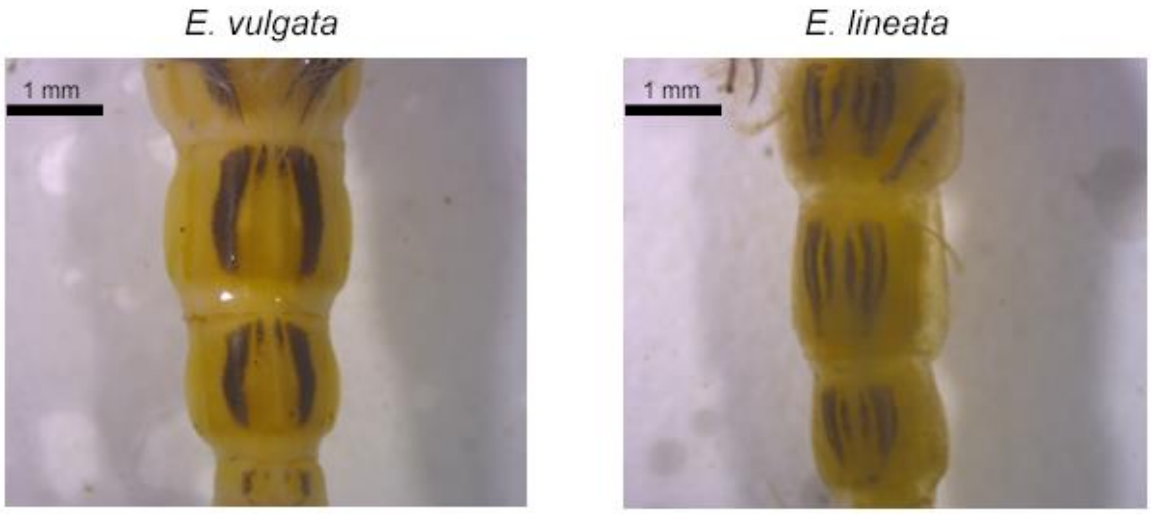

Figure S1 – Morphological sex identification of *Ephemera* species. The *E. vulgata* (A) and *E. lineata* (B) were identified based on the abdominal terga of 7, 8 and 9 (Elliott, et al., 1988; Bauernfeind and Soldán, 2012).

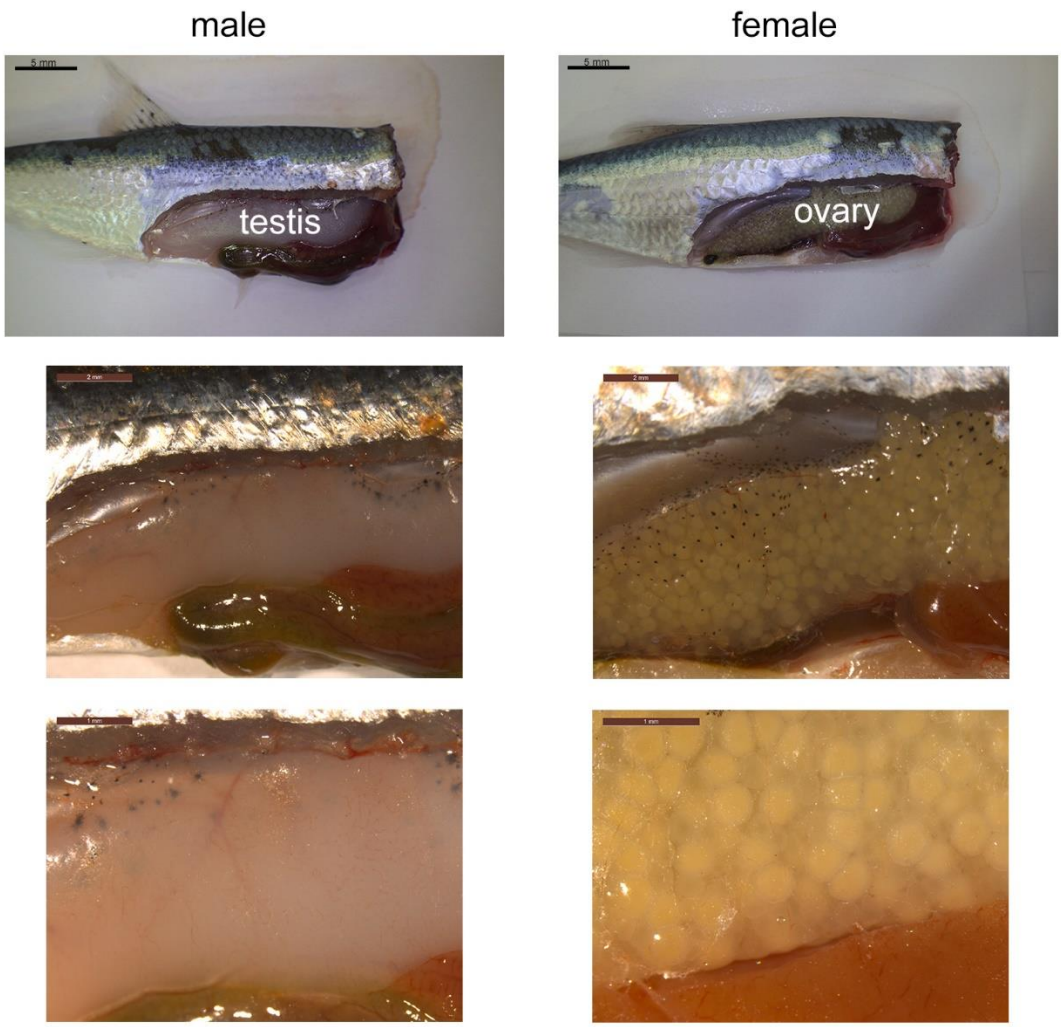

Figure S2 – Morphological sex identification of *A. alburnus.* The male (left side) and female (right side) were identified based on testis and ovary, respectively.

