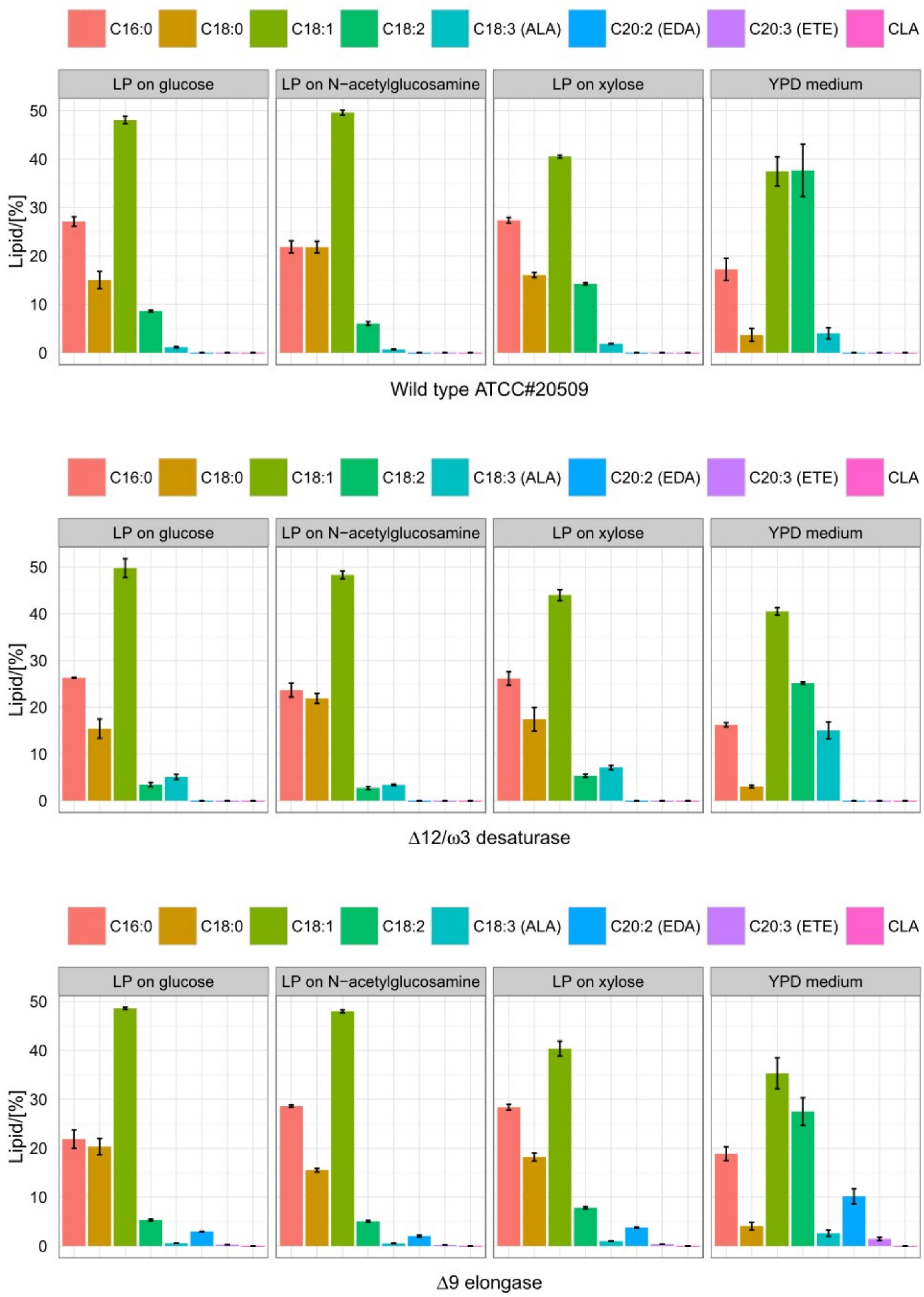
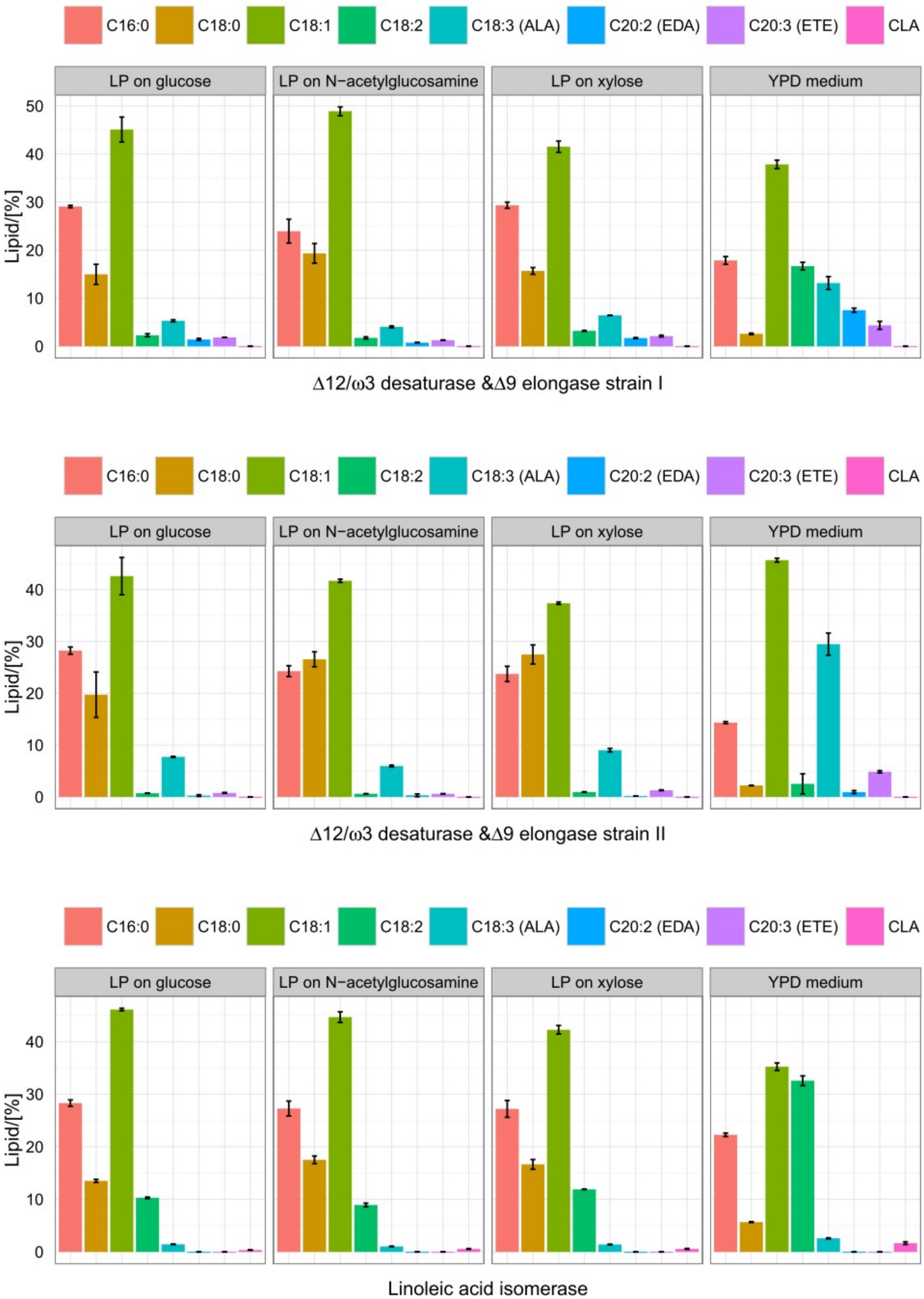
Electronic Supplementary Material (ESI) for Green Chemistry.

Figure S9. Graphical illustration of Table S1 of the fatty acid distribution after 24 hours cultivation.



