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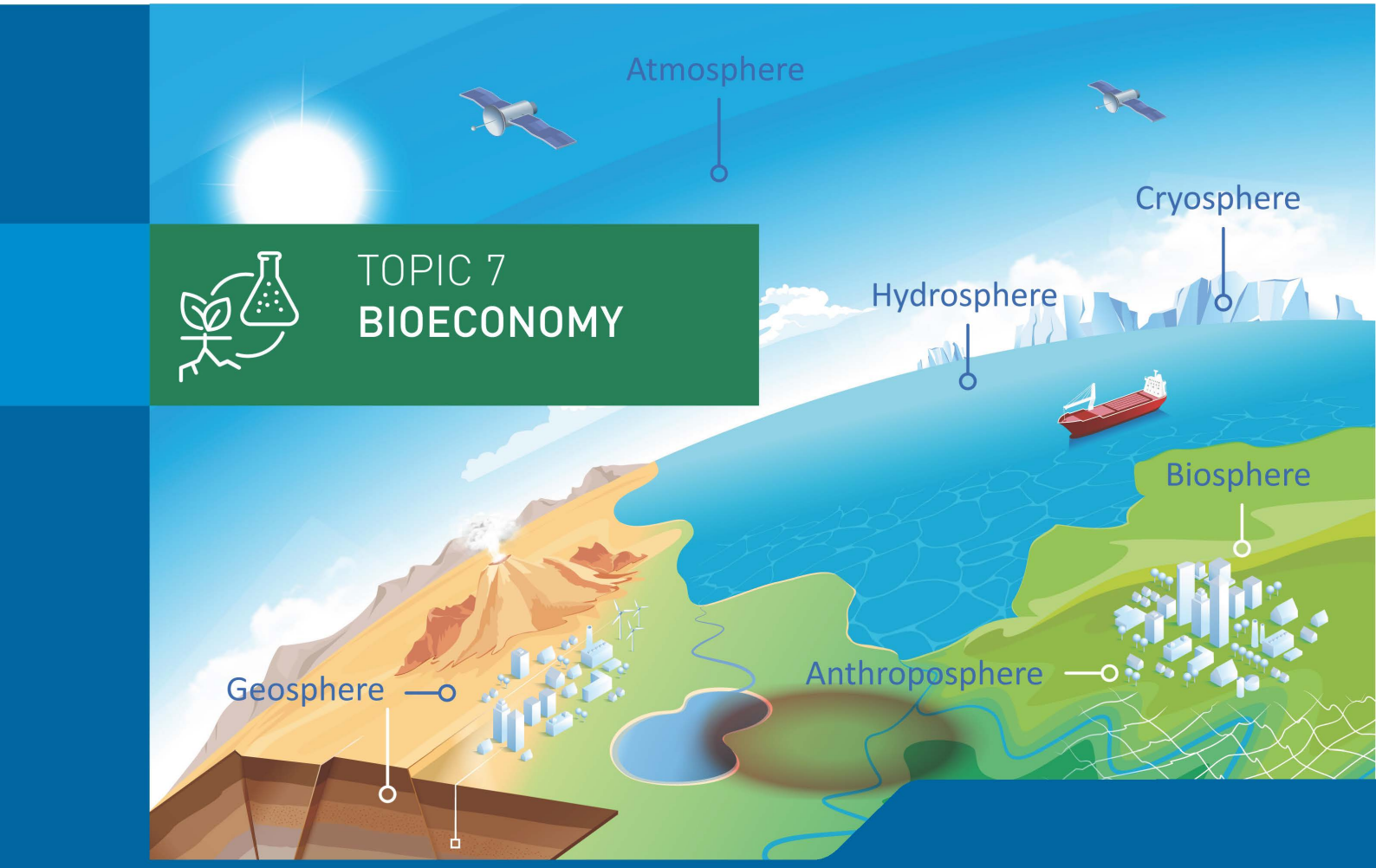

Publications

Helmholtz Centre for Environmental Research – UFZ

Topic 7: Towards a Sustainable Bioeconomy - Resources, Utilization, Engineering and AgroEcosystems

Preface

This list includes all publications of the year 2022 assigned to program topic 7 “Towards a Sustainable Bioeconomy - Resources, Utilization, Engineering and AgroEcosystems” of the Helmholtz research program "Changing Earth – Sustaining our Future" within the research field Earth and Environment which were authored, co-authored or edited by staff members of the Helmholtz Centre for Environmental Research - UFZ.