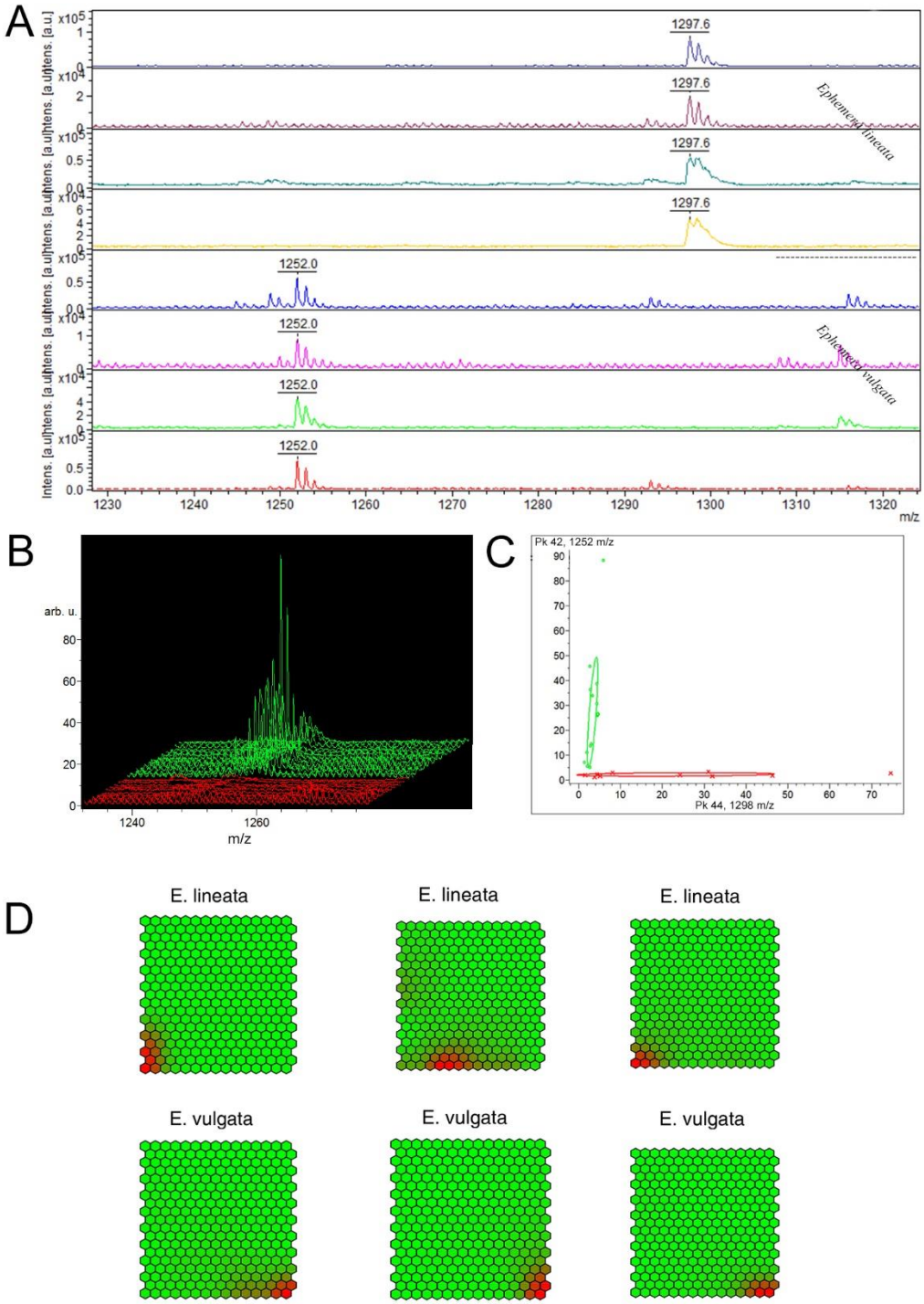

Figure S3 – Identification of mayfly species. The A panel shows the intensity of m/z 1252.0 and 1297.6, as an identified differences between the two species. The B panel graphically illustrates the intensities of m/z 1252.0 in a smaller range (m/z 1232-1276). Representative cluster analysis (C) from sample sets of *the E. vulgata* (green) and *E. lineata* (red) groups using the relative intensities of the markers with m/z 1252.0 and 1297.6 by ClinProTools. Identification of mayfly larvae based on SOMs (D) presenting 3-3 induviduum. The redder color indicates higher intensities of the markers in the range of m/z 1200.0 to 1300.0.

Monoisotopic mass [m/z]	p value	Location	Specificity
1252.0	0.00330	Table 1	*E. vulgata*
1789.0	0.00771	Table 1	*E. vulgata*
2697.8	0.04325	Table 1	*E. vulgata*
3166.0	0.00956	Table 1	*E. vulgata*
1297.6	0.04197	Table 1	*E. lineata*
1336.7	0.00955	Table 1	*E. lineata*
3281.0	0.00278	Table 1	*E. lineata*
745.5	0.00121	Table 2	*A. alburnus*
1169.8	0.01164	Table 2	*A. alburnus*
1290.8	0.00217	Table 2	*R. rutilus*
1315.8	0.01624	Table 2	*R. rutilus*
1424.2	0.00573	Table 2	*R. rutilus*
1714.2	0.01687	Table 2	*R. rutilus*
1797.3	0.03812	Table 2	*R. rutilus*
2031.2	0.00463	Table 2	*R. rutilus*
1020.6	0.00286	Table 2	*P. parva*
1030.6	0.00130	Table 2	*P. parva*
1109.6	0.00183	Table 2	*P. parva*
1522.8	0.04811	Table 2	*P. parva*
1768.9	0.00722	Table 2	*P. parva*
3036.5	0.00674	Table 2	*P. parva*
916.6	0.00165	Table 2	*A. anguilla*
987.7	0.00092	Table 2	*A. anguilla*
1080.7	0.00126	Table 2	*A. anguilla*
1166.8	0.00114	Table 2	*A. anguilla*
1171.8	0.00226	Table 2	*A. anguilla*
1207.7	0.00367	Table 2	*A. anguilla*
1378.0	0.01632	Table 2	*A. anguilla*
1507.0	0.00819	Table 2	*A. anguilla*
1578.1	0.02191	Table 2	*A. anguilla*
1805.1	0.01452	Table 2	*A. anguilla*
1849.2	0.01824	Table 2	*A. anguilla*
2117.2	0.01136	Table 2	*A. anguilla*
771.4	0.01623	Table 2	*A. brama*
1784.0	0.01116	Table 2	*A. brama*
2221.7	0.01115	Table 2	*A. brama*
2256.2	0.00565	Table 2	*A. brama*

2308.6	0.00563	Table 2	*A. brama*
2343.6	0.00288	Table 2	*A. brama*
777.4	0.00116	Table 2	*C. auratus gibelio*
949.6	0.01134	Table 2	*C. auratus gibelio*
1112.6	0.00071	Table 2	*C. auratus gibelio*
1145.6	0.00273	Table 2	*C. auratus gibelio*
1446.8	0.01082	Table 2	*C. auratus gibelio*
1559.8	0.00935	Table 2	*C. auratus gibelio*
1573.8	0.02374	Table 2	*C. auratus gibelio*
1578.9	0.02769	Table 2	*C. auratus gibelio*
1765.0	0.02483	Table 2	*C. auratus gibelio*
1900.0	0.00782	Table 2	*C. auratus gibelio*
1909.0	0.04493	Table 2	*C. auratus gibelio*
794.5	0.00226	Table 2	*P. fluviatilis*
891.5	0.00214	Table 2	*P. fluviatilis*
936.6	0.00216	Table 2	*P. fluviatilis*
979.6	0.00084	Table 2	*P. fluviatilis*
1098.6	0.00087	Table 2	*P. fluviatilis*
1182.6	0.00084	Table 2	*P. fluviatilis*
1414.8	0.00088	Table 2	*P. fluviatilis*
1448.9	0.04999	Table 2	*P. fluviatilis*
1718.9	0.04824	Table 2	*P. fluviatilis*
1940.3	0.04826	Table 2	*P. fluviatilis*
594.3	0.00123	Table 2	*L. gibbosus*
710.4	0.00126	Table 2	*L. gibbosus*
731.4	0.00863	Table 2	*L. gibbosus*
1127.6	0.01662	Table 2	*L. gibbosus*
1252.6	0.01661	Table 2	*L. gibbosus*
1405.8	0.01157	Table 2	*L. gibbosus*
1940.0	0.04970	Table 2	*L. gibbosus*
4721.6	0.01724	Table 2	*L. gibbosus*
960.8	0.00495	Table 3	male *A. alburnus*
1062.7	0.00314	Table 3	male *A. alburnus*
1131.6	0.00499	Table 3	male *A. alburnus*
1178.8	0.00774	Table 3	male *A. alburnus*
1201.8	0.00652	Table 3	male *A. alburnus*
1225.8	0.00195	Table 3	male *A. alburnus*
1315.9	0.03325	Table 3	male *A. alburnus*
1460.9	0.04006	Table 3	male *A. alburnus*
1611.1	0.00322	Table 3	male *A. alburnus*
2088.5	0.00019	Table 3	male *A. alburnus*

808.6	0.00956	Table 3	female *A. alburnus*
945.8	0.00669	Table 3	female *A. alburnus*
1388.1	0.02567	Table 3	female *A. alburnus*
1749.1	0.00333	Table 3	female *A. alburnus*
3081.9	0.04420	Table 3	female *A. alburnus*
4821.1	0.00877	Table 3	female *A. alburnus*
4858.2	0.05000	Table 3	female *A. alburnus*
4893.2	0.00763	Table 3	female *A. alburnus*
4931.0	0.00761	Table 3	female *A. alburnus*

Table S1

The manually pre-selected potential markers were statistically confirmed by Matlab. Kruskal-Wallis ANOVA was used for parametric statistical analysis of the different sample groups ($p<0.05$).