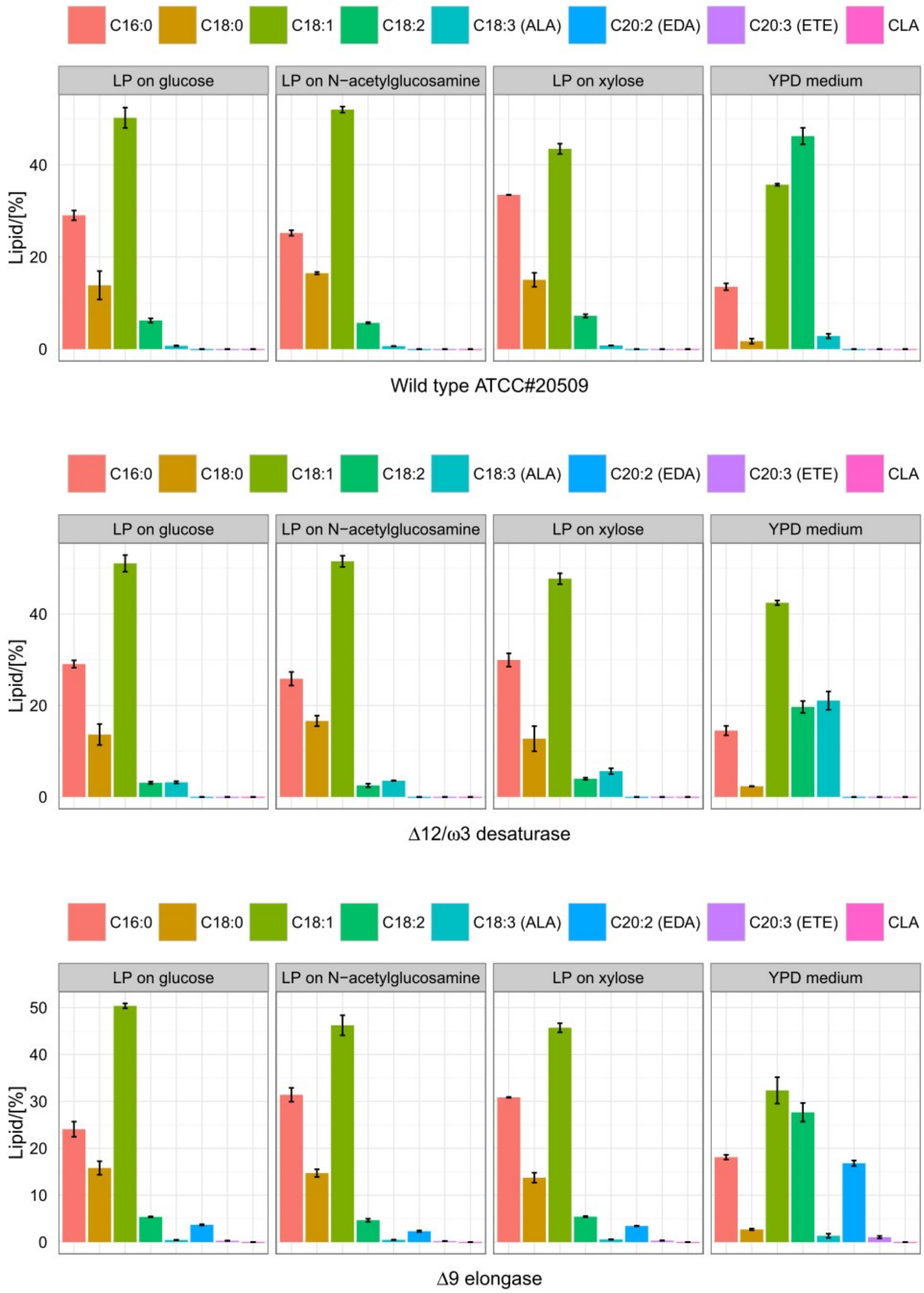
(LP = Lipid production medium with either glycose, N-acetylglucosamine or xylose as carbon source)

Figure S10. Graphical illustration of Table S1 of the fatty acid distribution after 24 hours cultivation.



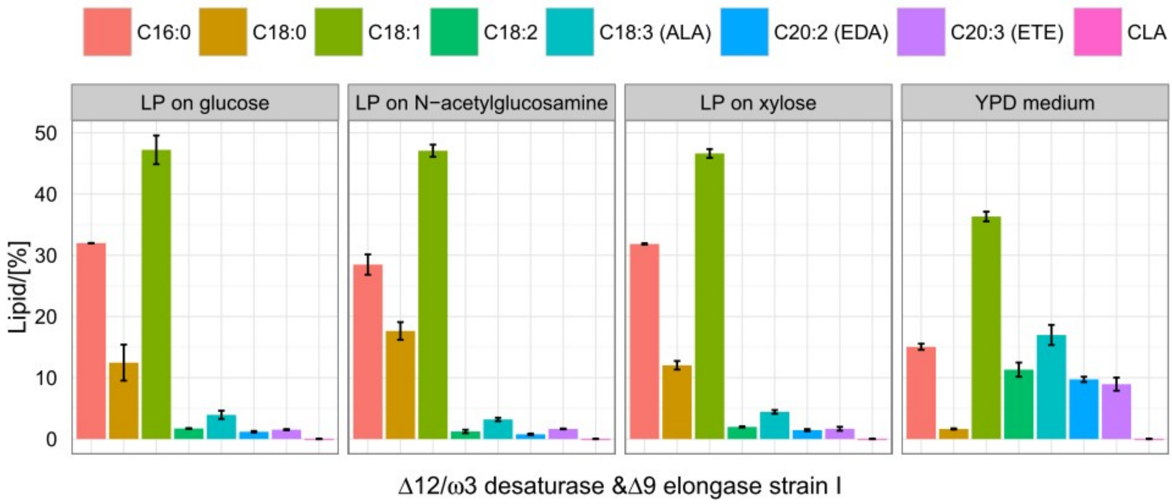
(LP = Lipid production medium with either glycose, N-acetylglucosamine or xylose as carbon source)

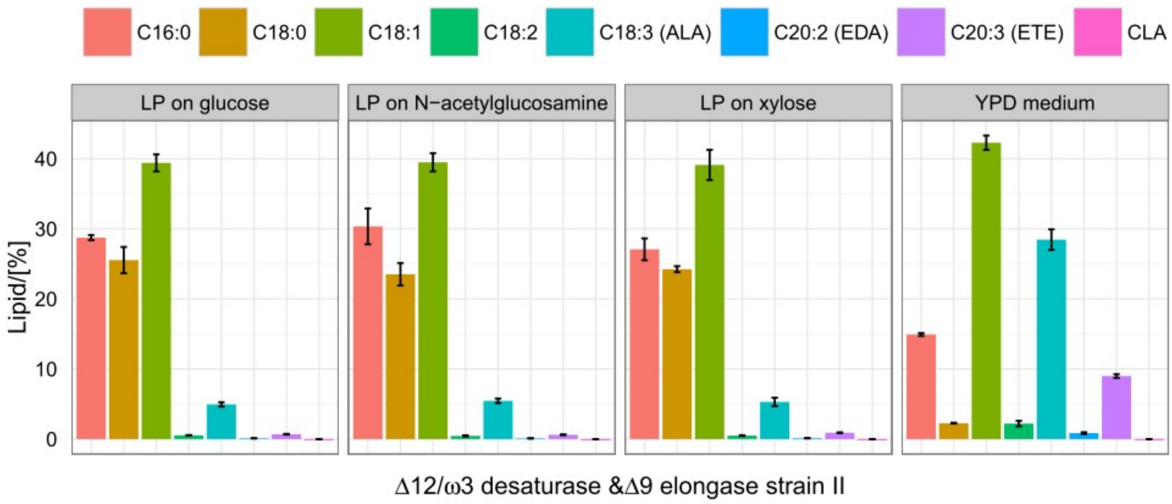
Figure S11. Graphical illustration of Table S1 of the fatty acid distribution after 72 hours cultivation.

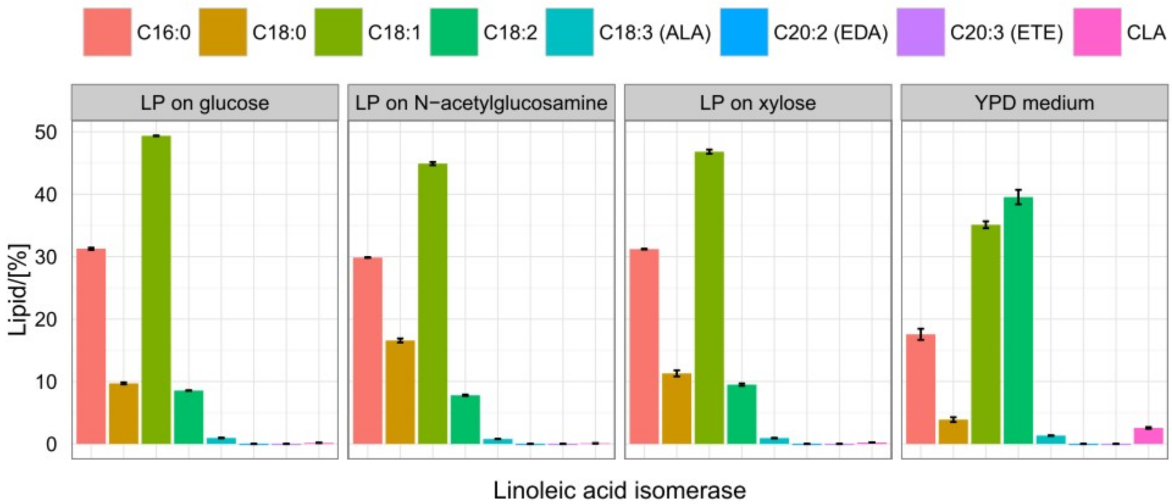


(LP = Lipid production medium with either glycose, N-acetylglucosamine or xylose as carbon source)

Figure S12. Graphical illustration of Table S1 of the fatty acid distribution after 72 hours cultivation.