If a publication belongs to more than one program topic, both primary and secondary assignments are indicated.

The editorial deadline for this publication list was 20 January 2023.

In contrast to external authors, UFZ staff names are highlighted in **bold type** in all publications.

The concluding index lists all UFZ authors in alphabetical order with the sequential numbers of their publications.

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Front. Microbiol. **13** , art. 947550

2. Abramov, S.M., He, J., Wimmer, D., **Muehe, E.M.,** Helle, T., Thorwarth, H., Kappler, A. (2022):
Thiourea leaching of gold from processed municipal solid waste incineration residues
J. Mater. Cycles Waste Manag. **24** (6), 2243 - 2254

3. **Arandia-Gorostidi, N., Berthelot, H., Calabrese, F., Stryhanyuk, H.,** Klawonn, I., Iversen, M., Nahar, N., Grossart, H.-P., Ploug, H., **Musat, N.** (2022):
Efficient carbon and nitrogen transfer from marine diatom aggregates to colonizing bacterial groups
Sci. Rep. **12** , art. 14949

4. Bachmann, M., Wensch-Dorendorf, M., Kuhnitzsch, C., **Kleinsteuber, S., Popp, D.,** Thierbach, A., Martens, S.D., Steinhöfel, O., Zeyner, A. (2022):
Changes in composition and diversity of epiphytic microorganisms on field pea seeds, partial crop peas, and whole crop peas during maturation and ensiling with or without lactic acid bacteria inoculant
Microbiol. Spectr. **10** (4), e00953-22

5. **Balda, M., Mackenzie, K., Kopinke, F.-D., Georgi, A.** (2022):
Uniform and dispersible carbonaceous microspheres as quasi-liquid sorbent
Chemosphere **307, Part 4** , art. 136079

6. **Baleeiro, F.C.F., Kleinsteuber, S., Sträuber, H.** (2022):
Recirculation of H_2, CO_2, and ethylene improves carbon fixation and carboxylate yields in anaerobic fermentation
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7. Bertê, R., Teixeira, G.M., de Oliveira, J.P., Nicoletto, M.L.A., da Silva, D.V., de Godoy, G.G., Sipoli Sanches, D., de Resende, J.T.V., de Padua Pereira, U., **Nunes da Rocha, U.,** de Oliveira, A.G. (2022):
Genome mining reveals high biosynthetic potential of biocontrol agent *Bacillus velezensis* B.BV10
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8. **Bin Hudari, M.S., Richnow, H., Vogt, C., Nijenhuis, I.** (2022):
Effect of temperature on microbial reductive dehalogenation of chlorinated ethenes: a review
FEMS Microbiol. Ecol. **98** (9), fiac081

9. **Bin Hudari, M.S., Vogt, C., Richnow, H.H.** (2022):
Sulfidic acetate mineralization at 45°C by an aquifer microbial community: key players and effects of heat changes on activity and community structure
Environ. Microbiol. **24** (1), 370 - 389

10. Blaha, M.E., Hasan, S., **Dusny, C.,** Belder, D. (2022):
Fluorescence lifetime activated droplet sorting (FLADS) for label-free sorting of *Synechocystis* sp. PCC6803
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11. Blombach, B., Grünberger, A., **Centler, F.,** Wierckx, N., Schmid, J. (2022):
Exploiting unconventional prokaryotic hosts for industrial biotechnology
Trends Biotechnol. **40** (4), 385 - 397

12. **Bolay, P.,** Hemm, L., Florencio, F.J., Hess, W.R., Muro-Pastor, M.I., **Klähn, S.** (2022):
The sRNA NsiR4 fine-tunes arginine synthesis in the cyanobacterium *Synechocystis* sp. PCC 6803 by post-transcriptional regulation of PirA
RNA Biol. **19** (1), 811 - 818

13. **Bolay, P., Schlüter, S., Grimm, S.,** Riediger, M., Hess, W.R., **Klähn, S.** (2022):
The transcriptional regulator RbcR controls ribulose-1,5-bisphosphate carboxylase/oxygenase (RuBisCO) genes in the cyanobacterium *Synechocystis* sp. PCC 6803
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14. Bonidia, R.P., **Avila Santos, A.P.,** Almeida, B.L.S., Stadler, P.F., **Nunes da Rocha, U., Sipoli Sanches, D.,** de Carvalho, A.C.P.L.F. (2022):
Information theory for biological sequence classification: A novel feature extraction technique based on Tsallis entropy
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15. Bonidia, R.P., **Avila Santos, A.P.,** de Almeida, B.L.S., Stadler, P.F., **Nunes da Rocha, U.,** Sanches, D.S., de Carvalho, A.C.P.L.F. (2022):
BioAutoML: automated feature engineering and metalearning to predict noncoding RNAs in bacteria
Brief. Bioinform. **23** (4), bbac218

