

1 Supplementary Materials

2 Article

3 **In-Line Monitoring of Polyhydroxyalkanoate (PHA)**
 4 **Production during High-Cell-Density Plant Oil**
 5 **Cultivations Using Photon Density Wave**
 6 **Spectroscopy**

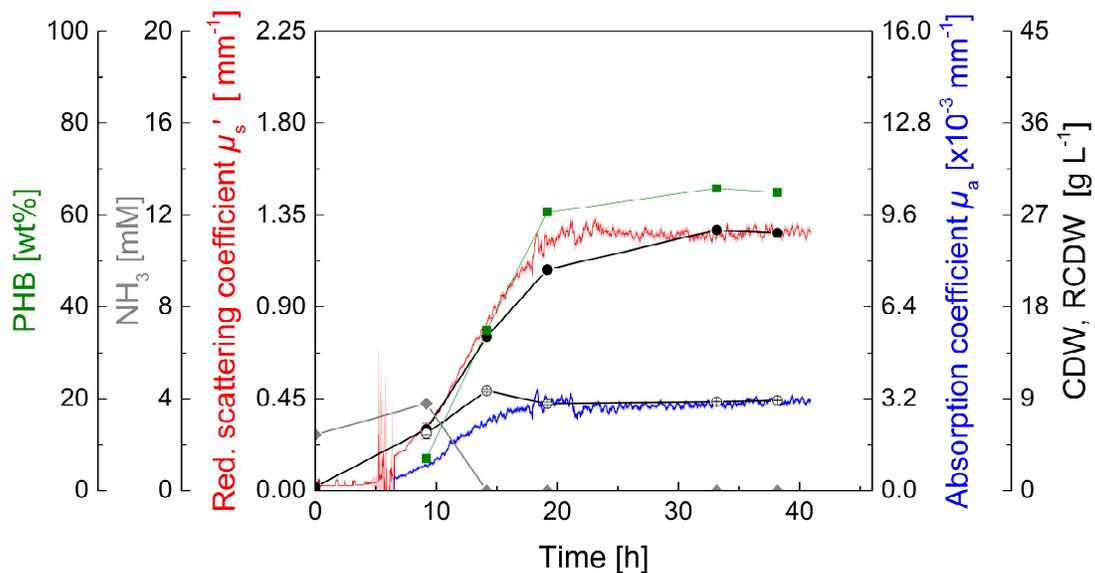
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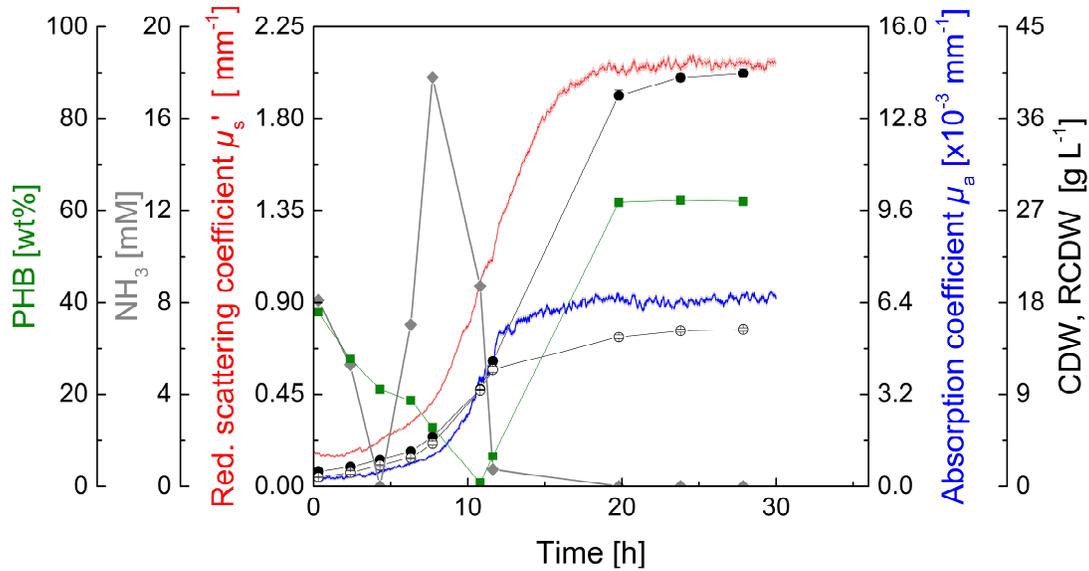
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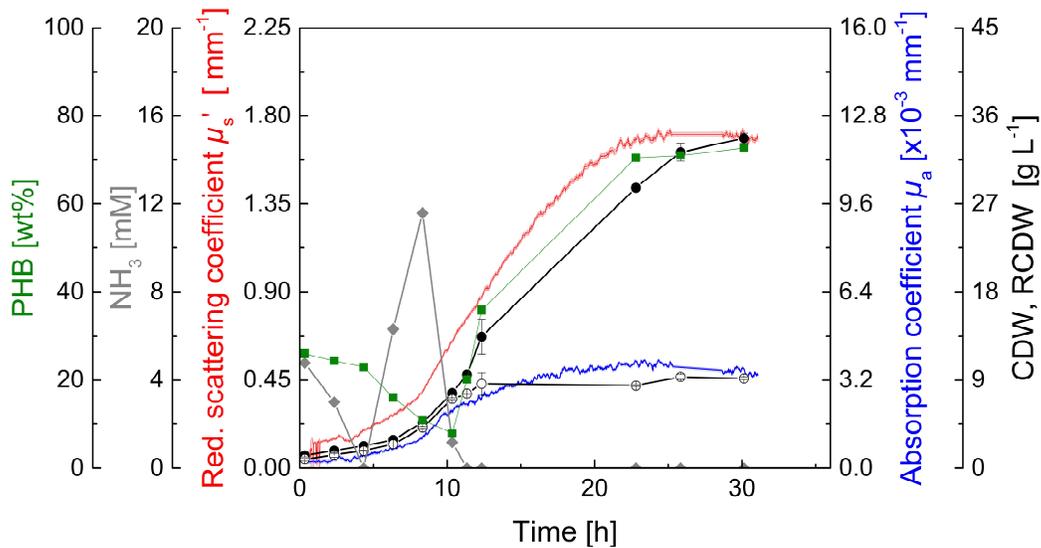
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15 **Figure S1.** Batch 1, cultivation for PHB production by *R. eutropha* H16 using 3% (w v⁻¹) rapeseed oil and 2.25 g L⁻¹
 16 urea as the carbon and nitrogen sources, respectively. Ammonia content (grey diamonds, mM), PHB content (green
 17 squares, wt%), CDW (filled circles, g L⁻¹), RCDW (empty circles, g L⁻¹), reduced scattering coefficient μ_s' (red line,
 18 mm⁻¹) and absorption coefficient μ_a (blue line, x10⁻³ mm⁻¹) are shown.