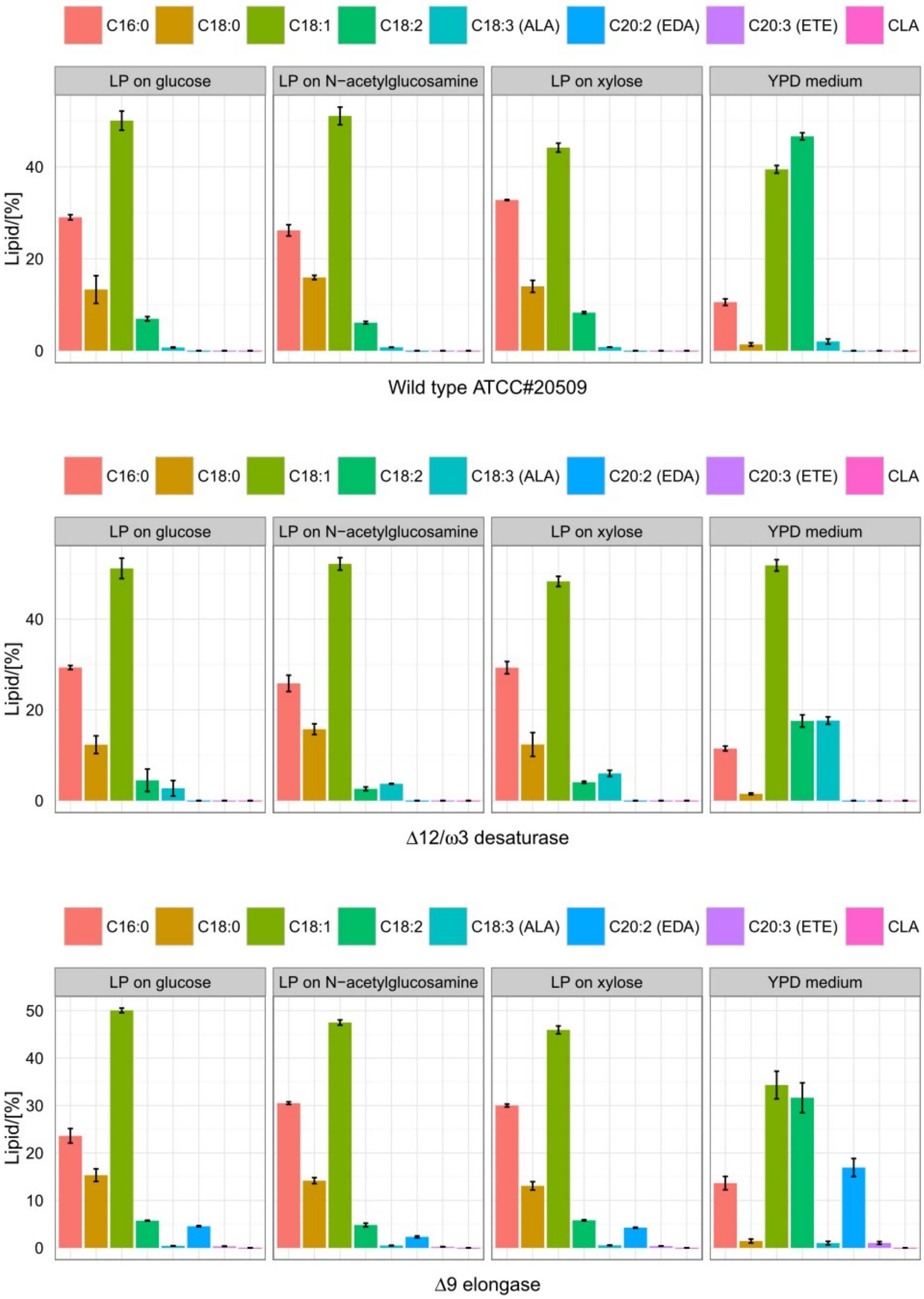






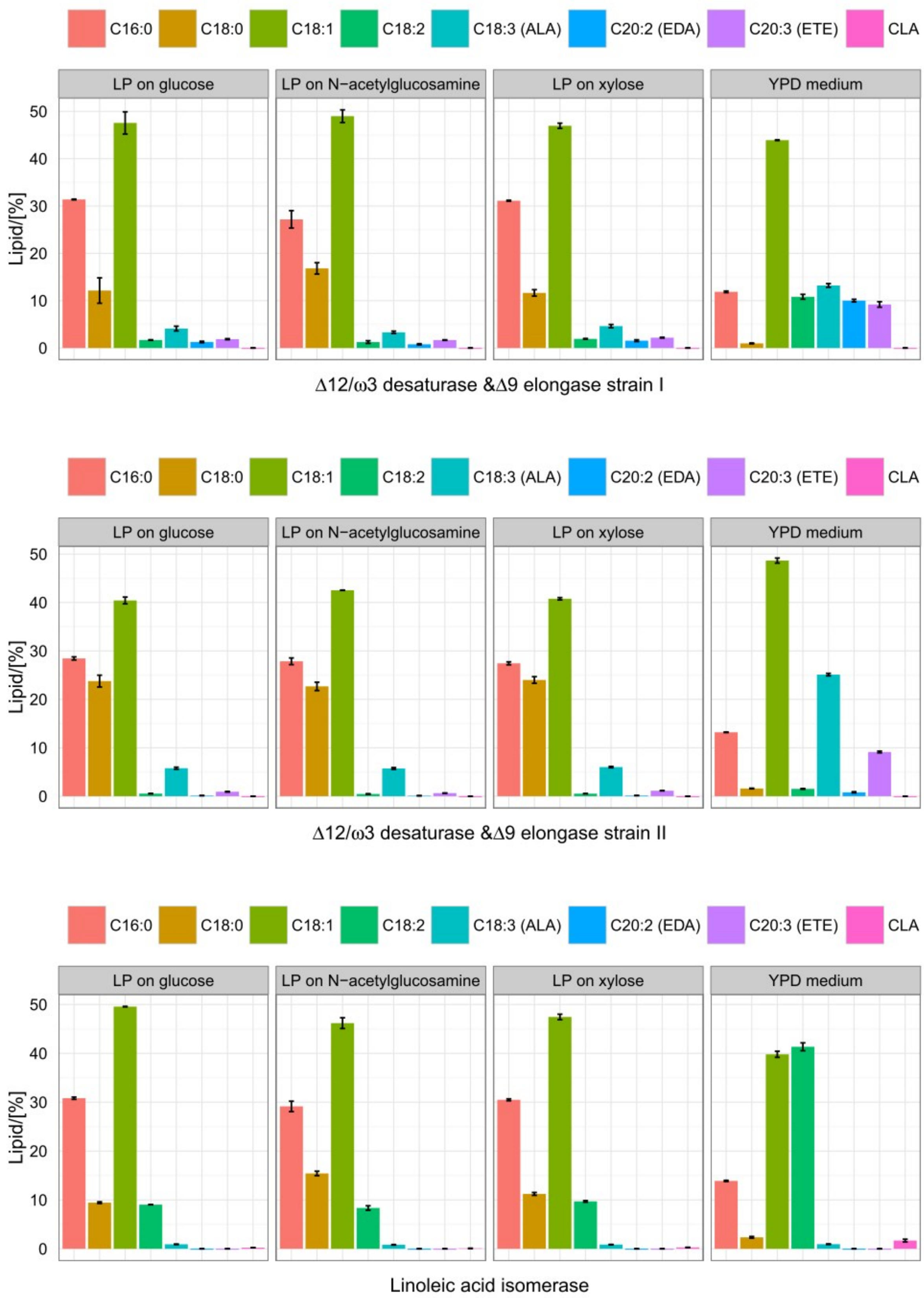
(LP = Lipid production medium with either glycose, N-acetylglucosamine or xylose as carbon source)

Figure S13. Graphical illustration of Table S1 of the fatty acid distribution after 168 hours cultivation.