16. **Bozan, M., Popp, D., Kallies, R., Nunes da Rocha, U., Klähn, S., Bühler, K.** (2022):
Whole-genome sequence of the filamentous diazotrophic cyanobacterium *Tolypothrix* sp. PCC 7712 and its comparison with non-diazotrophic *Tolypothrix* sp. PCC 7601
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17. **Bozan, M., Schmid, A., Bühler, K.** (2022):
Evaluation of self-sustaining cyanobacterial biofilms for technical applications
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18. **Brandenburg, F., Klähn, S., Schmid, A., Krömer, J.O.** (2022):
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19. **Bretschneider, L., Heuschkel, I., Bühler, K., Karande, R., Bühler, B.** (2022):
Rational orthologous pathway and biochemical process engineering for adipic acid production using *Pseudomonas taiwanensis* VLB120
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20. **Breulmann, M., Khurelbaatar, G., Sanne, M., van Afferden, M.,** Subah, A., **Müller, R.A.** (2022):
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21. **Bruckmann, C., Müller, S.,** Höner zu Siederdissen, C. (2022):
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22. **Bruckmann, C.,** Stadler, P.F., Hellmuth, M. (2022):
From modular decomposition trees to rooted median graphs
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23. Buchner, D., Martin, P.R., Scheckenbach, J., **Kümmel, S.,** Gelman, F., Haderlein, S.B. (2022):
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Rapid Commun. Mass Spectrom. **36** (21), e9378

24. Burdzy, K., **Aurich, A., Hunger, S.,** Jastrząb, R., Zabiszak, M., Kołodyńska, D. (2022):
Green citric acid in the sorption process of rare earth elements
Chem. Eng. J. **437, Part 2** , art. 135366

25. Chakaroun, R., Massier, L., **Musat, N.,** Kovacs, P. (2022):
New paradigms for familiar diseases: Lessons learned on circulatory bacterial signatures in cardiometabolic diseases
Exp. Clin. Endocrinol. Diabet. **130** (5), 313 - 326

26. Chautrand, T., Depayras, S., Souak, D., Kondakova, T., Barreau, M., Kentache, T., Hardouin, J., Tahrioui, A., Thoumire, O., Konto-Ghiorghi, Y., Barbey, C., Ladam, G., Chevalier, S., **Heipieper, H.J.,** Orange, N., Duclairoir-Poc, C. (2022):
Gaseous NO_2 induces various envelope alterations in *Pseudomonas fluorescens* MFAF76a
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27. **Chen, S.-C., Ji, J., Popp, D.,** Jaekel, U., **Richnow, H.-H.,** Sievert, S.M., **Musat, F.** (2022):
Genome and proteome analyses show the gaseous alkane degrader *Desulfosarcina* sp. strain BuS5 as an extreme metabolic specialist
Environ. Microbiol. **24** (4), 1964 - 1976

28. **Dai, S., Korth, B., Schwab, L.,** Aulenta, F., **Vogt, C., Harnisch, F.** (2022):
Deciphering the fate of sulfate in one- and two-chamber bioelectrochemical systems
Electrochim. Acta **408** , art. 139942
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29. Demir, G., **Friesen, J., Filipzik, J.,** Michalzik, B., **Hildebrandt, A.** (2022):
A method proposal for throughfall measurement in grassland at plot scale in temperate climate: 'Interception tubes'
Front. Earth Sci. **10** , art. 799419
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30. **Deobald, D., Adrian, L.** (2022):
Metallomics of the quinone-free respiration system of *Dehalococcoides mccartyi* indicates the presence of molybdenum, nickel, iron and cobalt in the respiratory complex
Biochim. Biophys. Acta-Bioenerg. **1863** (Suppl.), art. 148768

31. **Duong, H.L., Paufler, S., Harms, H., Maskow, T., Schlosser, D.** (2022):
Applicability and information value of biocalorimetry for the monitoring of fungal solid-state fermentation of lignocellulosic agricultural by-products
New Biotech. **66** , 97 - 106

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Fungal lignocellulose utilization strategies from a bioenergetic perspective: Quantification of related functional traits using biocalorimetry
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Microfluidic single-cell analytics
In: Bahnemann, J., Grünberger, A. (eds.)
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Springer Nature, p. 159 - 189

