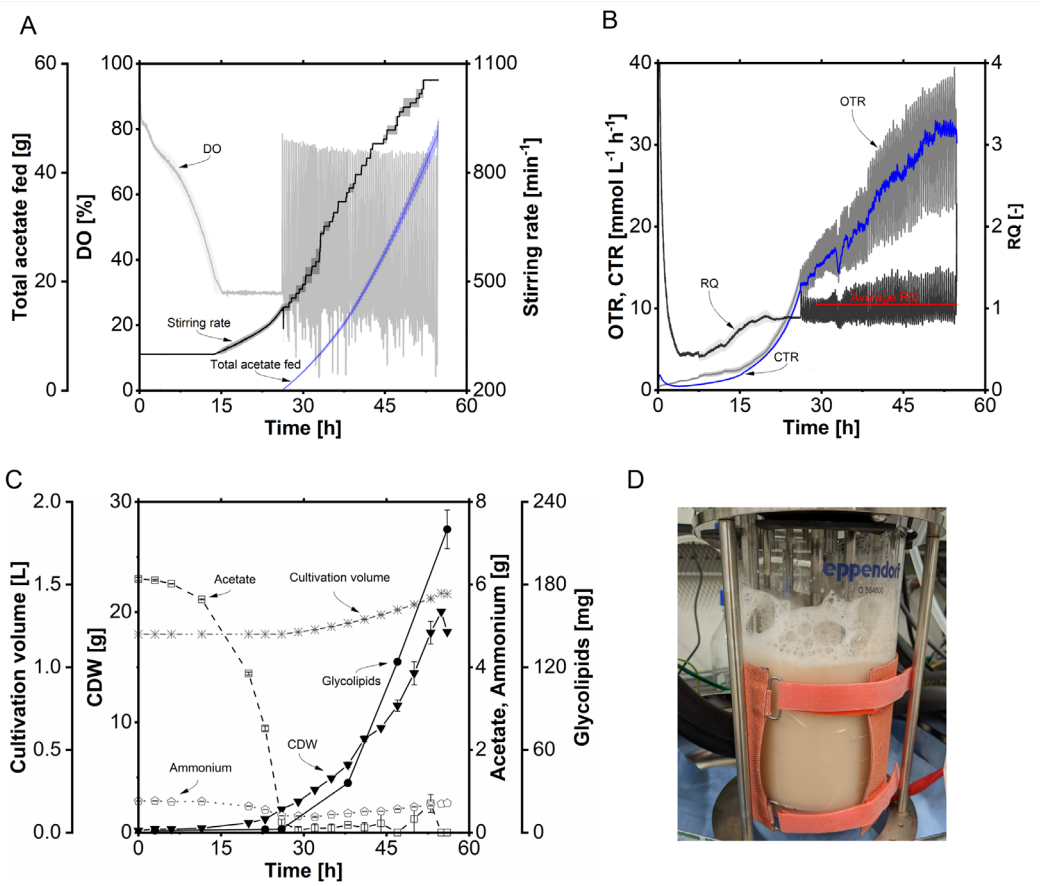

Figure S1. Fed-batch benchmark fermentation of *A. borkumensis* SK2 with bubble aeration and NH_4Cl as nitrogen source. Time course of **(A)** total acetate fed, dissolved oxygen (DO), and stirring rate; **(B)** oxygen transfer rate (OTR), carbon dioxide transfer rate (CTR), respiratory quotient (RQ), and average RQ of fed-batch phase (red); **(C)** cultivation volume, cell dry weight (CDW), acetate, ammonium, and glycolipids amount. **(D)** Photo of the formed foam in the bioreactor after 44 h of cultivation. Error bands/bars indicate deviation from the mean (n = 2). Cultivation conditions: modified ONR7a medium, 3 L stirred-tank bioreactor, T = 30°C, pH = 7.3, N = 300 - 1,200 min^{-1} (cascaded), DO = 30%, F_{Air} = 0.41 L min^{-1}, OD_{start} = 0.2, V_L = 1.2 L. DO-based feed with C/N of 8.9 Cmol $Nmol^{-1}$: 200 g L^{-1} acetate, 40 g L^{-1} NH_4Cl, 9.2 g L^{-1} NaH_2PO_4 2 H_2O, V_{Feed} = 250 mL.