ClinProt Peak Statistic of *Ephemera* larvae

ClinProTools Version: 3.0 build 22
Number of peaks: 69
Sort Mode: p value tta

S	Index	Mass	DAve	PTTA	PWKW	PAD	Ave1	Ave2	StdDev1	StdDev2	CV1	CV2
X	50	1965.16	5.24	0.00379	0.00386	0.282	3.42	8.66	2.09	3.06	61.09	35.4
X	45	1769.86	6.63	0.00417	0.000352	0.0185	2.55	9.18	1.11	4.65	43.61	50.63
X	34	1199.38	10.06	0.00419	0.00237	0.00189	2.79	12.85	2.05	7.35	73.6	57.24
X	35	1252.45	27.81	0.0163	0.0000704	0.000102	2.77	30.59	1.01	24.48	36.56	80.04
X	40	1505.02	7.78	0.0252	0.00555	0.000952	11.96	4.17	5.87	1.75	49.08	41.86
X	58	2700.41	6.15	0.0252	0.00462	0.0000178	1.16	7.31	0.78	6.04	67.28	82.52
X	8	527.65	8.63	0.0275	0.000352	0.0000196	12	3.37	6.73	1.29	56.06	38.38
X	9	542.28	8.16	0.0305	0.000975	0.0000767	11.87	3.71	6.63	1.9	55.84	51.17
X	38	1316.33	7.03	0.0326	0.0436	0.000372	4.04	11.07	2.47	7.51	61.18	67.9
X	64	3284.67	5.85	0.0326	0.0000704	< 0.000001	6.54	0.69	4.97	0.25	75.96	36.9
X	49	1932.94	6.11	0.0376	0.0436	0.0113	4.23	10.34	2.33	6.83	55.1	66.03
X	53	2195.34	3.79	0.0376	0.0129	0.00969	7.2	3.41	3.36	1.77	46.72	52.02
X	17	664.6	22.27	0.105	0.000352	< 0.000001	25.9	3.63	25.28	1.6	97.59	44.13
X	18	665.57	10.69	0.105	0.000352	< 0.000001	13.09	2.4	12.15	0.92	92.83	38.4
X	37	1297.8	21.95	0.125	0.0236	< 0.000001	25.68	3.73	26.36	1.38	102.64	36.95
X	33	1093.07	17.49	0.125	0.076	< 0.000001	1.98	19.47	0.97	26.64	49.04	136.83
X	27	904.96	5.33	0.129	0.0596	< 0.000001	8.02	2.7	6.72	0.85	83.75	31.37
X	22	792.74	2.81	0.129	0.076	0.00502	5.47	2.66	3.24	2.26	59.28	84.89
X	65	3311.47	1.7	0.133	0.22	0.000402	1.28	2.98	1.54	2.19	119.95	73.67
X	39	1337.8	7.42	0.15	0.193	0.000305	12.44	5.02	10.23	3.09	82.23	61.52
X	10	543.29	3.02	0.15	0.0334	0.0000447	5.14	2.11	4.09	1.07	79.51	50.77
X	57	2656.86	2.42	0.15	0.234	0.524	3.46	5.88	1.59	3.89	46.09	66.1
X	63	3205.22	1.79	0.15	0.112	0.000967	3.28	1.49	2.46	0.9	74.89	60.36
X	56	2588.26	5.77	0.186	0.00663	< 0.000001	7.41	1.64	8.8	0.87	118.72	53.02
X	28	954.03	5.38	0.186	0.125	0.0489	7.35	12.73	6.31	7.77	85.84	61.01
X	25	848.65	4.79	0.186	0.548	< 0.000001	1.97	6.76	1.37	9.16	69.62	135.4
X	29	971.1	4.03	0.186	0.101	0.000199	7.19	3.16	5.96	3.19	82.93	100.96
X	30	976.95	3.55	0.186	0.154	0.000459	4.12	7.67	3.29	5.91	79.83	77.07
X	11	550.32	7.17	0.262	0.193	0.0000778	12.64	5.47	12.38	4.83	97.94	88.25
X	14	569.29	9.15	0.275	0.206	0.0000169	15.74	6.59	17.37	6.32	110.31	95.79

ClinProt Peak Statistic

X	5	524.34	8.77	0.275	0.188	0.0000196	15.37	6.6	15.98	5.82	104.02	88.22
X	1	506.34	7.43	0.275	0.188	0.00000605	12.02	4.59	13.4	4.1	111.51	89.31
X	6	525.3	3.82	0.275	0.22	0.00000937	6.89	3.07	7.19	2.52	104.37	82.26
X	12	551.3	2.89	0.275	0.234	0.000145	5.85	2.96	5.5	2.14	94.13	72.37
X	23	811.81	1.54	0.275	0.333	0.000983	3.1	4.64	1.62	3.15	52.46	67.96
X	62	3181.06	1.33	0.275	0.304	0.00956	3.18	1.84	2.44	1.24	76.72	67.48
X	13	568.35	16.26	0.283	0.193	0.000199	31.24	14.98	31.45	15.89	100.66	106.03
X	42	1636.62	8.33	0.283	0.139	0.0000998	29.17	20.83	15.39	11.47	52.77	55.06
X	7	526.36	3.64	0.283	0.256	0.00000366	6.78	3.14	7.48	2.56	110.27	81.47
X	15	570.32	3.27	0.283	0.206	0.00000974	6.22	2.95	6.53	2.39	104.88	80.82
X	4	522.35	3.09	0.283	0.28	0.00000366	5.86	2.77	6.3	2.21	107.49	79.75
X	46	1790.79	3.9	0.286	0.333	0.129	7.69	11.59	5.85	7.88	76.1	67.98
X	67	3739.2	0.26	0.286	0.333	0.546	0.83	1.09	0.37	0.55	44.59	50.69
X	2	507.31	3.53	0.306	0.333	0.0000352	7.19	3.66	7.68	3.01	106.84	82.29
X	69	4756.08	0.56	0.34	0.571	< 0.000001	1.02	0.46	1.31	0.4	128.93	86.1
X	20	688.3	2.06	0.342	0.571	< 0.000001	4.08	2.02	5	0.92	122.5	45.84
X	48	1920.83	1.91	0.384	0.548	0.627	10.56	8.66	4.37	3.29	41.38	38.02
X	19	682.34	4.69	0.398	0.674	< 0.000001	6.51	1.81	13.42	0.98	206.18	54
X	26	893.46	3.7	0.398	0.458	< 0.000001	5.9	2.21	10.56	1.11	178.8	50.24
X	41	1517.4	3.07	0.398	0.397	0.0000489	6.6	9.68	5.84	8.19	88.51	84.6
X	3	508.29	1.73	0.398	0.427	0.000521	5.1	3.37	4.53	2.71	88.71	80.41
X	68	4409.17	0.49	0.398	0.525	0.0000306	1.23	0.74	1.29	0.71	104.36	94.81
X	47	1853.84	2.06	0.436	0.333	0.00021	7.29	5.23	4.53	5.68	62.14	108.75
X	52	2164.65	2	0.442	0.584	0.00036	6.32	4.32	5.95	2.98	94.15	68.89
X	43	1719.66	4.17	0.476	0.525	0.0922	14.28	18.45	10.52	12.8	73.68	69.38
X	36	1293.24	2.29	0.476	0.502	0.0000248	6.07	8.36	5.17	7.8	85.21	93.19
X	60	2970.87	1.24	0.476	0.584	0.231	5.4	4.15	3.91	2.92	72.39	70.39
X	16	660.61	0.98	0.476	0.674	0.000467	2.8	3.78	2.15	3.47	76.6	91.86
X	51	2087.38	0.8	0.476	0.584	0.604	4.37	5.17	1.86	2.59	42.52	50.17
X	55	2491.13	0.56	0.517	0.502	0.663	3.05	3.61	1.64	1.91	53.69	52.87
X	61	3169.39	1.08	0.542	0.49	0.0602	5.81	6.89	2.74	4.56	47.1	66.15
X	66	3385.86	0.28	0.593	0.866	0.000932	1.35	1.06	1.29	0.67	95.53	63.18
X	32	1025.14	0.94	0.631	0.502	0.118	5.36	6.3	4.38	3.65	81.71	57.87
X	21	719.73	0.52	0.631	0.617	0.0443	3.76	4.29	2.2	2.27	58.56	52.87
X	24	829.87	0.55	0.688	0.945	0.000967	4.07	3.52	3.14	2.58	77.11	73.37
X	59	2856.88	0.31	0.688	0.832	0.000873	2.28	1.97	1.84	1.39	80.93	70.77
X	44	1730.65	0.54	0.761	0.651	0.324	6.2	6.74	4.09	3.53	65.94	52.29
X	31	1018.18	1.16	0.88	0.832	0.00113	18.05	19.21	17.64	14.96	97.77	77.91
X	54	2346.44	0.06	0.945	1	0.513	3.54	3.48	1.98	2.16	55.92	62.03

