|  |  |  |  |
| --- | --- | --- | --- |
|  |  | **Sediment** | **Fish** |
|  |  | R (%) | LOD | LOQ | R (%) | LOD | LOQ |
| **PBDEs** | BDE-28 | 96 | 0.01 | 0.03 | 72 | 0.04 | 0.12 |
| BDE-47 | 96 | 0.01 | 0.04 | 77 | 0.05 | 0.18 |
| BDE-100 | 91 | 0.02 | 0.07 | 67 | 0.20 | 0.67 |
| BDE-99 | 75 | 0.03 | 0.09 | 63 | 0.29 | 0.97 |
| BDE-154 | 95 | 0.08 | 0.25 | 59 | 0.43 | 1.42 |
| BDE-153 | 87 | 0.12 | 0.39 | 73 | 0.64 | 2.13 |
| BDE-183 | 83 | 1.65 | 5.49 | 57 | 10.6 | 35.4 |
| BDE-209 | 95 | 0.08 | 0.30 | 61 | 0.08 | 0.30 |
| **Emerging BFRs** | HBB | 105 | 0.03 | 0.11 | 80 | 0.20 | 0.67 |
| DBDPE | 103 | 0.11 | 0.37 | 58 | 9.66 | 32.2 |
| **HNs** | Dec 602 | 114 | 0.0013 | 0.0042 | 97 | 0.021 | 0.070 |
| Dec 603 | 86 | 0.0001 | 0.0003 | 88 | 0.0073 | 0.024 |
| Dec 604 | 65 | 0.0002 | 0.0006 | 99 | 0.007 | 0.024 |
| *syn*-DP | 86 | 0.0003 | 0.0009 | 86 | 0.0055 | 0.018 |
| *anti*-DP | 104 | 0.0002 | 0.0005 | 82 | 0.0023 | 0.0077 |
| **OPFRs** | DCP | 88 | 0.06 | 0.11 | 70 | 1.63 | 4.61 |
| EHDPP | 110 | 0.02 | 0.07 | 60 | 0.53 | 0.97 |
| IDPP | 92 | 0.05 | 0.19 | 86 | 2.96 | 5.17 |
| TNBP | 83 | 0.03 | 0.08 | 70 | 3.44 | 7.30 |
| THP | 89 | 0.06 | 0.22 | 80 | 0.88 | 2.11 |
| TPHP | 70 | 0.08 | 0.16 | 53 | 1.30 | 3.45 |
| TPPO | 48 | 0.85 | 2.51 | 49 | 0.35 | 1.30 |
| TBOEP | 73 | 0.03 | 0.05 | 63 | 0.44 | 1.44 |
| TCEP | 51 | 0.07 | 0.13 | 67 | 1.21 | 3.51 |
| TCIPP | 67 | 0.09 | 0.26 | 63 | 1.48 | 4.18 |
| TDClPP | 70 | 0.05 | 0.12 | 55 | 0.19 | 1.03 |
| TEHP | 103 | 0.11 | 0.27 | 97 | 1.95 | 3.86 |
| IPPP | 93 | 1.25 | 3.44 | 81 | 19.3 | 24.8 |
| TMCP | 90 | 0.09 | 0.15 | 77 | 2.55 | 4.63 |

**Table SI 1.** Recoveries (R), limits of detection (LODs) and quantification (LOQs) for all the studied compounds in sediment (ng/g dw) and fish (ng/g lw).

**Table SI 2.** Concentration levels of HFRs and OPFRs, obtained in sediment sample (expressed in ng/g dw), collected from Bizerte Lagoon, Tunisia.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | S1 | S2 | S3 | S4 | S5 | S6 |
| a | b | a | b | a | b | a | b | a | b | a | b |
| ∑PBDEs | 3.40 | 7.38 | 4.70 | 9.70 | 3.13 | 12.0 | 4.13 | 5.97 | 8.89 | 19.1 | 1.77 | 14.3 |
| *5.38* | *7.19* | *7.55* | *5.05* | *14.0* | *8.04* |
| Emerging BFRs | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd | nd |
| *nd* | *nd* | *nd* | *nd* | *nd* | *nd* |
| ∑HNs | 2.99 | 3.34 | 1.58 | 1.63 | 0.17 | 2.98 | nd | 0.50 | 0.14 | 0.86 | 3.92 | 14.2 |
| *3.16* | *1.60* | *1.57* | *0.25* | *0.54* | *9.06* |
| ∑HFRs | 6.71 | 10.4 | 6.29 | 11.3 | 3.30 | 15.0 | 4.63 | 5.96 | 9.02 | 19.9 | 5.70 | 28.5 |
| *8.54* | *8.80* | *9.13* | *5.29* | *14.5* | *17.1* |
| ∑OPFRs | 21.5 | 60.4 | 49.2 | 55.0 | 23.5 | 32.8 | 9.77 | 43.0 | 32.9 | 44.4 | 107 | 164 |
| *41.0* | *52.0* | *28.1* | *26.3* | *38.6* | *136* |
| *Data in italics corresponded to mean values between 2 replicas of each sampling point.* |
| *nd – below limit of detection.* |