34. **Eziuzor, S.C., Borim Corrêa, F., Peng, S., Schultz, J., Kleinsteuber, S., Nunes da Rocha, U., Adrian, L., Vogt, C.** (2022):
Structure and functional capacity of a benzene-mineralizing, nitrate-reducing microbial community
J. Appl. Microbiol. **132** (4), 2795 - 2811

35. Gemünde, A., **Lai, B., Pause, L., Krömer, J.,** Holtmann, D. (2022):
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36. **Gharasoo, M.,** Elsner, M., van Cappellen, P., **Thullner, M.** (2022):
Pore-scale heterogeneities improve the degradation of a self-inhibiting substrate: Insights from reactive transport modeling
Environ. Sci. Technol. **56** (18), 13008 - 13018

37. **Grosch Schroeder, B., Logroño, W., Nunes da Rocha, U., Harms, H., Nikolausz, M.** (2022):
Enrichment of anaerobic microbial communities from midgut and hindgut of sun beetle larvae (*Pachnoda marginata*) on wheat straw: effect of inoculum preparation
Microorganisms **10** (4), art. 761

38. **Grund, M.,** Jakob, T., **Toepel, J., Schmid, A.,** Wilhelm, C., **Bühler, B.** (2022):
Heterologous lactate synthesis in *Synechocystis* sp. strain PCC 6803 causes a growth condition-dependent carbon sink effect
Appl. Environ. Microb. **88** (8), e00063-22

39. Hallama, M., Pekrun, C., Mayer-Gruner, P., **Uksa, M.,** Abdullaeva, Y., Pilz, S., Schloter, M., Lambers, H., Kandeler, E. (2022):
The role of microbes in the increase of organic phosphorus availability in the rhizosheath of cover crops
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40. Hassan, M.A., **Mehmood, T.,** Lodhi, E., Bilal, M., Dar, A.A., Liu, J. (2022):
Lockdown amid COVID-19 ascendancy over ambient particulate matter pollution anomaly
Int. J. Environ. Res. Public Health **19** (20), art. 13540

41. Haver, M., Le Roux, G., **Friesen, J.,** Loyau, A., Vredenburg, V.T., Schmeller, D.S. (2022):
The role of abiotic variables in an emerging global amphibian fungal disease in mountains
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42. Hernandez-Maldonado, A.J., Atkinson, J.D., Hashisho, Z., Saleh, N., Deng, Y., Bae, S., Xiao, F.F., **Georgi, A.** (2022):
Editorial: Current and future trends in adsorption for environmental separations
J. Hazard. Mater. **433** , art. 128776