Table S2

Statistical analysis of *Ephemera* larvae. S – inclusion (X)/exclusion (-) state of the peak, Index – peak index, Mass – m/z value, DAve – difference between the maximal and the minimal average peak area/ intensity of all groups, PTTA – p-value of t-test and analysis of variance (ANOVA), PWKW – p-value of Wilcoxon test, PAD – p-value of Anderson-Darling test, Ave1 – average peak intensity of *Ephemera lineata* (peak by peak), Ave2 – average peak intensity of *Ephemera vulgate* (peak by peak), StdDev – the standard deviation of the peak area/ intensity average of group, CV – means coefficient of variation of group.
Use of different peak picking methods (monoisotopic mass - manually, and average mass - ClinProTools) caused the differences between m/z value of similar peaks from manually (e.g. m/z 1252.0, see Table 1) and ClinProTools data (e.g. m/z 1252.5, see Supplementary data Table S2).

ClinProt Peak Statistic of fish

ClinProTools Version: 3.0 build 22
Number of peaks: 114
Sort Mode: p value rtn

S	Index	Mass	DAve	PTTA	PWKW	PAD	Ave1	Ave2	Ave3	Ave4	Ave5	Ave6	Ave7	Ave8	StdDev1	StdDev2	StdDev3	StdDev4	StdDev5	StdDev6	StdDev7	StdDev8	CV1	CV2	CV3	CV4	CV5	CV6	CV7	CV8
X	87	1050.8	35.08	0.00000126	0.0718	0.0000102	2.97	3.27	1.89	36.97	2	22.86	10.93	31.91	1.51	0.95	0.65	0.15	0.06	3.8	11.58	5.03	51	29.06	34.35	0.4	2.78	16.63	105.99	15.76
X	43	667.34	5.2	0.00000351	0.0858	0.00647	1.37	6.58	2.59	2.49	4.6	1.53	6.43	2.05	0.01	0.83	0.58	NaN	0.42	0.28	4.36	0.65	0.68	12.6	22.55	NaN	9.13	18.11	67.79	31.59
X	98	1346.9	9.44	0.000485	0.198	0.00103	3.16	5.99	3.63	4.21	5.56	12.6	5.71	3.82	1.04	2.72	1.32	0.21	1.53	0.22	2.3	0.75	32.93	45.39	36.29	4.97	27.58	1.74	40.35	19.54
X	106	1578.32	72.82	0.000641	0.0718	< 0.000001	74.95	3.47	2.12	12.14	2.76	5.05	6.57	9.08	11.7	0.27	0.16	0.27	0.96	0.47	0.81	2.17	15.61	7.7	7.74	2.26	34.82	9.26	12.3	23.93
X	77	936.7	20.35	0.000671	0.0718	< 0.000001	1.52	1.97	1.38	2.2	2.42	2.73	2.85	21.73	0.67	0.3	0.32	0.18	0.41	0.91	0.49	0.85	44.14	15.21	23.46	8	17.11	33.25	17.29	3.9
X	83	1023.76	71.54	0.000887	0.0718	< 0.000001	3.76	1.46	1.28	2.62	1.88	15.86	6.73	72.82	1.07	0.19	0.18	0.02	0.02	3.22	5.47	17.83	28.48	12.73	13.82	0.9	1.24	20.31	81.33	24.48
X	56	750.51	18.29	0.000887	0.0718	< 0.000001	1.41	2.17	1.41	1.53	2.52	9.26	1.82	19.7	0.37	0.41	0.23	0.33	0.75	0.3	0.51	7.56	26.49	19.03	16.14	21.75	29.56	3.26	28.13	38.4
X	57	751.48	7.71	0.000887	0.0718	0.0000207	1.47	2.07	1.34	1.52	3	4.98	1.85	9.08	0.54	0.15	0.37	0.08	0.6	0.13	0.3	3.01	37.02	7.12	27.54	5.5	20.11	2.54	16.05	33.17
X	34	594.37	7.13	0.000887	0.0718	0.0404	1.35	4.27	1.85	1.55	4.96	8.48	1.89	6.49	0.52	0.6	0.59	0.52	1.94	0.14	0.82	1.75	38.25	14.07	31.78	33.25	39.07	1.61	43.4	27
X	81	1005.62	33.72	0.0016	0.0888	< 0.000001	2.05	5.63	2.38	35.5	3.89	1.78	15.02	2.05	0.83	0.81	1.21	1.44	1.71	0.22	19.7	0.13	40.75	14.4	50.6	4.06	44.01	12.17	131.19	6.19
X	73	866.56	34.03	0.00439	0.0718	< 0.000001	3.17	1.95	1.23	29.08	2.48	4.24	2.35	35.26	2.34	0.48	0.13	16.24	0.96	0.14	0.67	28.65	73.73	24.73	10.36	55.84	38.67	3.3	28.7	81.25
X	42	666.44	14.81	0.0048	0.0718	0.0000865	1.31	16.12	3.93	3.99	6.87	2.08	15.12	2.32	0.33	1.77	0.92	0.32	0.64	0.18	10.66	0.8	25.06	10.95	23.43	7.95	9.29	8.73	70.45	34.41
X	97	1323.01	48.12	0.00517	0.0718	< 0.000001	49.93	2.66	1.81	3.74	2.58	5.87	4.33	7.73	6.1	0.65	0.27	0.33	0.38	0.25	0.36	3.02	12.23	24.38	14.7	8.92	14.84	4.26	8.33	39.04
X	75	892.55	26.12	0.00517	0.0718	< 0.000001	1.26	3.29	1.46	2	3.27	1.54	4.24	27.38	0.34	0.76	0.32	0.29	0.12	0.08	3.23	12.59	27.11	23.23	22.03	14.37	3.71	5.2	76.29	45.99
X	46	681.47	17.9	0.00517	0.0718	< 0.000001	1.56	2.19	1.61	1.97	2.74	19.33	1.43	5.78	0.27	0.36	0.61	0.13	0.87	6.48	0.38	0.32	17.02	16.42	39.79	6.73	31.71	33.55	26.31	5.53
X	64	778.4	14.99	0.00517	0.156	< 0.000001	1.6	1.93	1.36	16.32	2.65	1.33	1.92	1.41	0.64	0.22	0.4	1.01	0.81	0.13	0.68	0.17	39.87	11.59	29.29	6.2	30.4	9.99	35.34	12.18
X	104	1507.24	65.09	0.00747	0.0718	< 0.000001	67.24	3.04	2.15	3.3	2.55	10.71	5.6	8.5	7.87	0.66	0.3	0.07	0.47	0.87	0.65	3.21	11.7	21.69	13.83	2.26	18.28	8.08	11.69	37.79
X	96	1252.81	14.99	0.00924	0.0718	0.0000562	3.72	3.49	1.49	3.04	2.52	16.48	5.55	13.01	0.14	0.47	0.19	0.19	1.15	3.44	1.38	4.51	3.78	13.62	12.91	6.1	45.46	20.86	24.86	34.65
X	82	1020.79	108.5	0.0107	0.0849	< 0.000001	1.75	3.07	2.95	1.87	2.06	2.24	110.25	3.27	0.72	0.38	1.6	0.07	0.4	0.65	101.44	0.12	40.99	12.33	54.23	3.7	19.62	28.89	92.01	3.75
X	66	787.54	4.57	0.0107	0.0718	0.00122	1.47	3.01	1.51	3.66	5.25	1.53	5.93	1.36	0.83	0.1	0.45	0.95	2.84	0.42	2.51	0.12	56.22	3.36	29.42	25.87	51.05	27.44	42.39	9.05
X	10	520.16	3.82	0.0107	0.166	0.156	1.92	3.95	2.06	5.24	5.74	5.49	3.38	3.94	0.28	0.11	0.15	1.29	2.11	3.78	1.73	1.35	14.39	2.68	7.4	24.67	36.73	68.74	51.24	34.35
X	74	891.56	47.39	0.0122	0.0718	< 0.000001	1.32	2.21	1.15	2.73	2.21	1.79	2.4	48.54	0.43	0.22	0.09	0.29	0.48	0.31	0.11	25.72	32.28	9.79	7.53	10.65	21.69	17.6	4.42	52.98
X	90	1110.78	23.77	0.0122	0.0718	< 0.000001	1.91	2.29	1.74	2.18	2.57	5.63	7.4	25.5	0.7	0.79	0.48	0.01	0.07	1.07	2.51	3.26	36.53	34.54	27.4	0.62	2.79	19	33.98	12.78
X	45	673.11	4.04	0.0122	0.257	0.524	2.05	3.09	3.39	5.41	5.68	5.18	5.01	6.09	0.28	0.75	1.83	0.19	2.51	0.62	2.31	2.89	13.62	24.32	54.03	3.46	44.23	11.92	46.12	47.39
X	65	779.52	6.02	0.0125	0.0849	0.132	1.75	7.49	3.66	5.23	6.26	1.47	4.17	1.67	0.75	1.4	1.17	0.28	1.62	0.56	3.08	0.34	42.88	18.7	32.1	5.32	25.82	37.86	73.97	20.36
X	108	1766	52.99	0.0152	0.0718	< 0.000001	2.5	1.66	2.13	54.65	2	3.75	3.69	4.18	0.24	0.59	0.12	6.22	0.3	0.23	0.76	1.48	9.51	35.51	5.73	11.38	15.03	6.21	20.62	35.47
X	70	854.53	5.84	0.016	0.0718	0.0000571	1.38	7.22	1.44	1.47	4.15	3.53	2.22	2.15	0.27	4.53	0.13	0.24	1.78	0.19	0.92	0.16	19.47	62.76	8.82	16.48	43.01	5.3	41.25	7.41
X	9	519.16	3.94	0.0184	0.177	0.728	1.28	3.48	2.35	4.54	4.63	5.22	3.57	4.17	0.09	0.82	0.29	0.49	1.93	2.67	2.41	0.63	6.76	23.7	12.24	10.7	41.61	51.01	67.68	15.02
X	41	656.17	8.14	0.0197	0.0765	0.0365	1.72	2.79	2.3	8.47	4.85	9.85	4.55	7.94	0.39	0.42	0.94	1.04	1.71	0.98	2.38	4.18	22.76	15.2	40.7	12.32	35.32	9.91	52.42	52.62
X	112	4719.91	1.74	0.0199	0.0718	0.00287	0.43	1.62	2.08	0.95	0.57	1.36	0.4	0.34	0.02	0.2	0.42	0.7	0.37	0.22	0.11	0.08	5.03	12.35	20.08	73.15	65.38	16.6	27.96	24.02
X	85	1034.88	51.18	0.0219	0.0718	< 0.000001	1.52	52.7	1.9	6.4	12.23	7.13	5.34	7.36	0.86	7.16	0.23	1.88	11.57	2.33	3.69	1.28	56.79	13.59	12.19	29.31	94.6	32.72	69.07	17.33
X	69	850.61	20.54	0.0226	0.0718	0.0000279	1.5	22.01	1.52	6	7.71	1.95	5.11	2.28	0.46	3.31	1.27	0.98	2.8	0.03	4.39	0.24	30.93	15.02	27.98	16.4	36.36	1.65	85.79	10.67