**Table SI 3.** Concentration levels of HFRs and OPFRs, obtained in sediment sample (expressed in ng/g dw) of individual compounds in each sediment sample, collected from Bizerte Lagoon, Tunisia.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | S1 | S2 | S3 | S4 | S5 | S6 |
| 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 |
| BDE-28BDE-47BDE-99BDE-100BDE-153BDE-154BDE-183BDE-209 |  0.330.520.560.14nd1.83ndnq | 0.350.730.900.31ndndnd5.09 | 0.530.372.771.05nqnqnd4.96 | 0.521.39nq1.15nqnqnd1.64 | nq1.650.980.50nqnqndnq | nd1.020.820.44nqnqnd9.70 | 1.840.97nqnqnqnqnd1.32 | 0.600.681.232.01nqnqnd1.44 | 0.540.581.921.103.121.53nd10.3 | nq0.531.120.83nqnqnd6.40 | nd6.587.370.37ndndndnq | 0.330.250.610.58ndndndnq |
| Dec 602Dec 603Dec 604*syn*-DP*anti*-DP | 1.152.040.14nqnq | nd1.02nd0.621.35 | nd0.01nq0.640.99 | nd0.02nq0.571.00 | nd0.17ndndnd | ndndnd0.682.30 | nd 0.50 nd nd nd | ndndndndnd | nd0.160.70ndnd | ndnd0.14ndnd | 4.61nq4.582.712.30 | 2.24nq1.68nqnq |
| TCEPTPPOTCIPPTDClPPTPHPTNBPDCPTBOEPTMCPEHDPPIDPPIPPPTHPTEHP | 3.056.981.33nq20.15.080.220.130.8511.5nd11.2nqnd | 0.98nq0.52nq14.84.070.490.22nqnqndnqnq0.42 | 14.7nq1.35nq6.867.080.260.360.468.98ndnqnq9.13 | 1.752.6210.4nq6.948.40nq0.530.444.77nd7.99nq11.1 | 2.02nqnqnq11.48.340.110.271.443.28nd5.13nq0.81 | 0.79nqnq0.136.806.08nq0.280.682.07nd5.58nq1.07 | 0.40nqnqnq4.943.02nq0.12nq0.99ndnqnd0.30 | 0.314.208.502.173.998.190.151.280.353.77nd5.30nd4.69 | 3.50nq3.79nq9.8010.90.160.310.473.11nd11.0nd1.34 | 3.07nqnqnq10.412.70.170.440.653.89ndndnq1.62 | 34.551.621.43.8430.06.960.760.09nq14.7ndnqnqnq | 2.8011.217.1nq21.515.40.330.510.8431.9ndnqnq5.66 |
| *nd – below limit of detection; nq – below limit of quantification.* |

**Table SI 4.** Concentration levels of HFRs and OPFRs (expressed in ng/g lw), in eel samples from Bizerte Lagoon, Tunisia. Mean data correspond to mean value obtained from 6 different samples in each sampling point.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | S1 | S2 | S3 | SM |
| ∑PBDEs | MeanRange% of detection | 18.69.23-59.0100 | 6.623.03-10.7100 | 5.603.55-8.48100 | 12.45.25-22.7100 |
| ∑emerging BFRs | MeanRange% of detection | ndnd0 | ndnd0 | ndnd0 | ndnd0 |
| ∑HNs | MeanRange% of detection | 57.412.5-103100 | 25.61.12-50.5100 | 2.41nd-6.8550 | 16.7nd-76.183 |
| ∑HFRs | MeanRange% of detection | 76.020.3-151100 | 33.04.72-61.2100 | 8.015.62-10.5100 | 29.19.25-89.5100 |
| ∑OPFRs | MeanRange% of detection | 57463-2154100 | 842161-1661100 | 11119.7-342100 | 90.726.3-167100 |
| *nd – below limit of detection.* |