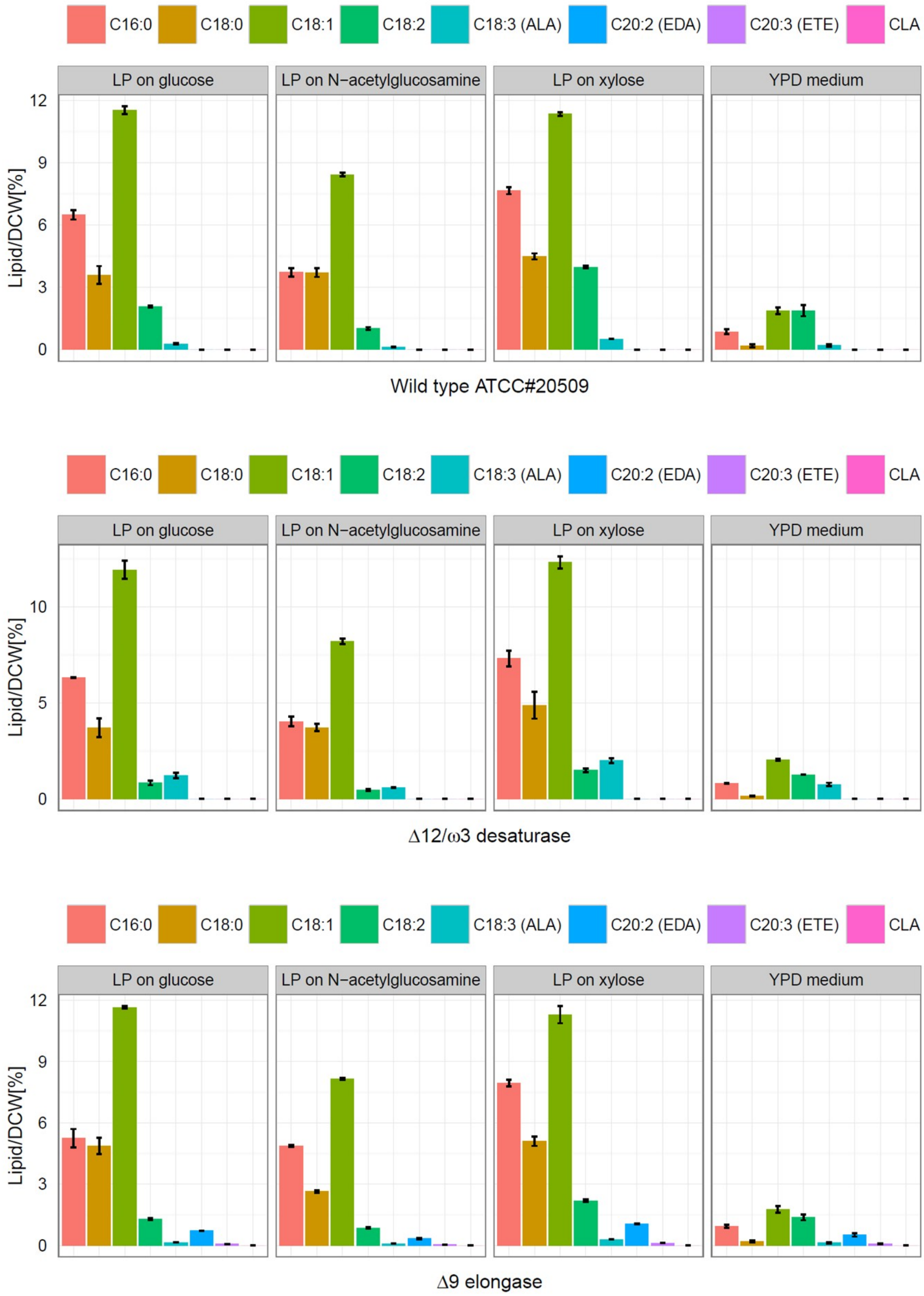
(LP = Lipid production medium with either glycose, N-acetylglucosamine, xylose as carbon source)

Figure S14. Graphical illustration of Table S1 of the fatty acid distribution after 168 hours cultivation.



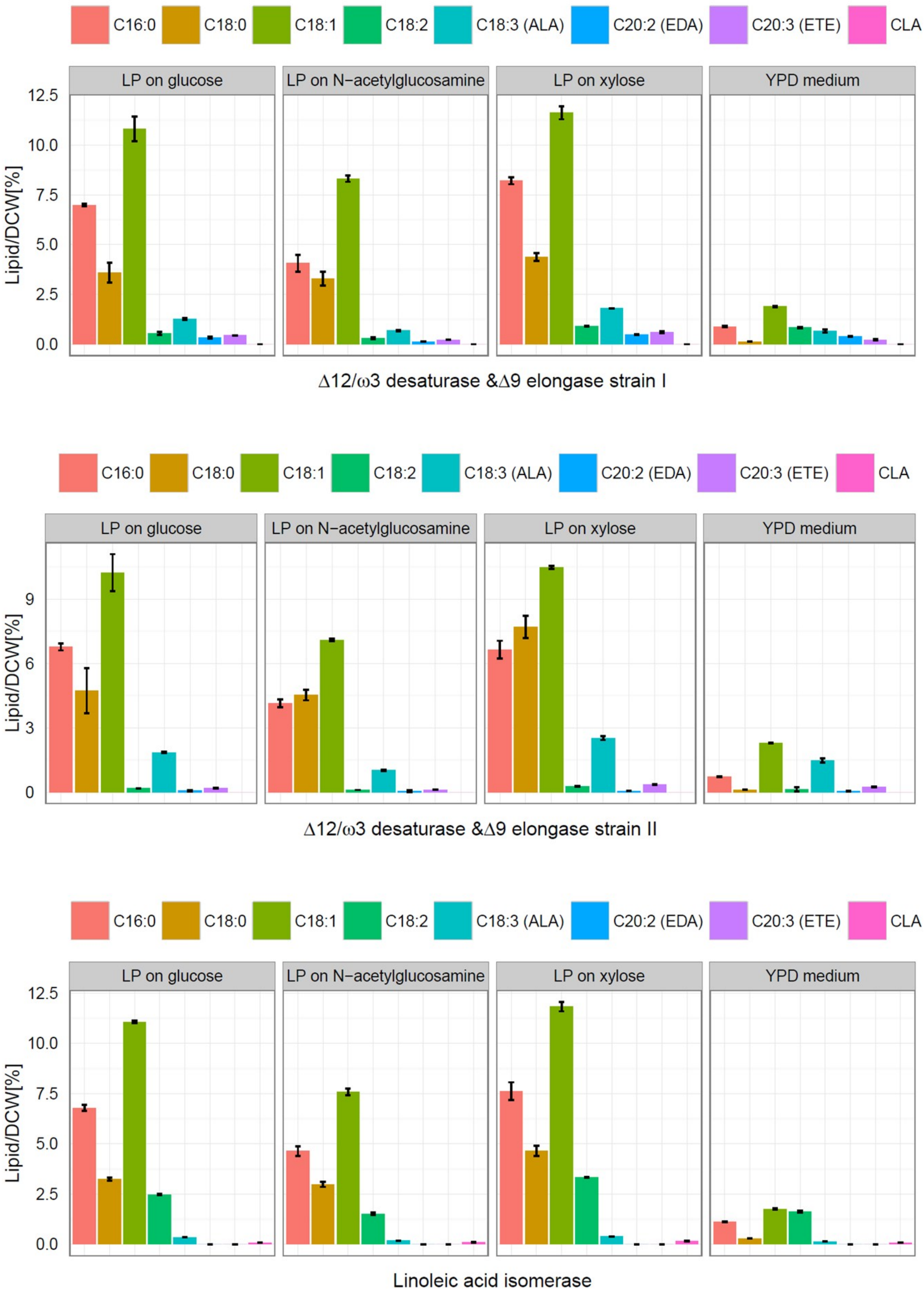
(LP = Lipid production medium with either glycose, N-acetylglucosamine, xylose as carbon source)

Figure S15. Graphical illustration of Table S2 of the fatty acid distribution after 24 hours cultivation.



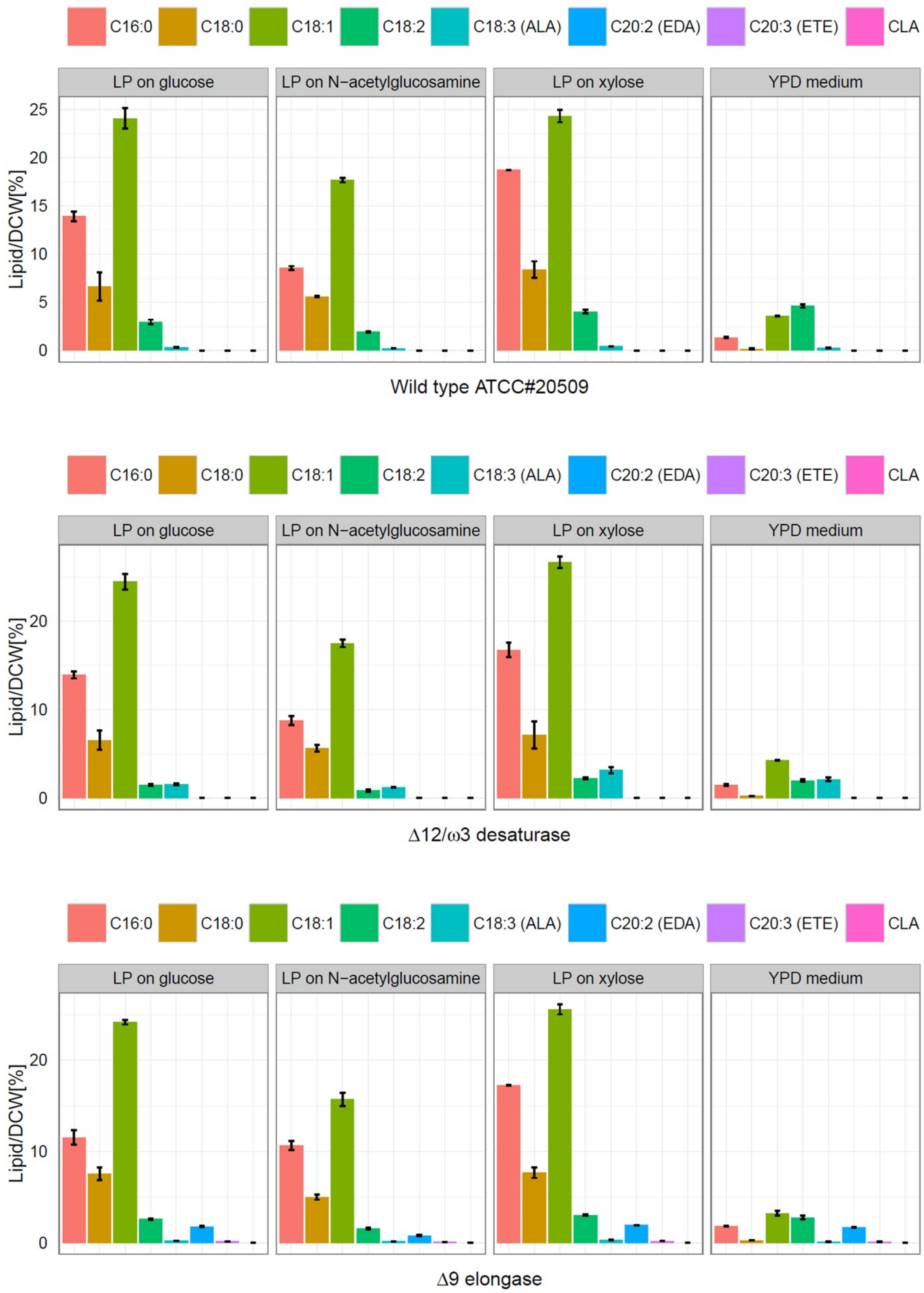
(LP = Lipid production medium with either glycose, N-acetylglucosamine, xylose as carbon source)