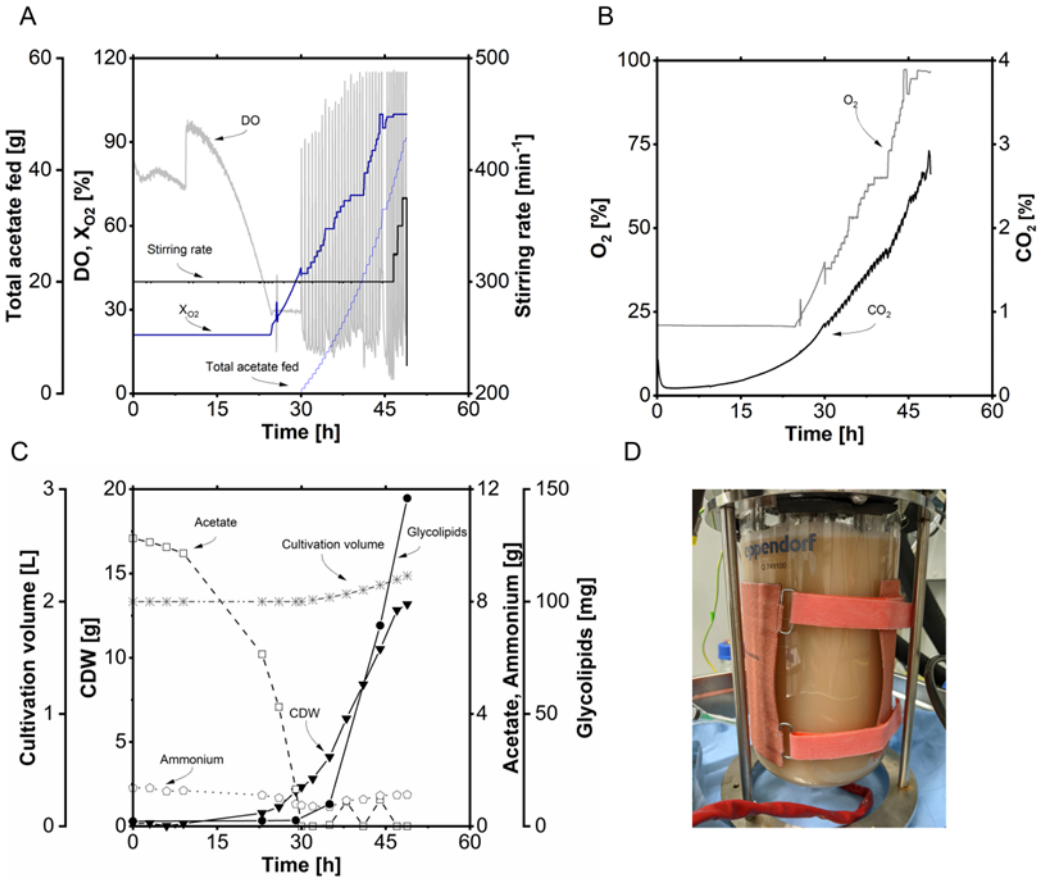

Figure S2. Fed-batch benchmark fermentation of *A. borkumensis* SK2 with bubble-free membrane aeration and NH_4Cl as nitrogen source. Time course of **(A)** total acetate fed, dissolved oxygen (DO), X_{O2}, and stirring rate; **(B)** O_2 and CO_2 concentrations in the off-gas; **(C)** cultivation volume, cell dry weight (CDW), acetate, ammonium, and glycolipids amount. **(D)** Photo of the formed foam in the bioreactor after 47 h of cultivation. Cultivation conditions: modified ONR7a medium, 3 L stirred-tank bioreactor, T = 30°C, pH = 7.3, N = 300 - 375 min^{-1}, DO = 30%, TMP = 0.3 bar X_{O2} = 21 - 100% (cascaded), F_{Gas} = 1.0 L min^{-1}, OD_{start} = 0.2, V_L = 2.0 L. DO-based feed with C/N of 8.9 Cmol $Nmol^{-1}$: 200 g L^{-1} acetate, 40 g L^{-1} NH_4Cl, 9.2 g L^{-1} NaH_2PO_4 2 H_2O, V_{Feed} = 250 mL.

