**Chapter 8**

**General**

Baesman, S. M. *et al*. (2021). *Syntrophotalea acetylenivorans* sp. nov., a diazotrophic, acetylenotrophic anaerobe isolated from intertidal sediments. *International Journal of Systematic & Evolutionary Microbiology* **71**(3), 0.004698. <https://www.microbiologyresearch.org/content/journal/ijsem/10.1099/ijsem.0.004698>

Buckel, W. (2021). Energy conservation in fermentations of anaerobic bacteria. *Frontiers in Microbiology* **12**, 2400. <https://www.frontiersin.org/article/10.3389/fmicb.2021.703525>

Kampik, C. *et al*. (2021). Handling several sugars at a time: a case study of xyloglucan utilization by *Ruminiclostridium cellulolyticum*. *mBio* **12**(6), 02206-21. <https://doi.org/10.1128/mBio.02206-21>

**Hydrogen in fermentation**

**Oxygen toxicity**

Fiévet, A. *et al*. (2021). OrpR is a σ54-dependent activator using an iron-sulfur cluster for redox sensing in *Desulfovibrio vulgaris* Hildenborough. *Molecular Microbiology* **116**(1), 231-244. <https://onlinelibrary.wiley.com/doi/abs/10.1111/mmi.14705>

Liu, Y. *et al*. (2021). A novel mycothiol-dependent thiol–disulfide reductase in *Corynebacterium glutamicum* involving oxidative stress resistance. *3 Biotech* **11**(8), 372. <https://doi.org/10.1007/s13205-021-02896-4>

Lu, Z. & Imlay, J. A. (2021). When anaerobes encounter oxygen: mechanisms of oxygen toxicity, tolerance and defence. *Nature Reviews Microbiology* **19**(12), 774-785. <https://doi.org/10.1038/s41579-021-00583-y>

Su, T. *et al*. (2021). *Corynebacterium glutamicum* Mycoredoxin 3 protects against multiple oxidative stresses and displays thioredoxin-like activity. *Journal of General & Applied Microbiology* **67**(4), 125-133. <https://doi.org/10.2323/jgam.2019.10.003>

**Ethanol fermentation**

Martien, J. I. *et al*. (2021). Metabolic remodeling during nitrogen fixation in *Zymomonas mobilis*. *mSystems* **6**(6), 00987-21. <https://doi.org/10.1128/mSystems.00987-21>

**Lactate fermentation**

Foley, M. H. *et al*. (2021). *Lactobacillus* bile salt hydrolase substrate specificity governs bacterial fitness and host colonization. *Proceedings of the National Academy of Sciences of the USA* **118**(6), e2017709118. <https://www.pnas.org/content/pnas/118/6/e2017709118.full.pdf>

Wang, Y. *et al*. (2021). Metabolism characteristics of lactic acid bacteria and the expanding applications in food industry. *Frontiers in Bioengineering & Biotechnology* **9**, 378. <https://www.frontiersin.org/article/10.3389/fbioe.2021.612285>

**Butyrate and butanol**

Arisht, S. N. *et al*. (2021). Effect of nano zero-valent iron (nZVI) on biohydrogen production in anaerobic fermentation of oil palm frond juice using *Clostridium butyricum* JKT37. *Biomass & Bioenergy* **154**, 106270. <https://doi.org/10.1016/j.biombioe.2021.106270>

Chen, L. *et al*. (2021). Enhancement of magnetic field on fermentative hydrogen production by *Clostridium pasteurianum*. *Bioresource Technology* **341**, 125764. <https://doi.org/10.1016/j.biortech.2021.125764>

Hagihara, M. *et al*. (2021). *Clostridium butyricum* enhances colonization resistance against *Clostridioides difficile* by metabolic and immune modulation. *Scientific Reports* **11**, 15007. <https://doi.org/10.1038/s41598-021-94572-z>

Koo, J. & Cha, Y. (2021). Investigation of the ferredoxin’s influence on the anaerobic and aerobic, enzymatic H2 production. *Frontiers in Bioengineering & Biotechnology* **9**, 149. <https://www.frontiersin.org/article/10.3389/fbioe.2021.641305>

Ma, M. *et al*. (2021). Overexpression of pEGF improved the gut protective function of *Clostridium butyricum* partly through STAT3 signal pathway. *Applied Microbiology & Biotechnology* **105**(14), 5973-5991. <https://doi.org/10.1007/s00253-021-11472-y>

Stoeva, M. K. *et al*. (2021). Butyrate-producing human gut symbiont, *Clostridium butyricum*, and its role in health and disease. *Gut Microbes* **13**, 1907272. <https://doi.org/10.1080/19490976.2021.1907272>

Yan, J. *et al*. (2021). *Akkermansia muciniphila*: is it the Holy Grail for ameliorating metabolic diseases? *Gut Microbes* **13**, 1984104. <https://doi.org/10.1080/19490976.2021.1984104>

Zhang, J. *et al*. (2021). *Iocasia fonsfrigidae* NS-1 gen. nov., sp. nov., a movel deep-sea bacterium possessing diverse carbohydrate metabolic pathways. *Frontiers in Microbiology* **12**, 3141. <https://www.frontiersin.org/article/10.3389/fmicb.2021.725159>

