**Supplementary Table 3.** The fatty acid (FA) composition of tissues associated with juvenile *S. droebachiensis* fed *Ulva*. The mean ± SD are reported as a proportion of FA identified. FA that contributed to ≥ 1% for at least one tissue type analyzed (for either urchin species) are reported. 120:2 ∆5, 11 non-methylene interrupted diene, 2branched fatty acids, 3saturated fatty acids, 4monounsaturated fatty acids, 5long chain polyunsaturated fatty acids (sum of ARA, EPA, and DHA), nd = not detected.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|   | gonad (n = 4) |   | gut (n = 4) |   | alga (n = 4) |   | digesta (n = 4) |   | egesta (n = 4) |
|   | mean | SD |   | mean | SD |   | mean | SD |   | mean | SD |   | mean | SD |
| *i*-14:0 | 0.01 | 0.01 |  | nd | nd |  | 0.01 | 0.01 |  | 0.16 | 0.05 |  | 0.19 | 0.04 |
| 14:0 | 4.17 | 0.29 |  | 2.26 | 0.02 |  | 0.61 | 0.19 |  | 2.85 | 0.10 |  | 1.21 | 0.08 |
| *i-*15:0 | 0.06 | 0.003 |  | 0.05 | 0.01 |  | 0.10 | 0.07 |  | 1.20 | 0.37 |  | 1.12 | 0.29 |
| *a-*15.0 | 0.15 | 0.01 |  | 0.17 | 0.004 |  | 0.02 | 0.01 |  | 0.90 | 0.24 |  | 0.83 | 0.10 |
| 15:0 | 0.27 | 0.02 |  | 0.30 | 0.01 |  | 0.30 | 0.17 |  | 0.95 | 0.12 |  | 1.06 | 0.09 |
| 16:0 | 9.01 | 0.40 |  | 9.02 | 0.88 |  | 16.92 | 2.63 |  | 37.04 | 4.67 |  | 50.50 | 2.00 |
| 16:1⍵9 | 0.19 | 0.01 |  | 0.22 | 0.03 |  | 0.19 | 0.04 |  | 0.46 | 0.09 |  | 0.43 | 0.04 |
| 16:1⍵7 | 0.61 | 0.12 |  | 1.54 | 0.49 |  | 0.69 | 0.20 |  | 3.40 | 0.67 |  | 3.70 | 0.18 |
| 16:1⍵5 | 0.37 | 0.04 |  | 0.34 | 0.09 |  | 0.07 | 0.01 |  | 0.34 | 0.08 |  | 0.17 | 0.02 |
| 16:3⍵3 | 2.50 | 0.11 |  | 1.97 | 0.25 |  | 16.08 | 1.68 |  | 3.03 | 1.11 |  | 0.55 | 0.32 |
| 16:4⍵3 | 10.13 | 0.37 |  | 7.68 | 0.81 |  | 16.03 | 1.65 |  | 3.03 | 1.10 |  | 0.56 | 0.33 |
| 18:0 | 2.08 | 0.11 |  | 3.28 | 0.12 |  | 0.44 | 0.16 |  | 2.76 | 0.76 |  | 0.73 | 0.11 |
| 18:1⍵9 | 0.27 | 0.04 |  | 0.46 | 0.10 |  | 0.79 | 0.21 |  | 2.00 | 0.31 |  | 1.45 | 0.20 |
| 18:1⍵7 | 2.15 | 0.14 |  | 2.69 | 0.23 |  | 4.60 | 1.16 |  | 9.46 | 0.67 |  | 16.04 | 0.85 |
| 18:2⍵6 | 0.29 | 0.02 |  | 0.30 | 0.01 |  | 2.79 | 0.86 |  | 1.29 | 0.17 |  | 2.39 | 0.32 |