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X	71	855.51	3.95	0.0226	0.0858	0.000314	5.62	5.14	1.67	1.69	3.42	3.49	2.43	2.08	5.11	1.89	0.38	0.58	0.52	0.13	0.42	0.13	90.92	36.74	22.81	34.12	15.22	3.85	17.22	6.09
X	32	587.25	3.83	0.0226	0.15	< 0.000001	6.11	3.69	2.28	2.81	6.09	2.32	2.53	2.82	4.84	0.11	0.23	0.08	3.41	1.01	0.94	0.17	79.23	2.86	9.99	2.86	56.03	43.24	37.3	5.95
X	80	979.75	26.98	0.0318	0.0718	< 0.000001	1.79	2.39	1.33	2	2.42	3.92	2.4	28.31	0.72	0.57	0.22	0.05	0.27	0.32	0.25	9.29	40.07	23.99	16.57	2.37	11.04	8.07	10.6	32.83
X	79	949.64	11.18	0.0318	0.0718	0.0000966	1.28	4.9	1.97	12.46	2.61	3.03	3.13	5.48	0.36	1.87	0.92	1.5	0.57	0.42	1.21	2.91	27.97	38.17	46.89	12	21.95	13.86	38.75	53.06
X	111	2089.79	17.16	0.0377	0.0718	0.000268	2	18.57	12.04	4.34	19.16	4.11	3.56	2.08	0.51	10.94	2.86	0.31	12.78	0.22	2.32	0.46	25.63	58.93	23.74	7.04	66.73	5.28	65.13	22.13
X	102	1478.86	14.7	0.0391	0.0718	0.011	3.91	13.88	3.21	2.74	7.02	11.62	4.95	17.44	0.5	3.95	0.75	0.09	2.88	1.96	1.28	4.13	12.79	28.49	23.52	3.43	41.09	16.89	25.83	23.68
X	100	1477.07	36.18	0.0397	0.0718	< 0.000001	2.91	2.46	1.7	2.86	2.66	24	4.05	37.88	0.5	0.66	0.44	0.03	0.22	4.2	0.66	9.84	17.21	26.96	25.55	1.18	8.17	17.49	16.23	25.98
X	91	1112.66	15.23	0.0397	0.0718	0.00065	1.93	5.62	1.65	16.88	3.03	8.09	6.07	13.94	1.12	0.56	0.37	13.85	0.52	3.23	1.78	5.76	57.98	9.92	22.52	82.05	17.19	39.98	29.29	41.32
X	89	1100.82	7.75	0.0397	0.102	0.00399	4.22	9.1	1.97	9.06	4.09	3.56	9.71	4.71	3.25	3.36	0.35	1.58	2.59	0.34	9.15	0.38	76.91	36.96	17.72	17.4	63.24	9.48	94.21	8.01
X	3	504.21	3.91	0.0397	0.181	0.0378	1.93	4.01	2.42	3.54	5.85	3.78	3.18	4.37	0.22	0.25	0.07	0.73	2.76	1.91	1.21	1.44	11.49	6.17	3.01	20.71	47.29	50.6	37.85	32.87
X	88	1062.9	49.22	0.0399	0.0858	0.0027	2.93	52.15	6.13	27.21	6.72	9.12	16.76	16.79	1.5	19.28	7.78	3.69	7.76	2.84	12.55	5.66	51.16	36.97	127.04	13.56	115.57	31.11	74.88	33.74
X	101	1477.85	28.91	0.0399	0.0718	< 0.000001	3.02	2.03	1.45	2.71	2.28	19.33	5.09	30.36	0.21	0.06	0.46	0.42	0.42	3.88	1.97	7.86	6.86	3.05	31.93	15.54	18.43	20.07	38.65	25.88
X	78	946.45	11.75	0.0399	0.0718	0.00637	1.75	5.83	3.27	2.48	8.5	4.38	2.09	13.5	0.88	2.92	1.71	0.46	2.45	0.25	0.61	3.14	50.55	50.04	53.09	18.69	28.86	5.74	29.28	23.29
X	53	706.34	8.93	0.0399	0.0858	0.00000164	1.4	3.1	2.26	10.33	3.74	1.72	2.22	2.42	0.01	0.38	0.63	5.04	0.95	0.24	0.95	0.36	0.36	12.2	28.1	48.8	25.38	14.16	42.8	14.85
X	114	4893.61	5.01	0.0407	0.0719	< 0.000001	0.46	2.17	5.38	0.69	0.63	0.44	0.41	0.37	0.14	1.49	0.78	0.17	0.49	0.08	0.09	0.01	31.29	68.99	14.55	25.17	77	17.13	22.76	4.05
X	44	672.12	13.2	0.0416	0.108	0.169	3.67	5.08	5.76	14.49	9.75	13.7	11.93	16.86	2.2	1.64	3.78	0.91	3.74	2.77	5.5	7.92	60.11	32.23	65.67	6.29	38.32	20.19	46.12	47
X	49	684.44	8.32	0.0461	0.0718	0.000159	1.29	8.14	2.75	2.55	9.62	1.72	1.72	3.24	0.14	3.79	1.42	0.97	1.66	0.36	0.54	1.35	10.58	46.48	51.84	37.85	17.21	21.09	31.61	41.53
X	103	1486.82	17.09	0.0529	0.0718	< 0.000001	2.72	3.98	2.11	8.69	3.86	4.24	19.2	3.5	0.51	1.37	0.28	3.79	0.7	0.35	5.42	0.66	18.62	34.45	13.43	43.59	18	8.24	28.23	18.95
X	113	4820.76	2.98	0.0529	0.0718	0.00000198	0.52	1.38	3.27	0.9	0.47	0.48	0.43	0.29	0.1	0.72	0.57	0.48	0.25	0.12	0.09	0.02	18.96	52.07	17.29	53.5	53.3	24.17	21.73	7.93
X	72	858.55	6.32	0.0538	0.11	0.000961	3.26	7.85	1.9	2.06	6.2	1.53	3.6	2.13	2.8	3.7	0.56	0.43	1.14	0.03	2.17	0.19	85.77	47.16	29.41	20.77	18.38	1.92	60.21	8.8