**Mixed acid fermentation**

Jiang, F. *et al*. (2021). Citrate utilization under anaerobic environment in *Escherichia coli* is under direct control of Fnr and indirect control of ArcA and Fnr via CitA-CitB system. *Environmental Microbiology* **23**(3), 1496-1509. <https://doi.org/10.1111/1462-2920.15357>

Lee, J. W. *et al*. (2021). Metabolic engineering of non-pathogenic microorganisms for 2,3-butanediol production. *Applied Microbiology & Biotechnology* **105**(14), 5751-5767. <https://doi.org/10.1007/s00253-021-11436-2>

Liu, X. *et al*. (2021). *Blautia*—a new functional genus with potential probiotic properties? *Gut Microbes* **13**(1), 1875796. <https://doi.org/10.1080/19490976.2021.1875796>

Millard, P. *et al*. (2021). Functional analysis of deoxyhexose sugar utilization in *Escherichia coli* reveals fermentative metabolism under aerobic conditions. *Applied & Environmental Microbiology* **87**(16), e00719-21. <https://journals.asm.org/doi/abs/10.1128/AEM.00719-21>

Schleicher, L. *et al*. (2021). A sodium-translocating module linking succinate production to formation of membrane potential in *Prevotella bryantii*. *Applied & Environmental Microbiology* **87**(21), e01211-21. <https://journals.asm.org/doi/abs/10.1128/AEM.01211-21>

Sun, S. *et al*. (2021). 1,2-Propanediol production from glycerol via an endogenous pathway of *Klebsiella pneumoniae*. *Applied Microbiology & Biotechnology* **105**(23), 9003-9016. <https://doi.org/10.1007/s00253-021-11652-w>

Tao, Y.-m. *et al*. (2021). A comprehensive review on microbial production of 1,2-propanediol: micro-organisms, metabolic pathways, and metabolic engineering. *Biotechnology for Biofuels* **14**, 216. <https://doi.org/10.1186/s13068-021-02067-w>

Tett, A. *et al*. (2021). *Prevotella* diversity, niches and interactions with the human host. *Nature Reviews Microbiology* **19**(9), 585-599. <https://doi.org/10.1038/s41579-021-00559-y>

Zafar, H. & Saier, M. H. (2021). Gut *Bacteroides* species in health and disease. *Gut Microbes* **13**, 1848158. <https://doi.org/10.1080/19490976.2020.1848158>

Zhu, Y. *et al*. (2021). Current advances in microbial production of 1,3-propanediol. *Biofuels,* *Bioproducts & Biorefining* **15**(5), 1566-1583. <https://doi.org/10.1002/bbb.2254>

**Propionate**

Ammar, E. M. & Philippidis, G. P. (2021). Fermentative production of propionic acid: prospects and limitations of microorganisms and substrates. *Applied Microbiology & Biotechnology* **105**(16), 6199-6213. <https://doi.org/10.1007/s00253-021-11499-1>

Dank, A. *et al*. (2021). *Propionibacterium freudenreichii* thrives in microaerobic conditions by complete oxidation of lactate to CO2. *Environmental Microbiology* **23**(6), 3116-3129. <https://doi.org/10.1111/1462-2920.15532>

**Fermentation of amino acids**

Schubert, C. *et al*. (2021). C4-dicarboxylates and l-aspartate utilization by *Escherichia coli* K-12 in the mouse intestine: l-aspartate as a major substrate for fumarate respiration and as a nitrogen source. *Environmental Microbiology* **23**(5), 2564-2577. <https://doi.org/10.1111/1462-2920.15478>

**Fermentation of dicarboxylic acids**

Daniel, S. L. *et al*. (2021). Forty years of *Oxalobacter formigenes*, a gutsy oxalate-degrading specialist. *Applied & Environmental Microbiology* **87**(18), e00544-21. <https://journals.asm.org/doi/abs/10.1128/AEM.00544-21>

Nazzal, L. *et al*. (2021). Effect of antibiotic treatment on *Oxalobacter formigenes* colonization of the gut microbiome and urinary oxalate excretion. *Scientific Reports* **11**, 16428. <https://doi.org/10.1038/s41598-021-95992-7>

Schubert, C. *et al*. (2021). C4-dicarboxylates and l-aspartate utilization by *Escherichia coli* K-12 in the mouse intestine: l-aspartate as a major substrate for fumarate respiration and as a nitrogen source. *Environmental Microbiology* **23**(5), 2564-2577. <https://doi.org/10.1111/1462-2920.15478>

**Hyperthermophilic archaeal fermentation**

Counts, J. A. *et al*. (2021). Life in hot acid: a genome-based reassessment of the archaeal order *Sulfolobales*. *Environmental Microbiology* **23**(7), 3568-3584. <https://doi.org/10.1111/1462-2920.15189>

Lewis, A. M. *et al*. (2021). The biology of thermoacidophilic archaea from the order *Sulfolobales*. *FEMS Microbiology Reviews* **45**(4), fuaa063. <https://doi.org/10.1093/femsre/fuaa063>