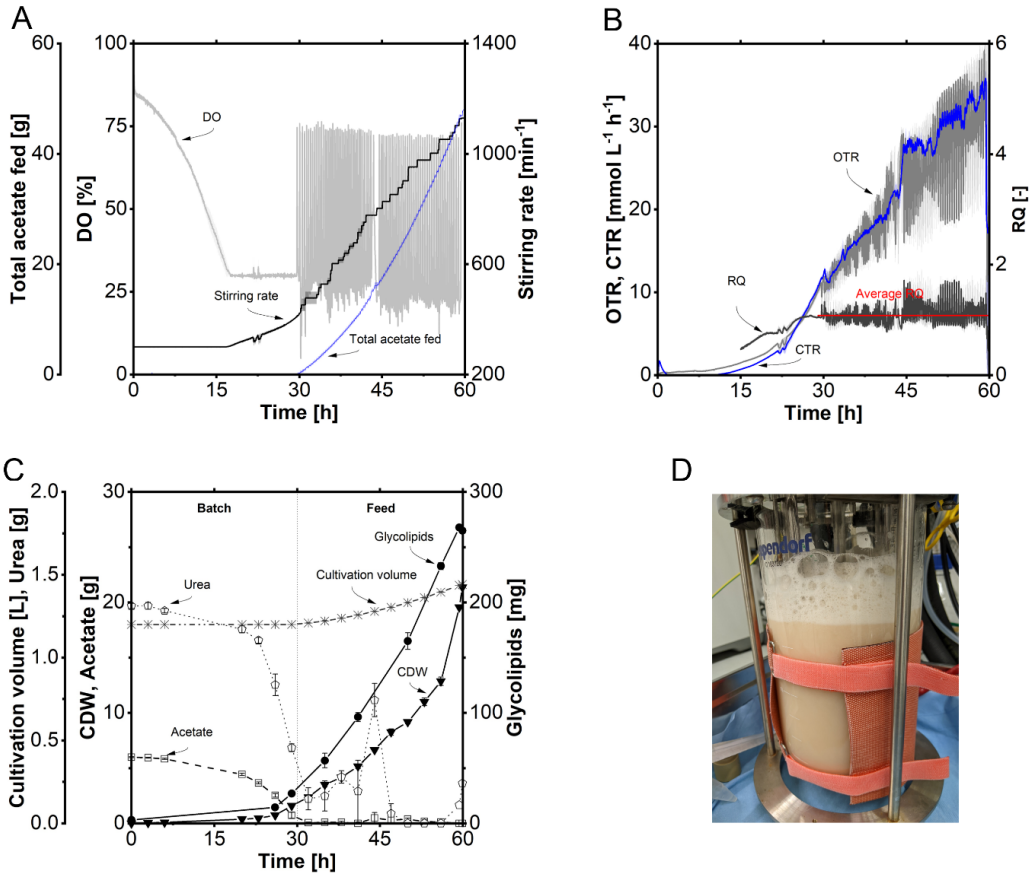

Figure S3. DO-based fed-batch benchmark fermentation of *A. borkumensis* SK2 with bubble aeration and urea as nitrogen source. Time course of **(A)** total acetate fed, dissolved oxygen (DO), and stirring rate; **(B)** oxygen transfer rate (OTR), carbon dioxide transfer rate (CTR), respiratory quotient (RQ), and average RQ of fed-batch phase (red); **(C)** cultivation volume, cell dry weight (CDW), acetate, urea, and glycolipids amount. **(D)** Photo of the formed foam in the bioreactor after 56 h cultivation. Error bands/bars indicate deviation from the mean (n = 2). Cultivation conditions: modified ONR7a medium, 3 L stirred-tank bioreactor, T = 30°C, pH = 7.3, N = 300 - 1,200 min^{-1} (cascaded), DO = 30%, F_{Air} = 0.41 L min^{-1}, OD_{start} = 0.2, V_L = 1.2 L. DO-based feed with C/N of 8.9 Cmol $Nmol^{-1}$: 200 g L^{-1} acetate, 22.4 g L^{-1} urea, 9.2 g L^{-1} NaH_2PO_4 2 H_2O, V_{Feed} = 250 mL.

