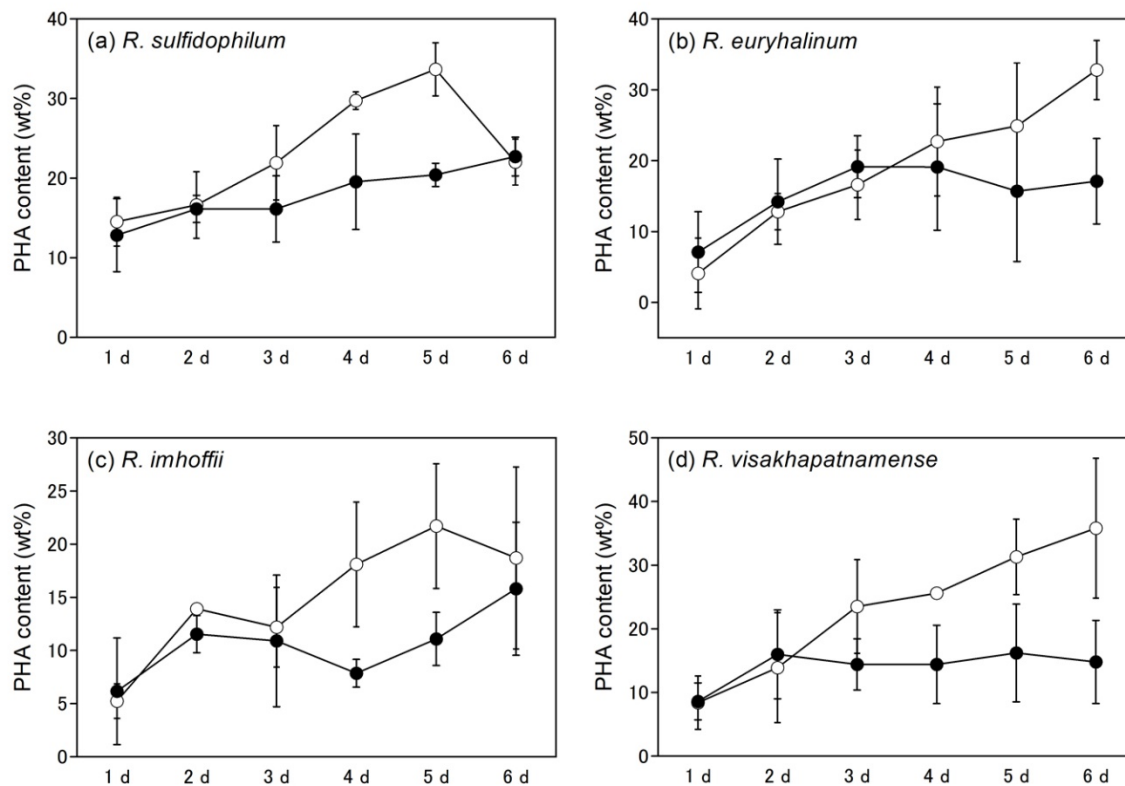
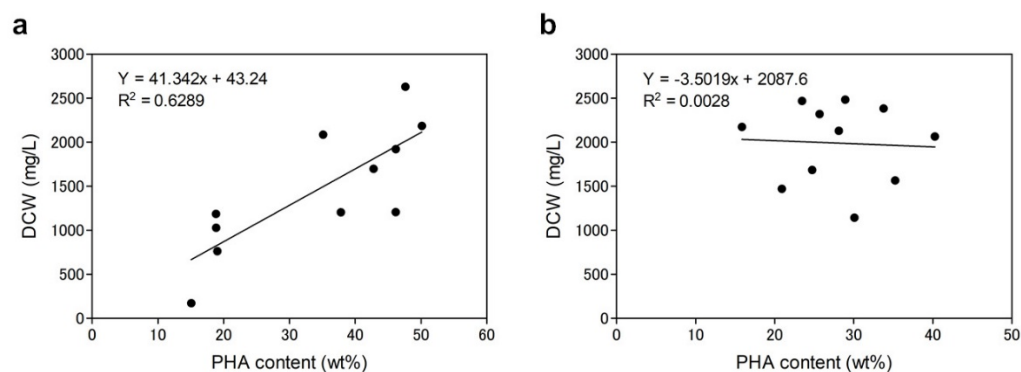


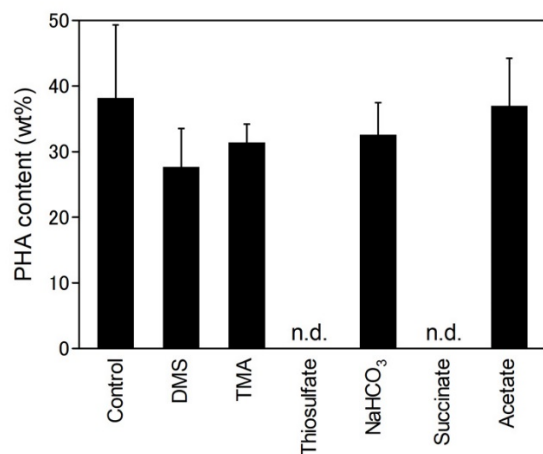
Supplementary Material



Supplementary Figure 1. Time course of PHA content (wt%) under nutrient rich (open circles) and nitrogen-limited conditions (closed circles). Four photosynthetic purple bacteria strains (*R. sulfidophilum*, *R. euryhalinum*, *R. imhoffii* and *R. visakhapatnamense*) were cultured in growth medium and then inoculated to growth medium or nitrogen-limited media supplemented with 0.5% sodium acetate for 1 to 6 days. Data are the mean \pm SD from at least three cultures.