Figure S16. Graphical illustration of Table S2 of the fatty acid distribution after 24 hours cultivation.



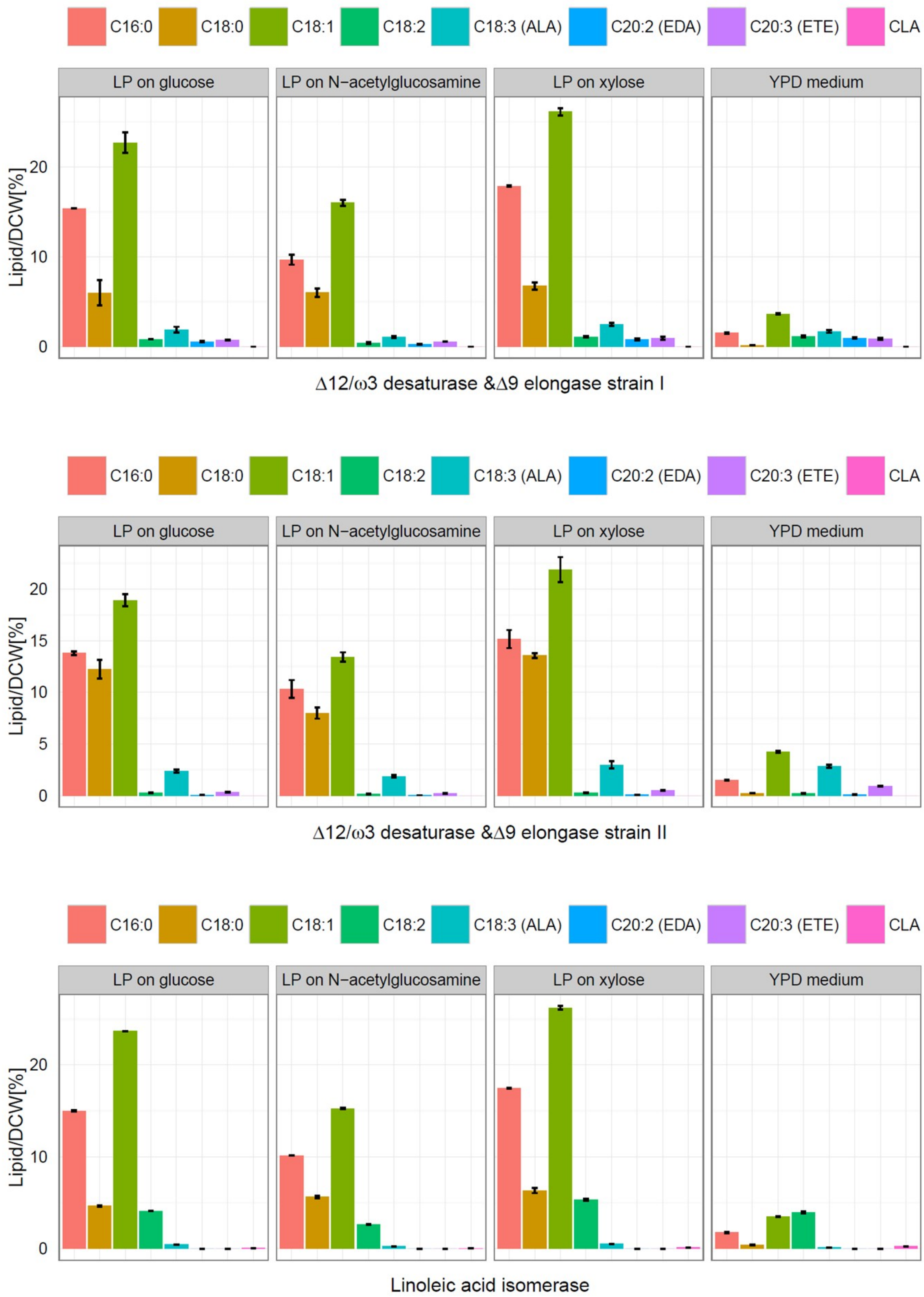
(LP = Lipid production medium with either glycose, N-acetylglucosamine, xylose as carbon source)

Figure S17. Graphical illustration of Table S2 of the fatty acid distribution after 72 hours cultivation.



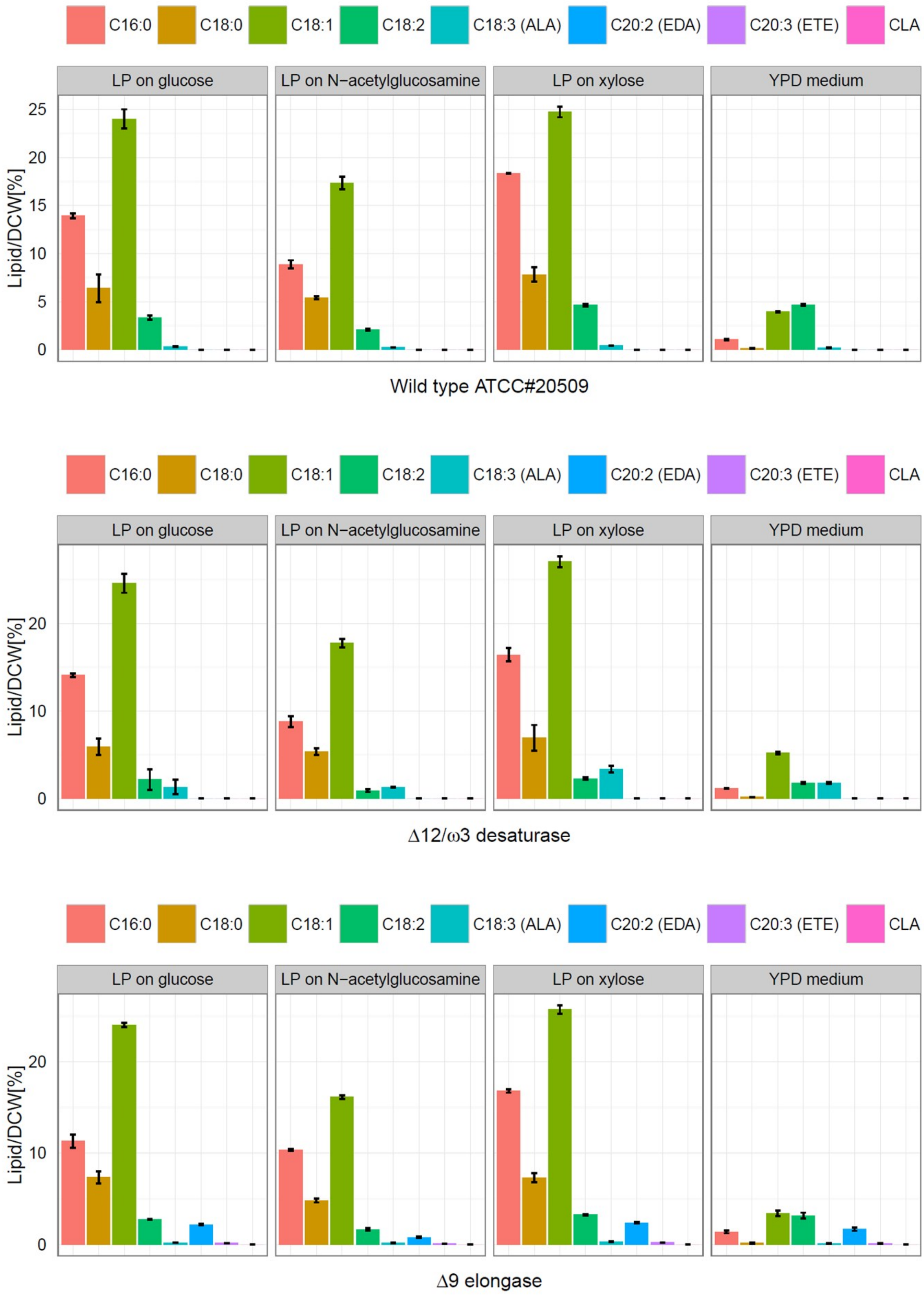
(LP = Lipid production medium with either glycose, N-acetylglucosamine, xylose as carbon source)

Figure S18. Graphical illustration of Table S2 of the fatty acid distribution after 72 hours cultivation.