X	68	837.54	39.13	0.0559	0.0718	< 0.000001	2.7	2.3	1.32	3.35	2.69	22.67	5.04	40.45	1.07	0.19	0.24	1.65	0.47	7.31	2.1	10.63	39.69	8.45	18.29	49.33	17.66	32.24	41.78	26.28
X	22	550.17	17.7	0.0559	0.152	0.0866	4.63	7.99	5.69	12.96	8.22	13.88	14.24	22.34	4.08	3.96	4.9	11.03	3.43	5.97	7.08	1.76	87.96	49.63	86.17	85.11	41.78	43.02	49.73	7.88
X	92	1163.71	10.59	0.0644	0.0718	< 0.000001	1.85	2.77	1.51	2.43	2.67	4.98	12.1	3.68	0.34	0.24	0.35	0.71	0.98	1.06	11.4	0.33	18.44	8.6	22.93	29.38	36.85	21.27	34.17	8.94
X	26	559.36	12.47	0.0654	0.0718	0.00000164	1.88	13.65	4.5	2.5	14.35	2.67	2.34	3.28	0.18	4.54	1.78	0.46	7.81	1.11	0.84	0.27	9.49	33.29	39.5	18.55	54.43	41.38	35.79	8.36
X	99	1347.78	7.2	0.0654	0.0719	0.00677	3.26	5.84	2.63	2.96	5.36	9.84	8.89	4.06	1.04	1.55	0.49	0.23	2.94	1.26	4.83	1.24	31.94	26.5	18.66	7.63	54.84	12.86	54.35	30.46
X	94	1182.8	48.63	0.0699	0.0718	< 0.000001	1.77	2.79	1.48	3.6	1.65	4.31	4.22	50.12	0.77	0.6	0.11	1.28	0.29	0.81	0.74	27.21	43.42	21.37	7.67	35.59	17.32	18.91	17.6	54.3
X	29	570.21	4.59	0.0699	0.37	0.0698	3.38	5.19	3.96	6.16	6.71	6.53	7.07	7.97	0.68	1.62	2.2	4.36	2.93	3.6	3.62	0.4	20.13	31.25	55.68	70.78	43.72	55.04	51.24	5.02
X	35	595.37	13.62	0.0715	0.11	< 0.000001	1.21	5.36	3.22	2.89	14.83	3.43	1.78	4	0.47	2.3	1.54	1.71	10.73	0.13	0.52	0.76	38.99	42.87	47.69	59.11	72.32	3.69	29.4	18.97
X	105	1523.87	14.91	0.0746	0.0719	< 0.000001	2.36	2.67	4.5	3.56	2.93	3.68	17.27	5.74	0.06	0.43	3.24	0.27	0.45	0.73	12.96	1.32	2.33	16.1	71.98	7.57	15.41	19.96	75.03	22.97
X	11	522.16	4.96	0.0752	0.258	0.0698	2.78	7.43	3.79	6.18	6.88	7.06	5.84	7.74	0.8	1.55	0.74	2.77	2.43	3.01	3.08	0.73	28.77	20.81	19.54	44.8	35.36	42.56	52.69	9.46
X	17	535.15	9.5	0.0756	0.155	0.0000376	1.83	3.58	2.65	5.97	7.85	11.33	3.56	3.91	0.22	0.94	0.43	0.83	4.15	11.66	2.14	1.24	12.14	26.38	16.1	13.81	52.81	102.91	60.04	31.72
X	39	608.31	5.91	0.0756	0.0769	0.0214	1.75	6.09	3.09	2.77	7.67	2.32	2.57	3.08	0.64	0.99	1.12	0.21	1.85	0.37	1.07	0.74	36.53	16.23	36.18	7.54	24.13	15.79	41.38	23.92
X	8	516.23	5.41	0.0761	0.334	0.00457	7.8	4.6	2.39	4.37	5.98	3.56	3.81	3.79	7.2	0.32	0.32	1.21	2.44	1.27	1.8	1.22	92.37	7.05	13.29	27.62	40.91	35.6	47.25	32.13
X	54	710.39	7.71	0.0791	0.0718	0.0000353	2.48	2.32	1.63	2.17	3.71	9.33	1.86	3.61	1.2	0.31	0.44	0.37	0.56	1.84	0.2	1	48.51	13.39	27.04	16.99	15.05	19.7	10.94	27.85
X	109	1864.37	22.58	0.0793	0.0718	0.00000395	7.15	25.52	15.6	2.94	5.3	2.94	3.31	3.78	3.1	18.7	3.16	0.4	1.73	0.25	0.4	1.38	43.4	73.28	20.25	13.48	32.61	8.39	12.05	36.45
X	19	544.26	4.09	0.0793	0.264	0.000136	6.1	3.77	2.01	2.45	4.85	2.25	2.28	2.37	6.13	0.25	0.31	0.64	1.96	0.87	1.07	0.38	100.44	6.75	15.62	26.26	40.41	38.59	46.9	15.97
X	1	501.44	33.59	0.0824	0.269	0.006	7.08	9.89	17.68	36.4	13.77	13.97	10.36	2.81	6.54	1.07	12.56	24.63	6.11	16.53	8.35	1.15	92.38	10.8	71.05	67.67	44.35	118.38	80.6	40.8
X	52	704.08	7.6	0.0824	0.11	0.0641	2.71	4.69	4.43	3.08	9.47	1.87	5.7	4.5	1.11	1.85	2.34	0.73	2.13	0.28	1.95	2.2	40.81	39.51	52.85	23.59	22.51	14.77	34.16	48.83
X	58	753.54	6.69	0.0824	0.0718	0.0000175	3.44	8.11	1.42	1.81	3.94	1.5	2.02	2.01	0.33	4.77	0.4	0.16	1.52	0.39	0.79	0.47	9.72	58.83	28.25	9.05	38.58	26.19	39.06	23.47
X	63	777.44	32.94	0.0878	0.102	< 0.000001	1.62	1.82	1.06	33.99	3.01	1.3	2.16	1.68	0.3	0.46	0.21	7.41	1.12	0.31	0.72	0.39	18.51	25.16	20.05	21.79	37.32	23.65	33.58	23.3
X	48	683.42	10.44	0.088	0.0718	0.000104	1.18	7.68	1.27	7.25	3.35	3.04	1.82	11.63	0.24	5.46	0.38	5	0.52	0.96	0.79	7.55	20.38	71.04	29.92	68.94	15.42	31.59	43.25	64.94