43. Herrero, J., Puigserver, D., **Nijenhuis, I., Kuntze, K.,** Carmona, J.M. (2022):
Key factors controlling microbial distribution on a DNAPL source area
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44. Hoffstadt, K., Krafft, S., **Nikolausz, M.,** Kuperjans, I. (2022):
Power-to-methane – Design and optimization of two new bubble column reactors
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45. Huang, Z., Zhang, J., **Pan, M.,** Hao, Y., Hu, R., Xiao, W., Li, G., Lyu, T. (2022):
Valorisation of microalgae residues after lipid extraction: Pyrolysis characteristics for biofuel production
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46. Hussain, F., Khan, A.H.A., Hussain, I., Farooqi, A., Muhammad, Y.S., Iqbal, M., **Arslan, M.,** Yousaf, S. (2022):
Soil conditioners improve rhizodegradation of aged petroleum hydrocarbons and enhance the growth of *Lolium multiflorum*
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47. Hussain, M.i., Al-Dakheel, A.J., Chaudhry, U.K., **Khan, M.I.,** ALHaithloul, H.A.S., Alghanem, S.M., Alaklabi, A. (2022):
Morpho-physiological response of barley to assess genotypic differences of salinity tolerance under hyper arid climate
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48. Imming, P., **Moeller, L.,** Kaale, E. (2022):
Drug Lifecycle Control in Subsahara-Afrika: Von der Produktion über die Qualitätskontrolle und Logistik bis zur Entsorgung eines Arzneimittels. Drug Lifecycle Control in Sub-Saharan Africa: From production to quality control and logistics to the disposal of a pharmaceutical product
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49. Imming, P., **Moeller, L.,** Kaale, E. (2022):
Drug lifecycle control in Subsahara-Afrika. Von der Produktion bis zur Entsorgung
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50. Innocent, E., Marealle, A.I., Imming, P., **Moeller, L.** (2022):
An annotated inventory of Tanzanian medicinal plants traditionally used for the treatment of respiratory bacterial infections
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51. **Izadi, P., Harnisch, F.** (2022):
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52. **Izadi, P.,** Schröder, U. (2022):
What is the role of individual species within bidirectional electroactive microbial biofilms: A case study on *Desulfarculus baarsii* and *Desulfurivibrio alkaliphilus*
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53. Jadeja, N.B., **Worrich, A.** (2022):
From gut to mud: dissemination of antimicrobial resistance between animal and agricultural niches
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54. **Jensen Pedersen, K., Haange, S.-B.,** Žížalová, K., Viehof, A., Clavel, T., Leniček, M., **Engelmann, B., Wick, L.Y.,** Schaap, F.G., **Jehmlich, N., Rolle-Kampczyk, U., von Bergen, M.** (2022):
Eggerthella lenta DSM 2243 alleviates bile acid stress response in *Clostridium ramosu* m and *Anaerostipes caccae* by transformation of bile acids
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55. **Jing, Y., Miltner, A.,** Eggen, T., **Kästner, M., Nowak, K.M.** (2022):
Microcosm test for pesticide fate assessment in planted water filters: ^{13}C,^{15}N-labeled glyphosate as an example
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56. Joshi, A., **Breulmann, M., Schulz, E.,** Ruser, R. (2022):
Effects of sewage sludge hydrochar on emissions of the climate-relevant trace gases N_2O and CO_2 from loamy sand soil
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57. **Jurburg, S.D., Buscot, F., Chatzinotas, A.,** Chaudhari, N.M., Clark, A.T., Garbowski, M., Grenié, M., Hom, E.F.Y., **Karakoç, C.,** Marr, S., Neumann, S., **Tarkka, M.,** van Dam, N.M., Weinhold, A., Heintz-Buschart, A. (2022):
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58. **Jurburg, S.D.,** Eisenhauer, N., **Buscot, F., Chatzinotas, A.,** Chaudhari, N.M., **Heintz-Buschart, A., Kallies, R.,** Küsel, K., Litchman, E., Macdonald, C.A., **Müller, S.,** Reuben, R.C., **Nunes da Rocha, U.,** Panagiotou, G., Rillig, M.C., Singh, B.K. (2022):
Potential of microbiome-based solutions for agrifood systems
Nat. Food **3** (8), 557 - 560
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59. **Kabiru Nata'ala, M., Avila Santos, A.P., Kasmanas, J.C.,** Bartholomäus, A., **Saraiva, J.P.,** Silva, S.G., Keller-Costa, T., Costa, R., Gomes, N.C.M., de Carvalho, A.C.P.L.F., Stadler, P.F., Sipoli Sanches, D., **Nunes da Rocha, U.** (2022):
MarineMetagenomeDB: a public repository for curated and standardized metadata for marine metagenomes
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60. Kahsay, B.N., **Moeller, L.,** Imming, P., Neubert, R.H.H., Gebre-Mariam, T. (2022):
Development and validation of a simple, selective, and accurate reversed-phase liquid chromatographic method with diode array detection (RP-HPLC/DAD) for the simultaneous analysis of 18 free amino acids in topical formulations
Chromatographia **85** (7), 665 - 676

61. Kaniowska, D., Wenk, K., Rademacher, P., Weiss, R., Fabian, C., Schulz, I., Guthardt, M., Lange, F., Greiser, S., **Schmidt, M.,** Braumann, U.-D., Emmrich, F., Koehl, U., Jaimes, Y. (2022):
Extracellular vesicles of mesenchymal stromal cells can be taken up by microglial cells and partially prevent the stimulation induced by β-amyloid
Stem Cell Rev. Rep. **18** (3), 1113 - 1126

62. **Karagulyan, M.,** Goebel, M.-O., Diehl, D., Abu Quba, A.A., **Kästner, M.,** Bachmann, J., **Wick, L.Y.,** Schaumann, G.E., **Miltner, A.** (2022):
Water stress-driven changes in bacterial cell surface properties
Appl. Environ. Microb. **88** (21), e00732-22