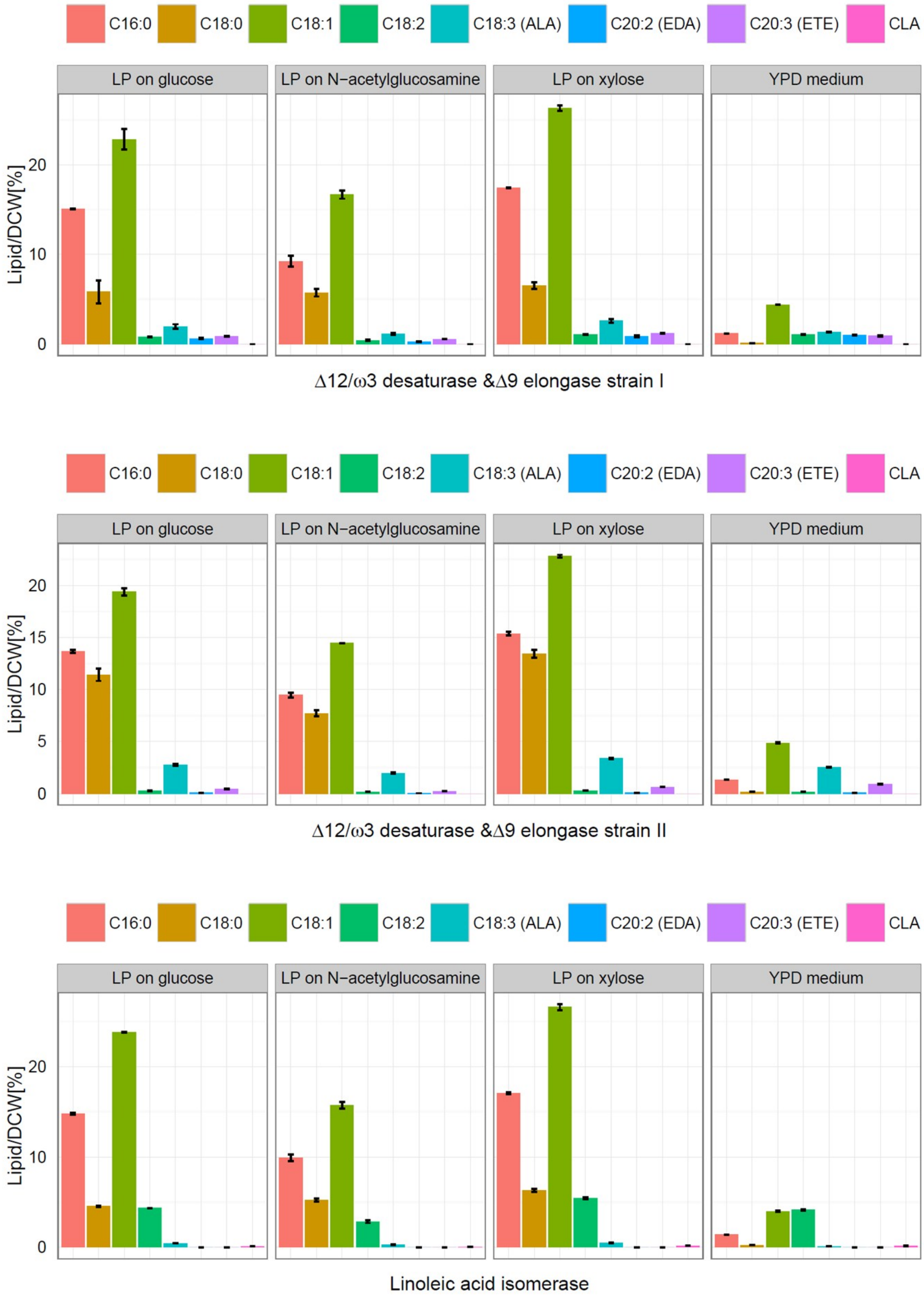
(LP = Lipid production medium with either glycose, N-acetylglucosamine, xylose as carbon source)

Figure S19. Graphical illustration of Table S2 of the fatty acid distribution after 168 hours cultivation.



(LP = Lipid production medium with either glycose, N-acetylglucosamine, xylose as carbon source)

Figure S20. Graphical illustration of Table S2 of the fatty acid distribution after 168 hours cultivation.



(LP = Lipid production medium with either glycose, N-acetylglucosamine, xylose as carbon source)

Figure S21. Yellow fluorescence protein gene expression cassette (*yfp*).

GGGGATTGGCGTCATCAAGTGCCACTGCCGCCGGCATTGGACAATGAACTTGAGACAGAGGTAAGTGCACCT
CTTGCAATCAGGGCAGTCGATAGGCGGTGGACGAATGAGGATGCGTCGTGAGCGGGTTCGCTCCTGGCAATC
TACCGCACTGGCCTGCGTGTACTGTAGTCGCCCGCACCGCCGTGTCGGCATGGTACAAAGGCAAGAGTAGTAG
TAGCACGAGCAGATGCGGGCGTTACAGGCGTAGTAGGCGAGATCAAGCCGAACCGATGAACCCTGTCGCGTA
CAAGGGTCCTGATATGGGATAACCCTTCCGGCGGCTGGGCCGGCTCGTCATGGCCCGCTCCCCCCCCCCGGG
CATGATCCCCAGATGGTCCTCTGGCCCAGTGCCTAGGCCAACCTCCTACCTCCTCCGGCACCATTACCACCATAC
AGCCAGCAGCCAGCAGCCAGGCTCACCTACGGCGTCACCAGTCGCCCTCGCTCTTGGCTACTCCTCATACCCAG
CCAAACCCAGCCCATGCCAGCCACGGCCAGCCAGCCAGTCATTCTGGTCCGTTCCATTCCCATCGATCCCTCCCC
CCAGGCCCCCAACGTGTTCCGTTTCCGACCCCCACCCCGGCCTCCTCCTCCGCCCCCCCCCCTCCGCCCTCTCCCC
CCCCATTCCAAGCCGAACCCACAACCCCATTTAACCGCGACCATCCTCGCCTCTTCCTCTCTCTCCTTCTCTCTCTT
TCTCAACCACCTCCTCTTCTCAAAACTATTCCCCTCCTCCCAAAAATCAACTTGATCAACA**ATG**GGCAAGGTCTC
GAAGGGCGAGGAGCTCTTCACCGGCGTCGTCCCCATCCTCGTCGAGCTCGACGGCGACGTCAACGGCCACAA
GTTCTCGGTCTCGGGCGAGGGCGAGGGCGACGCCACCTACGGCAAGCTCACCCTCAAGTTCATCTGCACCACC
GGCAAGCTCCCCGTCCCCTGGCCCACCCTCGTCACCACCTTCGGCTACGGCCTCCAGTGCTTCGCCCGCTACCCC
GACCACATGAAGCAGCACGACTTCTTCAAGTCGGCCATGCCCGAGGGCTACGTCCAGGAGCGCACCATCTTCT
TCAAGGACGACGGCAACTACAAGACCCGCGCCGAGGTCAAGTTCGAGGGCGACACCCTCGTCAACCGCATCG
AGCTCAAGGGCATCGACTTCAAGGAGGACGGCAACATCCTCGGCCACAAGCTCGAGTACAACTACAACTCGCA
CAACGTCTACATCATGGCCGACAAGCAGAAGAACGGCATCAAGGTCAACTTCAAGATCCGCCACAACATCGAG
GACGGCTCGGTCCAGCTCGCCGACCACTACCAGCAGAACACCCCCATCGGCGACGGCCCCGTCCTCCTCCCCG
ACAACCACTACCTCTCGTACCAGTCGGCCCTCTCGAAGGACCCCAACGAGAAGCGCGACCACATGGTCCTCCTC
GAGTTCGTCACCGCCGCCGGCATCACCCTCGGCATGGACGAGCTCTACAAG**TGA**CTTTCTAGGTTGTAGCATG
GTTTCCGCGTAGCAGTAGCAGTACCAGAGGAATGCAGTTGTGACTAGATACTCACTCGTACATGTGTGCTACC
CGTGCTGACAAATGCACTGACATGGCCAGTCACTAGCTCCTCACTTCGCAATCGCAACGGCGGCGTGTGCCCTT
CAACTCCAGCGGTCATCGGCCACCGTGCCCCTCCCCTCGCCCGAATCCCCGTGCAGCGTCATCGTCCCTGCAGG
TGCGACACCCGTGTAATCATCGGGGACACCCGCGGGCCCCCTGCGAACGATGCGGAGGGCCGGCGAGTACGC
GGCGCTCCTGGCGCCGACGATGACTGAGAAAGTACCCCGGAAAGGTTATGGCGCCGTCGGGCGGAACAGCA
GAAAGTATAGAATAGCCGGGAGATATCGTGTCGGCCATGGTCGGGCAGTTACAACTCTGGACTGAAGACAGA
TCTGGGACCCCGCACCCCGCGTCATCGGGTTCGGCAGGACCACGCCGACCGGAGAAATCCGGGGGACGGCTC
TGAGGGCATATTCCTTGTCCAACATGTCCTGCACCGGCTGCACCCTGCACCAAAAGGTCCAATGTCAGCGGAT

Figure S22. $\triangle$9 elongase gene expression cassette (*igASE2*).