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X	15	526.2	5.97	0.088	0.339	0.11	2.25	6.22	3.89	6.01	6.5	6.85	5.78	8.22	1.09	2.1	2.01	2.82	3.01	3.47	3.18	0.4	48.66	33.74	52.42	46.98	46.38	50.67	54.95	4.85
X	93	1171.69	12.88	0.108	0.118	< 0.000001	15.81	5.7	3.41	3.88	6.06	2.93	5.53	4.08	11.55	2.43	0.97	0.09	0.77	0.28	2.66	0.48	73.02	42.7	28.52	2.3	12.72	9.57	48.12	11.77
X	13	524.18	18.41	0.11	0.315	0.0314	5.68	15.27	8.29	15.36	13.28	18.4	17.54	24.09	3.97	11.01	7.31	14	7.28	10.34	8.82	1.31	69.85	72.07	88.15	91.16	54.8	56.18	50.3	5.44
X	36	600.41	5.05	0.11	0.104	0.00432	1.94	4.42	2.18	6.99	5.08	2.79	6.07	4.13	0.15	0.93	0.19	3.69	1.1	1.19	4.67	1.82	7.8	21.06	8.55	52.8	21.72	42.83	76.94	44.09
X	16	532.29	3.6	0.11	0.159	0.0583	2.7	4.65	2.7	3.51	6.3	3.2	4.05	3.72	0.06	0.57	0.4	0.9	2.3	1.62	1.44	0.68	2.35	12.18	14.87	25.62	36.46	50.59	35.64	18.18
X	6	508.2	3.29	0.11	0.387	0.176	2.29	4.47	3	4.51	5.34	4.73	4.17	5.58	0.6	1.39	0.93	1.59	2.2	2.27	2.01	0.45	26.16	31.03	30.92	35.29	41.25	47.93	48.13	8.07
X	62	771.48	7.06	0.111	0.0718	0.0156	1.58	6.38	4.74	2.99	8.38	1.31	4.43	1.58	0.42	2.73	2.76	1.08	2.11	0.42	2.06	0.21	26.52	42.75	58.23	36.09	25.24	31.58	46.38	13.43
X	38	604.24	4.35	0.114	0.297	0.0178	5.24	4.2	2.3	4.23	6.65	3.31	3.32	4.28	2.5	0.22	0.43	0.59	3.07	1.48	1.59	0.44	47.77	5.33	18.67	14	46.13	44.84	47.77	10.28
X	24	552.21	3.42	0.122	0.264	0.262	2.05	3.77	2.35	3.19	5.47	3.08	3.33	4.04	0.28	0.69	0.95	1.13	2.02	1.52	1.55	0.47	13.76	18.39	40.36	35.35	36.94	49.28	46.39	11.75
X	76	916.36	22.86	0.123	0.0888	< 0.000001	24.46	2.41	1.6	3.58	2.87	2.08	3.48	2.45	22.9	0.97	0.25	0.67	0.55	0.16	1.25	0.1	93.61	40.37	15.46	18.82	19.31	7.74	35.88	4.13
X	61	770.55	7.17	0.123	0.0888	0.00109	1.54	8.56	2.12	3.41	6.47	1.38	7.72	1.86	0.62	5.17	0.88	3.01	2.21	0.03	4.83	0.19	40.26	60.45	41.52	88.04	34.15	1.83	62.51	10.04
X	55	731.43	8.02	0.13	0.164	< 0.000001	1.46	2.27	1.59	1.72	2.85	9.49	1.82	1.59	0.53	0.28	0.51	0.2	1.09	2.03	0.8	0.22	36.15	12.24	32.1	11.43	38.25	21.42	44.25	13.66
X	40	617.34	4.5	0.13	0.0888	0.00177	1.7	3.88	1.89	3.05	3.88	2.76	5.85	6.2	0.89	0.97	0.34	0.12	1.24	0.42	3.51	3.16	52.23	24.95	18.14	3.87	32.04	15.36	60.05	50.99
X	95	1226.08	89.5	0.147	0.0718	0.0262	4.26	62.51	5.77	93.76	8.12	29.59	66.13	54.05	1.82	38.48	4.24	56.72	9.14	16.17	39.31	20.57	42.72	61.56	73.55	60.5	112.52	54.63	59.45	38.06
X	23	551.18	5.82	0.147	0.198	0.156	2.46	4.31	3.53	6.03	4.99	5.88	5.93	8.28	1.02	0.61	2.28	3.77	2.07	2.63	3.17	1.14	41.33	14.76	61.52	62.48	41.53	44.72	53.44	13.73
X	14	525.19	5.77	0.147	0.434	0.0235	3.34	6.27	4.39	7.31	6.35	6.48	6.11	9.11	1.54	3.73	2.54	4.17	2.75	2.95	2.98	0.06	46.22	59.42	57.96	56.95	43.37	45.45	48.73	0.61
X	86	1038.8	14.38	0.152	0.0718	< 0.000001	1.47	15.86	2.02	2.65	10.23	2.41	3.22	2.54	0.33	14.89	0.36	0.04	11.94	0.39	1.68	0.12	22.19	93.9	17.89	1.49	116.64	16.23	52.16	4.81
X	47	682.4	31.15	0.152	0.0718	< 0.000001	1.47	2.28	1.23	20.71	3.18	9.05	2.84	32.38	0.54	0.34	0.3	16.06	1.21	3.07	2.92	21.17	36.56	14.97	24.51	77.55	37.9	33.87	102.73	65.37
X	107	1736.21	21.12	0.152	0.0718	< 0.000001	8.05	24.35	4.89	3.43	6.57	4.15	3.23	3.26	6.1	10.3	0.75	0.24	3.07	0.14	0.68	1.26	75.77	42.29	15.43	7.14	46.81	3.46	21.18	38.46
X	25	558.4	31.03	0.164	0.0718	0.00000575	2.41	33.07	10.04	2.15	19.79	2.04	2.27	2.05	1.19	11.48	3.76	0.18	12.23	0.88	0.84	0.04	49.3	34.71	37.44	8.33	61.83	43.35	37.04	1.86
X	4	506.18	15.58	0.164	0.154	0.0785	5.56	9.5	4.8	11.6	9.28	14.12	15.56	20.38	3.67	6.72	2.41	6.58	4.45	4.5	9.03	4.2	66.02	70.73	50.22	56.78	48	31.88	58.05	20.63
X	2	502.39	10.96	0.171	0.244	0.0386	3.12	5.29	7.97	13.52	6.31	5.33	4.72	2.56	2.37	0.41	4.76	7.11	2.56	5.27	1.79	0.72	75.9	7.66	59.75	52.59	40.49	98.81	38.01	28.27
X	67	835.58	8.27	0.177	0.11	0.00000249	2.11	3.31	1.61	2.87	2.96	2.97	6.24	9.88	1.69	0.41	0.44	1.27	0.58	0.22	4.41	6.68	79.97	12.26	27.1	44.37	19.51	7.25	70.69	67.66
X	50	688.08	9.88	0.178	0.11	0.103	3.87	6.96	7.1	7.93	13.75	5.86	12.92	12.42	1.34	1.6	4.35	0.05	4.55	1.55	5.32	3.53	34.55	22.92	61.22	0.67	33.11	26.5	41.16	28.38
X	27	568.18	65.42	0.179	0.214	0.064	15.75	29.36	21.83	49.89	30.99	58.34	56.59	81.17	16.24	18.07	18.92	48.43	15.97	32.94	27.69	14.55	103.11	61.55	86.67	97.08	51.55	56.46	48.93	17.93
X	28	569.18	21.19	0.18	0.24	0.0864	5.52	11.28	8.57	17.45	13.47	19.8	17.42	26.72	4.74	5.63	7.44	16.48	7.04	11.79	9.35	4.31	85.8	49.88	86.8	94.4	52.26	59.58	53.65	16.11
X	21	547.32	9.77	0.185	0.0718	0.0000353	1.88	11.66	4.53	2.79	10.51	2.02	2.49	2.34	0.58	7.42	2.06	0.22	3.21	0.82	0.42	0.57	30.58	63.64	45.56	7.83	30.58	40.35	16.9	24.34
X	31	586.26	9.2	0.188	0.144	< 0.000001	11.27	3.88	2.07	2.19	5.89	2.48	2.22	2.37	12.09	0.57	0.61	0.15	2.46	1.53	0.81	0.43	107.27	14.74	29.47	6.9	41.75	61.81	36.57	18.25
X	18	537.25	7.2	0.236	0.159	0.00109	1.83	5.43	2.93	3.81	9.02	5.72	2.52	2.38	0.48	1.34	1.18	1.89	4.26	5.88	1.4	0.69	26.18	24.71	40.4	49.46	47.19	102.71	55.48	28.92
X	59	760.29	23.98	0.24	0.0718	< 0.000001	25.58	2.27	1.61	3.19	3.18	7.02	2.83	8.02	27.9	0.66	0.36	1.16	1.45	1.98	1.35	4.43	109.06	29.21	22.59	36.4	45.7	28.14	47.77	55.19
X	37	603.23	7.16	0.241	0.11	0.064	3.48	4.69	3.11	9.39	10.27	6.9	6.94	9.91	2.23	0.39	0.81	3.29	6.88	2.44	2.39	3.33	64.19	8.22	25.98	35.06	66.95	35.37	34.47	33.64
X	110	1974.09	7.63	0.249	0.0718	0.000409	2.67	2.57	3.37	8.81	2.7	5.92	10.19	9.22	0.73	0.85	0.5	2.78	0.34	2.08	6.22	4.52	27.31	32.94	14.79	31.53	12.65	35.03	61.05	49.02
X	51	689.07	3.22	0.255	0.387	0.285	2.43	3.29	3.31	2.97	5.64	3.59	4.2	4.43	0.13	0.94	1.88	0.45	2.02	0.86	1.64	1.3	5.2	28.52	56.78	15	35.76	24.03	38.92	29.33
X	20	546.36	32.74	0.299	0.0718	0.00000584	2.41	34.84	11.16	2.71	24.28	2.38	2.09	2.53	1.07	27.68	6.86	0.16	10.75	1.34	0.84	0.77	44.36	79.44	61.52	5.82	44.3	56.48	40.3	30.46
X	30	584.35	8.77	0.316	0.0849	0.0000539	2.06	7.28	3.71	3.24	10.43	1.95	2.08	1.66	0.17	3.95	1.58	1.49	5.5	0.75	1.08	0.31	8.18	54.29	42.62	46.06	52.76	38.39	51.76	18.91
X	5	507.17	6.6	0.33	0.209	0.331	3.03	5.27	3.52	6.07	6.25	7.03	6.62	9.62	1.68	1.86	0.89	1.83	2.87	2.86	3.56	2.79	55.37	35.3	25.33	30.13	45.91	40.76	53.84	29.02
X	60	763.51	8.56	0.35	0.132	0.0000207	1.81	2.34	1.36	9.91	2.77	3.36	3.3	3.66	0.76	0.5	0.52	6.81	0.71	1.07	2.99	1.25	41.81	21.16	38.59	68.7	25.82	32	90.74	34.05
X	12	523.19	3.94	0.395	0.387	0.0235	3.02	4.53	3.15	3.47	6.96	3.57	3.44	4.81	0.72	0.54	0.67	1.4	3.34	1.87	1.33	0.82	23.81	11.86	21.28	40.47	48.02	52.41	38.6	17.08
X	33	588.31	4.68	0.437	0.167	0.000681	2.91	6.74	2.27	2.27	6.09	2.06	2.49	2.38	1.49	2.68	0.51	0.24	2.54	1	1.19	0.7	51	39.74	22.29	10.74	41.62	48.79	47.83	29.41
X	7	515.23	19.81	0.505	0.142	< 0.000001	22.01	4.04	2.53	2.89	5.45	2.21	2.8	2.2	26.17	1.27	0.72	0.48	2.22	0.84	1.21	0.47	118.93	31.39	28.63	16.65	40.84	37.93	43.17	21.3
X	84	1030.7	47.52	0.763	0.177	< 0.000001	2.3	2.09	1.6	2.31	2.16	2.08	49.11	1.79	0.7	0.45	0.57	0.29	0.44	0	55.81	0.42	30.61	21.55	35.56	12.38	20.19	0.16	113.63	23.74