63. Keller-Costa, T., Kozma, L., Silva, S.G., **Toscan, R.,** Gonçalves, J., Lago-Lestón, A., Kyrpides, N.C., **Nunes da Rocha, U.,** Costa, R. (2022):
Metagenomics-resolved genomics provides novel insights into chitin turnover, metabolic specialization, and niche partitioning in the octocoral microbiome
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64. **Khan, A.M.,** Gharasoo, M., **Wick, L.Y., Thullner, M.** (2022):
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65. Khan, N., **Brizola Toscan, R.,** Lunayo, A., Wamalwa, B., Muge, E., Mulaa, F.J., **Kallies, R., Harms, H., Wick, L.Y., Nunes da Rocha, U.** (2022):
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Microbiol. Resour. Announc. **11** (3), e00886-21

66. **Khurana, S., Heße, F., Hildebrandt, A., Thullner, M.** (2022):
Should we worry about surficial dynamics when assessing nutrient cycling in the groundwater?
Front. Water **4** , art. 780297
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67. **Khurana, S., Heße, F., Hildebrandt, A., Thullner, M.** (2022):
Predicting the impact of spatial heterogeneity on microbially mediated nutrient cycling in the subsurface
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68. Kjellerup, B.V., **Nijenhuis, I.,** Rossetti, S. (2022):
Editorial: Thematic issue on anaerobic biological dehalogenation
FEMS Microbiol. Ecol. **98** (11), fiac108

69. **Knecht, C.A., Krüger, M., Kellmann, S., Mäusezahl, I., Möder, M., Adelowo, O.O.,** Vollmers, J., Kaster, A.-K., **Nivala, J., Müller, J.A.** (2022):
Cellular stress affects the fate of microbial resistance to folate inhibitors in treatment wetlands
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70. Koók, L., **Rosa, L.F.M., Harnisch, F.,** Žitka, J., Otmar, M., Nemestóthy, N., Bakonyi, P., Kretzschmar, J. (2022):
Functional stability of novel homogeneous and heterogeneous cation exchange membranes for abiotic and microbial electrochemical technologies
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71. **Korth, B.,** Pous, N., **Hönig, R., Haus, P., Borim Corrêa, F., Nunes da Rocha, U.,** Puig, S., **Harnisch, F.** (2022):
Electrochemical and microbial dissection of electrified biotrickling filters
Front. Microbiol. **13** , art. 869474

72. Koskimäki, J.J., Pohjanen, J., Kvist, J., **Fester, T., Härtig, C.,** Podolich, O., Fluch, S., Edesi, J., Häggman, H., Pirttilä, A.M. (2022):
The meristem-associated endosymbiont *Methylorubrum extorquens* DSM13060 reprograms development and stress responses of pine seedlings
Tree Physiol. **42** (2), 391 - 410

73. **Krause, J.L., Engelmann, B., Nunes da Rocha, U., Pierzchalski, A.,** Chang, H.D., **Zenclussen, A.C., von Bergen, M., Rolle-Kampczyk, U., Herberth, G.** (2022):
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74. **Kuchenbuch, A.,** Frank, R., Vazquez Ramos, J., Jahnke, H.-G., **Harnisch, F.** (2022):
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75. Kuhn, T., Buffi, M., Bindschedler, S., Chain, P.S., Gonzalez, D., Stanley, C.E., **Wick, L.Y.,** Junier, P., Li Richter, X.-Y. (2022):
Design and construction of 3D printed devices to investigate active and passive bacterial dispersal on hydrated surfaces
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76. **Lai, B.,** Glaven, S., Song, H. (2022):
Editorial: Electrobiotechnology towards sustainable bioeconomy: Fundamental, optimization and applications
Front. Bioeng. Biotechnol. **10** , art. 901072

77. Le, A.V., **Muehe, E.M.,** Drabesch, S., Pacheco, J.L., Bayer, T., Joshi, P., Kappler, A., Mansor, M. (2022):
Environmental risk of arsenic mobilization from disposed sand filter materials
Environ. Sci. Technol. **56** (23), 16822 - 16830

78. Li, G., Hao, Y., Yang, T., Xiao, W., **Pan, M.,** Huo, S., Lyu, T. (2022):
Enhancing bioenergy production from the raw and defatted microalgal biomass using wastewater as the cultivation medium
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79. Li, G., Hu, R., Wang, N., Yang, T., Xu, F., Li, J., Wu, J., Huang, Z., **Pan, M.,** Lyu, T. (2022):
Cultivation of microalgae in adjusted wastewater to enhance biofuel production and reduce environmental impact: Pyrolysis performances and life cycle assessment
J. Clean Prod. **355** , art. 131768

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Proc. Natl. Acad. Sci. U.S.A. **119** (17), e2117814119
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