| 18:3⍵3 | 5.32 | 0.30 |  | 5.15 | 0.35 |  | 24.66 | 1.81 |  | 5.98 | 0.25 |  | 7.26 | 0.70 |
| 18:4⍵3 | 8.77 | 0.38 |  | 9.26 | 0.77 |  | 7.84 | 3.60 |  | 3.58 | 1.09 |  | 1.12 | 0.41 |
| 20:0 | 1.04 | 0.07 |  | 1.34 | 0.06 |  | 0.07 | 0.01 |  | 0.72 | 0.15 |  | 0.36 | 0.04 |
| 20:1⍵9 | 1.90 | 0.10 |  | 1.22 | 0.17 |  | 0.09 | 0.01 |  | 0.83 | 0.10 |  | 0.36 | 0.03 |
| 20:2NMID1 | 3.14 | 0.35 |  | 4.67 | 0.57 |  | nd | nd |  | nd | nd |  | nd | nd |
| 20:2⍵6 | 1.66 | 0.08 |  | 1.21 | 0.04 |  | 0.21 | 0.04 |  | 0.21 | 0.03 |  | 0.28 | 0.03 |
| 20:4⍵6 | 0.99 | 0.07 |  | 1.84 | 0.16 |  | 0.64 | 0.18 |  | 0.85 | 0.19 |  | 0.22 | 0.03 |
| 20:3⍵3 | 13.15 | 0.45 |  | 9.97 | 0.55 |  | nd | nd |  | 2.76 | 0.89 |  | 0.10 | 0.01 |
| 20:4⍵3 | 7.89 | 0.34 |  | 4.89 | 0.58 |  | 0.60 | 0.20 |  | 1.79 | 0.39 |  | 0.46 | 0.05 |
| 20:5⍵3 | 16.67 | 0.73 |  | 21.42 | 1.36 |  | 1.29 | 1.17 |  | 5.64 | 1.41 |  | 0.44 | 0.07 |
| 22:0 | 0.02 | 0.002 |  | 0.05 | 0.01 |  | 0.87 | 0.29 |  | 2.86 | 0.59 |  | 2.37 | 0.14 |
| 22:1⍵9 | 1.66 | 0.23 |  | 2.12 | 0.24 |  | 0.04 | 0.05 |  | 1.05 | 0.21 |  | 0.43 | 0.05 |
| 22:1⍵7 | 0.39 | 0.04 |  | 1.06 | 0.06 |  | 0.15 | 0.17 |  | 1.34 | 0.20 |  | 1.65 | 0.14 |
| 22:4⍵6 | 0.10 | 0.003 |  | 0.08 | 0.01 |  | 0.42 | 0.03 |  | 0.55 | 0.04 |  | 0.78 | 0.09 |
| 22:1⍵7 | 0.39 | 0.04 |  | 1.06 | 0.06 |  | 0.15 | 0.17 |  | 1.34 | 0.20 |  | 1.65 | 0.14 |
| 22:5⍵3 | 1.61 | 0.03 |  | 1.72 | 0.13 |  | 2.55 | 0.59 |  | 2.24 | 0.15 |  | 2.79 | 0.49 |
| 22:6⍵3 | 0.04 | 0.01 |   | 0.05 | 0.01 |   | 0.11 | 0.03 |   | 0.15 | 0.12 |   | 0.11 | 0.03 |
| ⍵-3 | 67.17 | 1.32 |  | 62.96 | 3.16 |  | 69.16 | 3.41 |  | 28.36 | 6.14 |  | 13.39 | 1.95 |
| ⍵-6 | 3.79 | 0.06 |  | 4.13 | 0.14 |  | 4.83 | 0.98 |  | 3.15 | 0.41 |  | 3.86 | 0.49 |
| BrFA2 | 0.22 | 0.02 |  | 0.22 | 0.01 |  | 0.13 | 0.08 |  | 2.26 | 0.61 |  | 2.14 | 0.30 |
| SAFA3 | 16.64 | 0.56 |  | 16.32 | 0.95 |  | 19.25 | 3.07 |  | 47.36 | 4.59 |  | 56.38 | 2.01 |
| MUFA4 | 7.54 | 0.61 |  | 9.65 | 1.33 |  | 6.62 | 1.18 |  | 18.87 | 1.43 |  | 24.24 | 0.83 |
| LCPUFA5 | 17.69 | 0.76 |   | 23.30 | 1.45 |   | 2.03 | 1.25 |   | 6.63 | 1.65 |   | 0.76 | 0.13 |