Supplementary Figure 2. Comparison between PHA contents (wt%) and DCW (mg/L) under low light (8 W/m²) grown cells (a) and high light (50 W/m²) grown cells (b). The regression lines and R^2 values were shown in each Figure.



Supplementary Figure 3. Effect of reductants and carbon sources on PHA production under anaerobic condition. Cells were cultured under anaerobic conditions in the presence of 10 mM DMA (dimethylamine) and 10 mM TMA (trimethylamine) as reductants and 20 mM sodium bicarbonate and 0.5% sodium acetate as carbon sources. n.d. = not determined. Data are the mean \pm SD from at least three cultures.

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R. sulfidophilum 1 -MFQKVPQPKLSAAVVRQHLLILAGVLRPGORLPAPERLSERLGVSRPSLREAIESLE 59
E. coli PdhR 1 -MAYSKIROPKLSDVIEQQDEFLILEGLRPGKLPPEPELAKQFTVSRPSLREAIQRIE 59
R. rubrum 1 MIMSEIRATRIAEIADHDERLIAEGGLRPGERLPERELALKLVSRPSLRDGLAAME 60
R. sphaeroides 1 -MFFEKVQTEKLAQSVVRQHLLILAGVLRPGECLPPEPELSERLGVSRPSLRDAVAELQ 59

R. sulfidophilum 60 ARGLLVRRAGAGVFAEMLGAAFSDALVRLFATHDEALFDYIAFRRDLEGDAADRAARTG 119
E. coli PdhR 60 AKGLLLRRQGGGFVQSSLWQSFSDFVELLSDHPESQYDLETRHADEGHAAIYALCS 119
R. rubrum 61 RRGLIVTDR-QSSRAEEL-RPLTEPLELLIQNNITQATFDYLEFRFVVEGPAAEAMAKRA 118
R. sphaeroides 60 ERGLLVTRAGAGHYVAEVLGSAFAPALVGLFATHDEAVFDYIAFRRDMEGLAAERAAVMG 119

R. sulfidophilum 120 SDLDLAVVDTLFTRMEAAHARRSPABEARLDAEFHLSIIEASHNVMTTHMRRAMFDLLRE 179
E. coli PdhR 120 TDDEKERIRELHHAIELAQQSGDLDAESNAVLQYQIAVTEAAHNVVLHLRCHMEPMLAQ 179
R. rubrum 119 TDDRAAIRAILDRMAAVHGDDSAAEAEADADLHSATYEATNNVMILHMRGFSQLRR 178
R. sphaeroides 120 SDPLRVVDIAIFVKMEAAHARRSPKDEARLDAEFHMAIIEASHNVIMLMRRSMFDLLRE 179

R. sulfidophilum 180 GVEYNRQIMFRQITTRMLLDQHRANTALQARDGATRAVERHLDYVVEALRADQNV 239
E. coli PdhR 180 NVRONFELLYSRREMLPLVSSHRTTFEATMAGKPEEARPSHRLAFIEEILLDRSREE 239
R. rubrum 179 DVEYNRERLYAREGVRLDGLLGHQAIGSAILIAGDGPARRRAEEHITVTRETLLEIRDA 238
R. sphaeroides 180 GVEYNRQILFRQITTRALLDQHRANTALQARNPARRRAVTAHLSFVENALAAQQR 239

R. sulfidophilum 240 RNEAVARQRLDHEQALNKG--- 256
E. coli PdhR 240 SRERSLRRLRLEQRKN----- 254
R. rubrum 239 ARLAMSRLRRIGRRDLVAPER 258
R. sphaeroides 240 RNEAVARQRLDHEQRRT--- 256

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Supplementary Figure 4. Amino acid sequence alignment of PdhR homologs from *R. sulfidophilum*, *E. coli*, *R. rubrum* and *R. sphaeroides*. The amino acid sequences were aligned using the MUSCLE algorithm. Identical and similar amino acids are shown in black and gray boxes, respectively.

Table S1. Purple non-sulfur photosynthetic bacteria used in this study.

Resource No.	Organism
DSM4868	<i>Rhodovulum euryhalinum</i> (<i>R. euryhalinum</i>)
JCM13589	<i>Rhodovulum imhoffii</i> (<i>R. imhoffii</i>)
ATCC35886	<i>Rhodovulum sulfidophilum</i> (<i>R. sulfidophilum</i>)
JCM13531	<i>Rhodovulum visakhapatnamense</i> (<i>R. visakhapatnamense</i>)

Table S2. Primer sets used in this study.

Gene name	Primer A (5' – 3')	Primer B (5' – 3')	Product size (bp)
<i>RpoD</i>	CTTGTCTCGATGAAATCG	GTCCGCAAGGTGATGAAGAT	108
<i>IDH</i>	ATCGACCAAGAACACCATCC	TCCTCGAATTCCTGCTCGTAG	64
<i>PDH</i>	TGCACATGTTCTCGAAGGAG	CGGCCATTGTCCTTGTACTTG	93
<i>ACS43</i>	TGGGTCGAGAAATACGACCTG	TCCTCGAATTCCTGCTCGTAG	103
<i>PhaC</i>	ATTGAGCCCGTCGATATCCT	GCAGACCCATCCCTATTTCA	93
<i>PhaP</i>	TCGACGATCTTAACGTCCCT	CAATACGGAGACCAGCGATT	80
<i>PhaZ</i>	TGCGACGTCTATATCACCGA	CCGAGATGCTTGAGGAAATC	112
<i>PDHR_{RS}</i>	GCCGAATTCCATCTCTCGAT	CATGATCTGCCGGTTGTAGA	113