**Table SI 5.** Concentration levels of HFRs and OPFRs, obtained in eel sample (expressed in ng/g lw), of individual compounds in each eel sample, collected from Bizerte Lagoon, Tunisia.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | S1 | S2 | S3 | SM |
| 1 | 2 | 3 | 4 | 5 | 6 | 1 | 2 | 3 | 4 | 5 | 6 | 1 | 2 | 3 | 4 | 5 | 6 | 1 | 2 | 3 | 4 | 5 | 6 |
| BDE-28BDE-47BDE-99BDE-100BDE-153BDE-154BDE-183BDE-209 | nq19.418.09.967.231.96nq2.36 | nq5.484.772.02nqnqnqnq | nq6.55nqnqnqnqnq2.67 | nq4.322.752.72nqnqnqnq | nq2.704.081.05nqnqnqnq | nq5.35nq3.57nqnqnq4.58 | nq1.721.31nqnqnqnqnq | nq3.893.143.65nqnqnqnq | nq2.921.812.59nqnqnqnq | nq3.683.013.25nqnqnqnq | nq0.47nq0.853.88nqnqnq | nq3.173.450.84nqnqnqnq | nq4.681.602.20nqnqnqnq | nq2.181.571.72nqnqnq0.31 | nq1.731.862.88nqnqnqnq | nq1.481.021.37nqnqnqnq | nq2.511.04nqnqnqnqnq | nq1.342.571.58nqnqnqnq | nq9.25nqnqnqnqnqnq | nq2.421.541.29nqnqnqnq | nq4.034.671.85nqnqnqnq | nq1.629.682.19nqnqnqnq | nq3.967.192.31nqnqnqnq | nq12.1nqnq10.1nqnq0.48 |
| Dec 602Dec 603Dec 604*syn*-DP*anti*-DP | 24.118.711.018.219.9 | 85.44.852.864.875.14 | 38.1nqnq3.323.74 | 61.94.702.554.344.92 | nq3.492.363.313.30 | nq3.602.453.633.82 | nqnq1.69nqnq | 44.63.822.11nqnq | nqnq1.12nqnq | 36.53.211.513.133.39 | nq3.361.623.443.66 | 35.83.171.49nqnq | ndnd2.01ndnd | ndndndndnd | ndndndndnd | ndnd1.75ndnd | nd2.591.44nd2.82 | ndnd1.292.56nd | ndndndndnd | ndnd3.206.77nd | ndnd2.94ndnd | ndndndnd2.95 | 74.1ndndnd1.96 | ndndndnd8.13 |
| TCEPTPPOTCIPPTDClPPTPHPTNBPDCPTBOEPTMCPEHDPPIDPPIPPPTHPTEHP | ndnqnq20.822132.629812.325.660390832.4ndnd | ndnqnq4.9553.6nq53.62.945.75130172nqndnd | ndnq14.33.3314.2nq26.72.97nq36.5129nqndnd | ndnqnqnqnqnq63.0nqnqnqnqnqndnd | ndndnq3.0114.2nq15.52.17nq19.0230nqndnd | nd2.115.724.4822.014.745.52.50nq64.310034.4ndnd | nd527nq14.016.520.551.2ndnd431nd601ndnd | ndnqnq4.7032.6nq96.32.63675nq202nqndnd | ndnqnq3.0020.3nq63.71.5349649.8nqnqndnd | ndnqnq4.1624.8nq91.02.1971071.3nqnqndnd | ndnqnq3.7310.5nq29.74.41nq113nqnqndnd | ndnqnq3.309.12nq30.21.936312.48nqnqndnd | 7.94nq8.314.1818.4nq67.12.38nq80.2ndnqndnq | nqnq18.53.6517.3nq56.12.23nq244ndnqndnq | 3.69nqnq4.1412.8nq28.12.69nqnqndnqndnq | nqnqnq1.206.37nq21.62.24nqnqndndnd6.25 | nqnqnq2.116.14nq15.61.61nq1.64ndnqndnq | nqnqnq2.694.63nq8.861.70nq1.84ndnqndnq | nqnqnq16.156.117.230.1nq18.9ndndnqndnd | 6.65nqnq6.4123.0nqnq3.946.65ndndndnd4.31 | 3.79nqnq3.91nqnq58.22.47nqndndndndnq | ndnqnq5.6518.5nq55.13.846.33nqndndnd4.20 | nqnqnq3.527.22nq10.52.25nq2.80ndndndnq | 11.5nqnq14.729.030.422.110.337.6nqndndnd11.3 |
| *nd – below limit of detection; nq – below limit of quantification.* |