GGGGATTGGCGTCATCAAGTGCCACTGCCGCCGGCATTGGACAATGAACTTGAGACAGAGGTAAGTGCACCT
CTTGCAATCAGGGCAGTCGATAGGCGGTGGACGAATGAGGATGCGTCGTGAGCGGGTTCGCTCCTGGCAATC
TACCGCACTGGCCTGCGTGTACTGTAGTCGCCCGCACCGCCGTGTCGGCATGGTACAAAGGCAAGAGTAGTAG
TAGCACGAGCAGATGCGGGCGTTACAGGCGTAGTAGGCGAGATCAAGCCGAACCGATGAACCCTGTCGCGTA
CAAGGGTCCTGATATGGGATAACCCTTCCGGCGGCTGGGCCGGCTCGTCATGGCCCGCTCCCCCCCCCCGGG
CATGATCCCCAGATGGTCCTCTGGCCCAGTGCCTAGGCCAACCTCCTACCTCCTCCGGCACCATTACCACCATAC
AGCCAGCAGCCAGCAGCCAGGCTCACCTACGGCGTCACCAGTCGCCCTCGCTCTTGGCTACTCCTCATACCCAG
CCAAACCCAGCCCATGCCAGCCACGGCCAGCCAGCCAGTCATTCTGGTCCGTTCCATTCCCATCGATCCCTCCCC
CCAGGCCCCCAACGTGTTCCGTTTCCGACCCCCACCCCGGCCTCCTCCTCCGCCCCCCCCCCTCCGCCCTCTCCCC
CCCCATTCCAAGCCGAACCCACAACCCCATTTAACCGCGACCATCCTCGCCTCTTCCTCTCTCTCCTTCTCTCTCTT
TCTCAACCACCTCCTCTTCTCAAAACTATTCCCCTCCTCCCAAAAATCAACTTGATCAACA**ATG**GCCACCGAGGC
CACCGCCTCGATCTGGGCCGCCGTCTCGGACCCCGAGATCCTCATCGGCACCTTCTCGTACCTCCTCCTCAAGCC
CATCCTCCGCTCGTCGGGCCTCGTCGACGAGAAGAAGGGCGCCTACCGCACCTCGATGATCTGGTACAACGTC
ATCCTCGCCCTCTTCTCGGCCACCTCGTTCTACGTCACCGCCACCGCCCTCGGCTGGGACTACGGCTCGGGCGA
GTGGCTCCGCCGCCTCACCGGCGACACCCCCCAGCCCCTCTTCCAGTGCCCCTCGCGCGTCTGGGACTCGAAGC
TCTTCGTCTGGACCGCCAAGGCCTTCTACTACTCGAAGTACGTCGAGTACCTCGACACCGCCTGGCTCGTCCTC
AAGGGCAAGAACGTCTCGTTCCTCCAGGCCTTCCACCACTTCGGCGCCCCCTGGGACGTCTACCTCGGCATCCG
CCTCCAGAACGAGGGCGTCTGGATCTTCATGTTCTTCAACTCGTTCATCCACACCATCATGTACACCTACTACGG
CCTCACCGCCGCCGGCTACAAGATCAAGGCCAAGCCCCTCATCACCGCCATGCAGATCTCGCAGTTCATGGGC
GGCTTCATCCTCGTCTGGGACTACATCAACATCCCCTGCTTCCGCTCGGACAACGGCAAGGTCTTCTCGTGGGT
CTTCAACTACGCCTACGTCGGCTTCGTCTTCCTCCTCTTCTGCCACTTCTTCTACAAGGACAACCTCGCCTCGAAG
AAGCCCGCCAAGGGCGGCAAGGCCCTC**TGA**CTTTCTAGGTTGTAGCATGGTTTCCGCGTAGCAGTAGCAGTAC
CAGAGGAATGCAGTTGTGACTAGATACTCACTCGTACATGTGTGCTACCCGTGCTGACAAATGCACTGACATG
GCCAGTCACTAGCTCCTCACTTCGCAATCGCAACGGCGGCGTGTGCCCTTCAACTCCAGCGGTCATCGGCCACC
GTGCCCCTCCCCTCGCCCGAATCCCCGTGCAGCGTCATCGTCCCTGCAGGTGCGACACCCGTGTAATCATCGGG
GACACCCGCGGGCCCCCTGCGAACGATGCGGAGGGCCGGCGAGTACGCGGCGCTCCTGGCGCCGACGATGA
CTGAGAAAGTACCCCGGAAAGGTTATGGCGCCGTCGGGCGGAACAGCAGAAAGTATAGAATAGCCGGGAGA
TATCGTGTCGGCCATGGTCGGGCAGTTACAACTCTGGACTGAAGACAGATCTGGGACCCCGCACCCCGCGTCA
TCGGGTTCGGCAGGACCACGCCGACCGGAGAAATCCGGGGGACGGCTCTGAGGGCATATTCCTTGTCCAACA
TGTCCTGCACCGGCTGCACCCTGCACCAAAAGGTCCAATGTCAGCGGAT

Figure S23. Δ12 /ω3 desaturase gene expression cassette (*fm1*).

