

Supplementary Materials

This file provides information on statistical significance supplementary to Figures 2–5.

Table S1: Statistical significance supplementary to Figure 2: Primary Oxidation (Part I). Different letters indicate statistical differences with $\alpha = 0.05$ within each system ('Fish oil' and 'Fish oil + *Phaeodactylum* biomass (2.5%)').

	Day 0	Day 1	Day 3	Day 5	Day 8	Day 14	Day 21
Fish oil	E	DE	D	C	BC	A	B
Fish oil + <i>Phaeodactylum</i> biomass (2.5%)	D	CD	CD	BCD	AB	A	ABC

Table S2: Statistical significance supplementary to Figure 3: Secondary Oxidation (Part I). Different letters indicate statistical differences with $\alpha = 0.05$ within each system ('Fish oil' and 'Fish oil + *Phaeodactylum* biomass (2.5%)').

(E,E)-2,4-Heptadienal (Figure 3a)	Day 0	Day 1	Day 3	Day 5	Day 8	Day 14	Day 21
Fish oil	B	AB	AB	AB	AB	AB	A
Fish oil + <i>Phaeodactylum</i> biomass (2.5%)	B	B	B	B	B	A	A
(E)-2-Pentenal (Figure 3b)	Day 0	Day 1	Day 3	Day 5	Day 8	Day 14	Day 21
Fish oil	B	AB	AB	AB	AB	AB	A
Fish oil + <i>Phaeodactylum</i> biomass (2.5%)	C	C	C	C	C	B	A
(Z)-2-Butenal (Figure 3c)	Day 0	Day 1	Day 3	Day 5	Day 8	Day 14	Day 21
Fish oil	A	A	A	A	A	A	A
Fish oil + <i>Phaeodactylum</i> biomass (2.5%)	B	B	B	B	B	A	A

Table S3: Statistical significance supplementary to Figure 4: Primary Oxidation (Part II). Different letters indicate statistical differences with $\alpha = 0.05$ within each system ('Pure *Phaeodactylum* total lipid extract', 'Mixture 79/21', 'Mixture 49/51', 'Mixture 6/94', 'Mixture 1/99', Pure Fish oil). The last three systems were only analyzed until day 28 since they already showed clear oxidation.

	Day 0	Day 4	Day 8	Day 12	Day 20	Day 28	Day 42	Day 56	Day 70
Pure <i>Phaeodactylum</i> total lipid extract	A	A	A	A	A	A	A	A	A
Mixture 79/21	A	A	A	A	A	A	A	A	A
Mixture 49/51	A	A	A	A	A	A	A	A	A
Mixture 6/94	B	A	B	B	B	B	-	-	-
Mixture 1/99	B	A	B	B	B	B	-	-	-
Pure Fish oil	C	A	B	BC	BC	BC	-	-	-

Table S4: Statistical significance supplementary to Figure 5: Secondary Oxidation (Part II). Different letters indicate statistical differences with $\alpha = 0.05$ within each system ('Pure *Phaeodactylum* total lipid extract', 'Mixture 79/21', 'Mixture 49/51', 'Mixture 6/94', 'Mixture 1/99', Pure Fish oil). The last three systems were only analyzed until day 28 since they already showed clear oxidation.

(E,E)-2,4-Heptadienal (Figure 4a,b)	Day 0	Day 4	Day 8	Day 12	Day 20	Day 28	Day 42	Day 56	Day 70
Pure <i>Phaeodactylum</i> total lipid extract	A	C	C	BC	B	B	C	BC	BC
Mixture 79/21	A	C	C	C	C	C	B	B	B
Mixture 49/51	A	C	C	C	C	C	B	B	B
Mixture 6/94	D	CD	BC	AB	A	A	-	-	-
Mixture 1/99	E	D	C	B	A	A	-	-	-
Pure Fish oil	E	D	C	B	A	A	-	-	-
(E)-2-Pentenal (Figure 4c,d)	Day 0	Day 4	Day 8	Day 12	Day 20	Day 28	Day 42	Day 56	Day 70
Pure <i>Phaeodactylum</i> total lipid extract	A	D	D	D	D	CD	BC	AB	AB
Mixture 79/21	A	C	C	C	C	C	B	B	B
Mixture 49/51	A	C	C	C	C	C	B	AB	AB
Mixture 6/94	B	A	A	A	A	A	-	-	-
Mixture 1/99	B	A	A	A	A	AB	-	-	-
Pure Fish oil	B	AB	AB	A	AB	AB	-	-	-
(Z)-2-Butenal (Figure 4e,f)	Day 0	Day 4	Day 8	Day 12	Day 20	Day 28	Day 42	Day 56	Day 70
Pure <i>Phaeodactylum</i> total lipid extract	A	A	A	A	A	A	A	A	A
Mixture 79/21	A	A	A	A	A	A	A	A	A
Mixture 49/51	A	A	A	A	A	A	A	A	A
Mixture 6/94	B	A	A	A	A	A	-	-	-
Mixture 1/99	B	A	A	A	A	A	-	-	-
Pure Fish oil	B	A	A	A	A	A	-	-	-