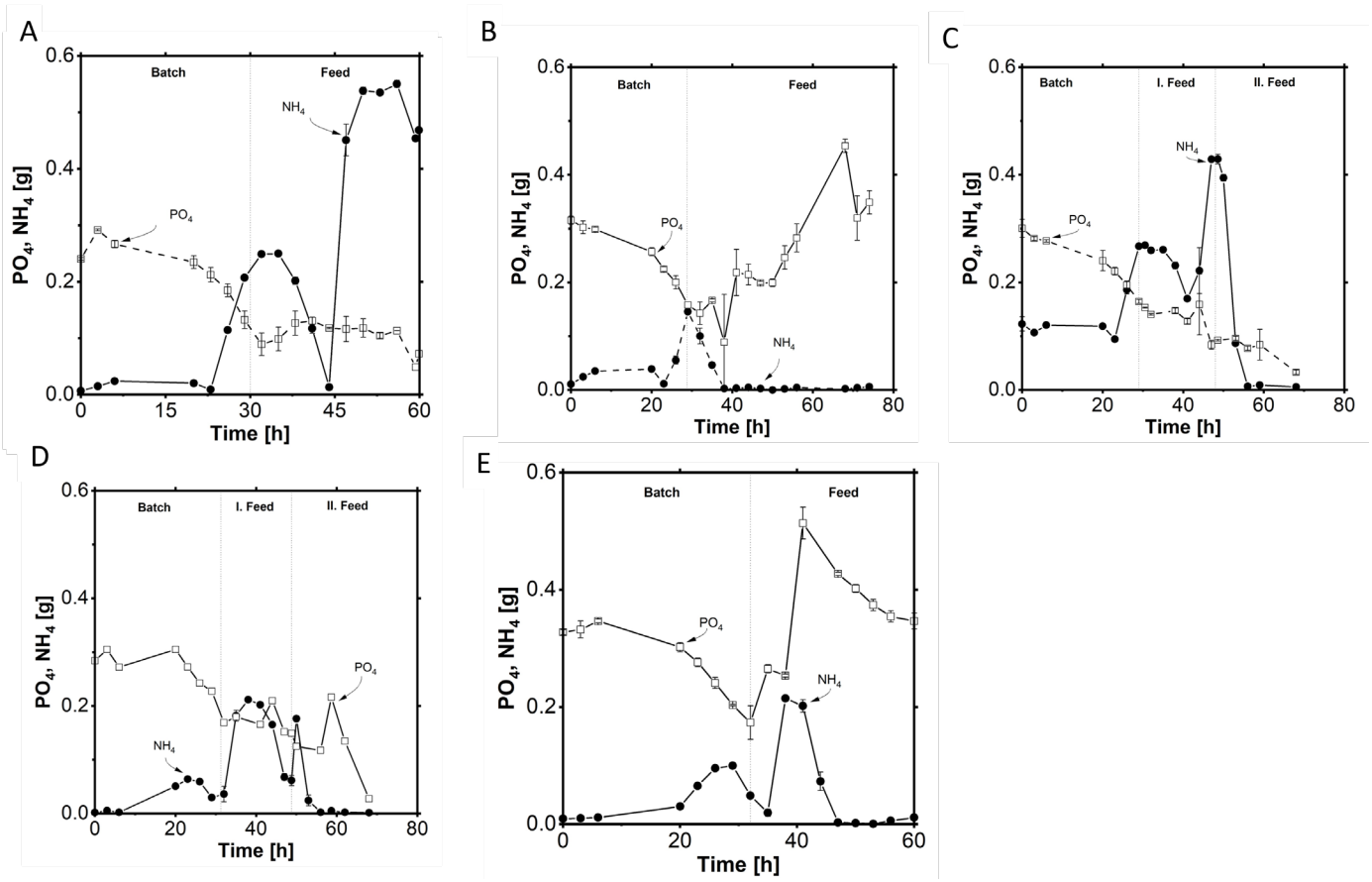

Figure S4. Ammonium and phosphate amount time course of the urea fed-batch fermentations. **(A)** DO-based fed-batch urea fermentation with a C/N ratio of 8.9 Cmol Nmol^{-1}. **(B)** DO-based fed-batch urea fermentation with a C/N ratio of 17.8 Cmol Nmol^{-1}. **(C)** DO-based two-stage fed-batch urea fermentation with a C/N ratio of 17.8 Cmol Nmol^{-1}. **(D)** DO-based two-stage fed-batch urea fermentation with a C/N ratio of 26.7 Cmol Nmol^{-1}. **(E)** pH-stat fed-batch fermentation of *A. borkumensis* SK2 with bubble aeration and glacial acetic acid with C/N of 17.8 as feed.

