, **Peng P**, Yang H, Li L (2017). Conjugative transfer of dioxin-catabolic megaplasmids and bioaugmentation prospects of a *Rhodococcus* sp. *Environmental Science & Technology*, 51(11), 6298-6307.

Wang MH, **Peng P**, Liu YM, Jia RB, Li L (2013). Algicidal activity of a dibenzofuran-degrader *Rhodococcus* sp. *Journal of Microbiology and Biotechnology*, 23(2), 260-266.