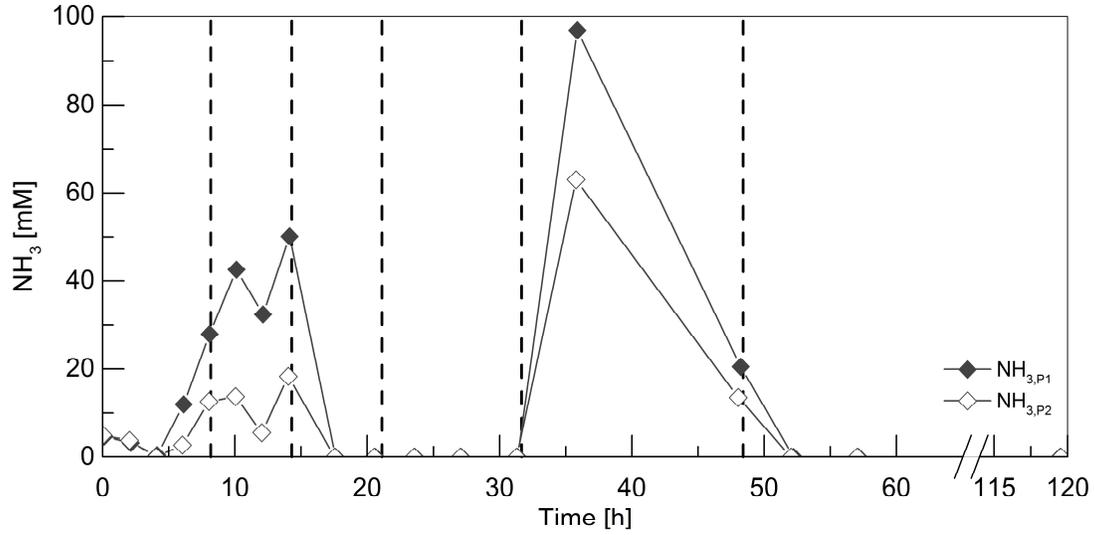
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 21 **Figure S2.** Batch 2, cultivation for PHB production by *R. eutropha* H16 using 4% (w v⁻¹) rapeseed oil and 4.5 g L⁻¹
 22 urea as the carbon and nitrogen sources, respectively. Ammonia content (grey diamonds, mM), PHB content (green
 23 squares, wt%), CDW (filled circles, g L⁻¹), RCDW (empty circles, g L⁻¹), reduced scattering coefficient μ_s' (red line,
 24 mm⁻¹) and absorption coefficient μ_a (blue line, x10⁻³ mm⁻¹) are shown.
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 27 **Figure S3.** Batch 3, cultivation for PHB production by *R. eutropha* H16 using 4% (w v⁻¹) rapeseed oil and 2.25 g L⁻¹
 28 urea as the carbon and nitrogen sources, respectively. Ammonia content (grey diamonds, mM), PHB content (green
 29 squares, wt%), CDW (filled circles, g L⁻¹), RCDW (empty circles, g L⁻¹), reduced scattering coefficient μ_s' (red line,
 30 mm⁻¹) and absorption coefficient μ_a (blue line, x10⁻³ mm⁻¹) are shown.
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Figure S4. Ammonia contents from the pulse feed cultivations. The cultures were initially started with 0.5% (w v⁻¹) rapeseed oil and 150 mM nitrogen (4.5 g L⁻¹ urea). The dashed vertical lines represent time points of pulse addition: 0.5% (w v⁻¹) rapeseed oil at 8.2 h, 1% (w v⁻¹) rapeseed oil at 14.3 h, 2% (w v⁻¹) rapeseed oil at 21.1 h, 0.5% (w v⁻¹) rapeseed oil at 8.2 h, a bolus (110 mL urea solution (122 g L⁻¹), 15.6 mL 0.5 M K₂SO₄, 30 mL 0.32 M MgSO₄, 30 mL 0.042 mM CaCl₂ and 3 mL trace element solution) at 31.7 h and 4% (w v⁻¹) rapeseed oil at 48.4 h. Ammonia contents from the reference experiment (dark grey, filled diamonds, mM) and the biological duplicate (dark grey, open diamonds, mM) are shown.