GGGGATTGGCGTCATCAAGTGCCACTGCCGCCGGCATTGGACAATGAACTTGAGACAGAGGTAAGTGCACCT
CTTGCAATCAGGGCAGTCGATAGGCGGTGGACGAATGAGGATGCGTCGTGAGCGGGTTCGCTCCTGGCAATC
TACCGCACTGGCCTGCGTGTACTGTAGTCGCCCGCACCGCCGTGTCGGCATGGTACAAAGGCAAGAGTAGTAG
TAGCACGAGCAGATGCGGGCGTTACAGGCGTAGTAGGCGAGATCAAGCCGAACCGATGAACCCTGTCGCGTA
CAAGGGTCCTGATATGGGATAACCCTTCCGGCGGCTGGGCCGGCTCGTCATGGCCCGCTCCCCCCCCCCGGG
CATGATCCCCAGATGGTCCTCTGGCCCAGTGCCTAGGCCAACCTCCTACCTCCTCCGGCACCATTACCACCATAC
AGCCAGCAGCCAGCAGCCAGGCTCACCTACGGCGTCACCAGTCGCCCTCGCTCTTGGCTACTCCTCATACCCAG
CCAAACCCAGCCCATGCCAGCCACGGCCAGCCAGCCAGTCATTCTGGTCCGTTCCATTCCCATCGATCCCTCCCC
CCAGGCCCCCAACGTGTTCCGTTTCCGACCCCCACCCCGGCCTCCTCCTCCGCCCCCCCCCTCCGCCCTCTCCCC
CCCCATTCCAAGCCGAACCCACAACCCCATTTAACCGCGACCATCCTCGCCTCTTCCTCTCTCTCCTTCTCTCTCTT
TCTCAACCACCTCCTCTTCTCAAAACTATTCCCCTCCTCCCAAAAATCAACTTGATCAACA**ATG**GCCACCCGCCA
GCGCACCGCCACCACCGTCGTCGTCGAGGACCTCCCCAAGGTCACCCTCGAGGCCAAGTCGGAGCCCGTCTTC
CCCGACATCAAGACCATCAAGGACGCCATCCCCGCCCACTGCTTCCAGCCCTCGCTCGTCACCTCGTTCTACTAC
GTCTTCCGCGACTTCGCCATGGTCTCGGCCCTCGTCTGGGCCGCCCTCACCTACATCCCCTCGATCCCCGACCAG
ACCCTCCGCGTCGCCGCCTGGATGGTCTACGGCTTCGTCCAGGGCCTCTTCTGCACCGGCGTCTGGATCCTCGG
CCACGAGTGCGGCCACGGCGCCTTCTCGCTCCACGGCAAGGTCAACAACGTCACCGGCTGGTTCCTCCACTCG
TTCCTCCTCGTCCCCTACTTCTCGTGGAAGTACTCGCACCACCGCCACCACCGCTTCACCGGCCACATGGACCTC
GACATGGCCTTCGTCCCCAAGACCGAGCCCAAGCCCTCGAAGTCGCTCATGATCGCCGGCATCGACGTCGCCG
AGCTCGTCGAGGACACCCCCGCCGCCCAGATGGTCAAGCTCATCTTCCACCAGCTCTTCGGCTGGCAGGCCTAC
CTCTTCTTCAACGCCTCGTCGGGCAAGGGCTCGAAGCAGTGGGAGCCCAAGACCGGCCTCTCGAAGTGGTTCC
GCGTCTCGCACTTCGAGCCCACCTCGGCCGTCTTCCGCCCCAACGAGGCCATCTTCATCCTCATCTCGGACATCG
GCCTCGCCCTCATGGGCACCGCCCTCTACTTCGCCTCGAAGCAGGTCGGCGTCTCGACCATCCTCTTCCTCTACC
TCGTCCCCTACCTCTGGGTCCACCACTGGCTCGTCGCCATCACCTACCTCCACCACCACCACACCGAGCTCCCCC
ACTACACCGCCGAGGGCTGGACCTACGTCAAGGGCGCCCTCGCCACCGTCGACCGCGAGTTCGGCTTCATCGG
CAAGCACCTCTTCCACGGCATCATCGAGAAGCACGTCGTCCACCACCTCTTCCCCAAGATCCCCTTCTACAAGG
CCGACGAGGCCACCGAGGCCATCAAGCCCGTCATCGGCGACCACTACTGCCACGACGACCGCTCGTTCCTCGG
CCAGCTCTGGACCATCTTCGGCACCCTCAAGTACGTCGAGCACGACCCCGCCCGCCCCGGCGCCATGCGCTGG
AACAAGGAC**TGA**CTTTCTAGGTTGTAGCATGGTTTCCGCGTAGCAGTAGCAGTACCAGAGGAATGCAGTTGTG
ACTAGATACTCACTCGTACATGTGTGCTACCCGTGCTGACAAATGCACTGACATGGCCAGTCACTAGCTCCTCA
CTTCGCAATCGCAACGGCGGCGTGTGCCCTTCAACTCCAGCGGTCATCGGCCACCGTGCCCCTCCCCTCGCCCG
AATCCCCGTGCAGCGTCATCGTCCCTGCAGGTGCGACACCCGTGTAATCATCGGGGACACCCGCGGGCCCCCT
GCGAACGATGCGGAGGGCCGGCGAGTACGCGGCGCTCCTGGCGCCGACGATGACTGAGAAAGTACCCCGGA
AAGGTTATGGCGCCGTCGGGCGGAACAGCAGAAAGTATAGAATAGCCGGGAGATATCGTGTCGGCCATGGTC
GGGCAGTTACAACTCTGGACTGAAGACAGATCTGGGACCCCGCACCCCGCGTCATCGGGTTCGGCAGGACCA
CGCCGACCGGAGAAATCCGGGGGACGGCTCTGAGGGCATATTCCTTGTCCAACATGTCCTGCACCGGCTGCAC
CCTGCACCAAAAGGTCCAATGTCAGCGGAT

Figure S24. Linoleic acid isomerase expression cassette (*pAI*).

GGGGATTGGCGTCATCAAGTGCCACTGCCGCCGGCATTGGACAATGAACTTGAGACAGAGGTAAGTGCACCT
CTTGCAATCAGGGCAGTCGATAGGCGGTGGACGAATGAGGATGCGTCGTGAGCGGGTTCGCTCCTGGCAATC
TACCGCACTGGCCTGCGTGTACTGTAGTCGCCCGCACCGCCGTGTCGGCATGGTACAAAGGCAAGAGTAGTAG
TAGCACGAGCAGATGCGGGCGTTACAGGCGTAGTAGGCGAGATCAAGCCGAACCGATGAACCCTGTCGCGTA
CAAGGGTCCTGATATGGGATAACCCTTCCGGCGGCTGGGCCGGCTCGTCATGGCCCGCTCCCCCCCCCCGGG
CATGATCCCCAGATGGTCCTCTGGCCCAGTGCCTAGGCCAACCTCCTACCTCCTCCGGCACCATTACCACCATAC
AGCCAGCAGCCAGCAGCCAGGCTCACCTACGGCGTCACCAGTCGCCCTCGCTCTTGGCTACTCCTCATACCCAG
CCAAACCCAGCCCATGCCAGCCACGGCCAGCCAGCCAGTCATTCTGGTCCGTTCCATTCCCATCGATCCCTCCCC
CCAGGCCCCCAACGTGTTCCGTTTCCGACCCCCACCCCGGCCTCCTCCTCCGCCCCCCCCCTCCGCCCTCTCCCC
CCCCATTCCAAGCCGAACCCACAACCCCATTTAACCGCGACCATCCTCGCCTCTTCCTCTCTCTCCTTCTCTCTCTT
TCTCAACCACCTCCTCTTCTCAAAACTATTCCCCTCCTCCCAAAAATCAACTTGATCAACA**ATG**TCGATCTCGAAG
GACTCGCGCATCGCCATCATCGGCGCCGGCCCCGCCGGCCTCGCCGCCGGCATGTACCTCGAGCAGGCCGGCT
TCCACGACTACACCATCCTCGAGCGCACCGACCACGTCGGCGGCAAGTGCCACTCGCCCAACTACCACGGCCG
CCGCTACGAGATGGGCGCCATCATGGGCGTCCCCTCGTACGACACCATCCAGGAGATCATGGACCGCACCGGC
GACAAGGTCGACGGCCCCAAGCTCCGCCGCGAGTTCCTCCACGAGGACGGCGAGATCTACGTCCCCGAGAAG
GACCCCGTCCGCGGCCCCCAGGTCATGGCCGCCGTCCAGAAGCTCGGCCAGCTCCTCGCCACCAAGTACCAGG
GCTACGACGCCAACGGCCACTACAACAAGGTCCACGAGGACCTCATGCTCCCCTTCGACGAGTTCCTCGCCCTC
AACGGCTGCGAGGCCGCCCGCGACCTCTGGATCAACCCCTTCACCGCCTTCGGCTACGGCCACTTCGACAACG
TCCCCGCCGCCTACGTCCTCAAGTACCTCGACTTCGTCACCATGATGTCGTTCGCCAAGGGCGACCTCTGGACC
TGGGCCGACGGCACCCAGGCCATGTTCGAGCACCTCAACGCCACCCTCGAGCACCCCGCCGAGCGCAACGTCG
ACATCACCCGCATCACCCGCGAGGACGGCAAGGTCCACATCCACACCACCGACTGGGACCGCGAGTCGGACG
TCCTCGTCCTCACCGTCCCCCTCGAGAAGTTCCTCGACTACTCGGACGCCGACGACGACGAGCGCGAGTACTTC
TCGAAGATCATCCACCAGCAGTACATGGTCGACGCCTGCCTCGTCAAGGAGTACCCCACCATCTCGGGCTACG
TCCCCGACAACATGCGCCCCGAGCGCCTCGGCCACGTCATGGTCTACTACCACCGCTGGGCCGACGACCCCCA
CCAGATCATCACCACCTACCTCCTCCGCAACCACCCCGACTACGCCGACAAGACCCAGGAGGAGTGCCGCCAG
ATGGTCCTCGACGACATGGAGACCTTCGGCCACCCCGTCGAGAAGATCATCGAGGAGCAGACCTGGTACTACT
TCCCCCACGTCTCGTCGGAGGACTACAAGGCCGGCTGGTACGAGAAGGTCGAGGGCATGCAGGGCCGCCGCA
ACACCTTCTACGCCGGCGAGATCATGTCGTTCGGCAACTTCGACGAGGTCTGCCACTACTCGAAGGACCTCGTC
ACCCGCTTCTTCGTC**TGA**CTTTCTAGGTTGTAGCATGGTTTCCGCGTAGCAGTAGCAGTACCAGAGGAATGCAG
TTGTGACTAGATACTCACTCGTACATGTGTGCTACCCGTGCTGACAAATGCACTGACATGGCCAGTCACTAGCT
CCTCACTTCGCAATCGCAACGGCGGCGTGTGCCCTTCAACTCCAGCGGTCATCGGCCACCGTGCCCCTCCCCTC
GCCCGAATCCCCGTGCAGCGTCATCGTCCCTGCAGGTGCGACACCCGTGTAATCATCGGGGACACCCGCGGGC
CCCCTGCGAACGATGCGGAGGGCCGGCGAGTACGCGGCGCTCCTGGCGCCGACGATGACTGAGAAAGTACCC
CGGAAAGGTTATGGCGCCGTCGGGCGGAACAGCAGAAAGTATAGAATAGCCGGGAGATATCGTGTCGGCCA
TGGTCGGGCAGTTACAACTCTGGACTGAAGACAGATCTGGGACCCCGCACCCCGCGTCATCGGGTTCGGCAG
GACCACGCCGACCGGAGAAATCCGGGGGACGGCTCTGAGGGCATATTCCTTGTCCAACATGTCCTGCACCGGC
TGCACCCTGCACCAAAAGGTCCAATGTCAGCGGAT