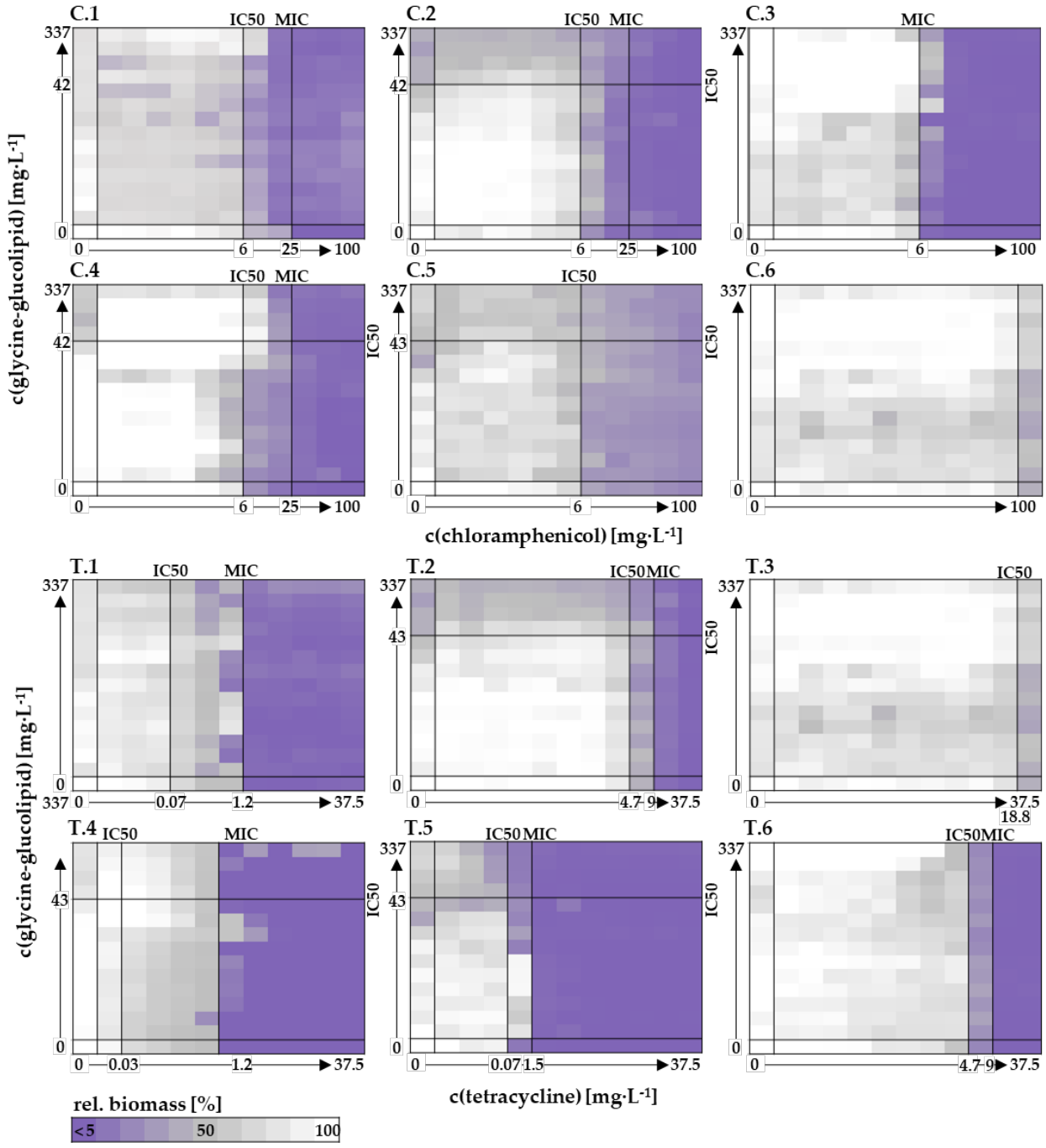

Figure S5. Combined antibacterial effect of chloramphenicol and tetracycline with glycine-glucolipid against different bacteria for MIC (< 5% growth in terms of reached cell density) and IC50 (< 50% growth) determination. The substances were each applied in dilution series with a dilution factor of two against each other according to a Checkerboard matrix. The color scale represents the relative biomass of the cultures after 18 h cultivation in relative percentage terms compared to the reference culture without antibiotic or surfactant. Violet: < 5% defined as no growth; grey: moderately affected cell growth; white: unaffected cell growth. The MIC and IC50 values for the individual tests of chloramphenicol, tetracycline and glycine-glucolipid are specified. All values are in mg·L^{-1}, with the individual dilution series being as follows: chloramphenicol (0-0.04-0.09-0.19-0.39-0.78-1.56-3.13-6.25-12.5-25-50-100), tetracycline (0-0.015-0.03-0.07-0.146-0.29-0.586-1.171-2.344-4.688-9.375-18.75-37.5), and glycine-glucolipid (0-0.02-0.04-0.08-0.16-0.33-0.66-1.32-2.63-5.27-10.53-21.07-42.14-84.27-168.55-337.09). The presented values represent the mean of two independently conducted experiments in triplicate (n=2). C: chloramphenicol; T: tetracycline; 1: *C. glutamicum*; 2: *S. marcescens*; 3: *S. epidermidis*; 4: *E. faecium*; 5: *S. aureus*; 6: *P. aeruginosa*.