Table S3

Statistical analysis of Fish. S – inclusion (X)/exclusion (-) state of the peak, Index – peak index, Mass – m/z value, DAve – difference between the maximal and the minimal average peak area/ intensity of all groups, PTTA – p-value of t-test and analysis of variance (ANOVA), PWKW – p-value of Wilcoxon test, PAD – p-value of Anderson-Darling test, Ave1-8 – average peak intensity of *Anguilla anguilla, Rutilus rutilus, Abramis brama, Carassius gibelio, Alburnus alburnus, Lepomis gibbosus, Pseudorasbora parva, Perca fluviatilis* (peak by peak), StdDev – the standard deviation of the peak area/ intensity average of group, CV – means coefficient of variation of group.

Use of different peak picking methods (monoisotopic mass - manually, and average mass - ClinProTools) caused the differences between m/z value of similar peaks from manually (e.g. m/z 1020.6, see Table 2) and ClinProTools data (e.g. m/z 1020.8, see Supplementary data Table S3).

ClinProt Peak Statistic of male and female bleaks

ClinProTools Version: 3.0 build 22
Number of peaks: 37
Sort Mode: p value tta

S	Index	Mass	DAve	PTTA	PWKW	PAD	Ave1	Ave2	StdDev1	StdDev2	CV1	CV2
X	18	961.2	8.7	0.00459	0.0155	0.0584	10.79	2.08	1.97	0.68	18.22	32.74
X	12	779.85	2.98	0.00459	0.0155	0.388	5.09	2.11	0.78	0.61	15.29	28.96
X	21	1063.45	30.11	0.00626	0.0155	0.0302	32.66	2.55	7.04	0.23	21.57	9.01
X	14	850.99	17.05	0.00626	0.0155	0.0797	21.06	4.01	4.56	1.07	21.68	26.69
X	20	1035.26	15.06	0.00626	0.0155	0.21	19.19	4.13	4.8	1.51	25.01	36.54
X	26	1612.65	10.42	0.00626	0.0155	0.0318	13.51	3.09	3.15	0.31	23.35	10.05
X	17	950.1	8.38	0.00626	0.0155	0.108	10.61	2.23	2.51	0.84	23.69	37.67
X	27	1749.85	6.13	0.00626	0.0155	0.224	3.78	9.92	1.45	2.3	38.43	23.19
X	22	1171.29	3.98	0.00626	0.0155	0.388	7.57	3.59	1.12	1.47	14.8	40.86
X	6	565.57	3.12	0.00626	0.0155	0.517	5.98	2.86	0.94	1.1	15.63	38.44
X	23	1179.42	15.15	0.0091	0.0155	0.0476	17.19	2.04	5.15	0.33	29.94	15.93
X	10	666.72	7.45	0.0103	0.0155	0.324	10.76	3.31	2.95	0.96	27.44	28.91
X	25	1226.82	20.84	0.0114	0.0155	0.0429	23.97	3.13	7.86	0.48	32.79	15.43
X	32	2090.35	3.3	0.0143	0.0155	0.957	7	3.7	1.44	1.32	20.53	35.58
X	24	1202.53	14.01	0.019	0.0155	0.0476	17.04	3.03	6.48	0.61	38.04	20.09
X	28	1784.1	10.54	0.019	0.028	0.496	8.64	19.18	3.03	5.4	35.08	28.16
X	35	4822.46	1.53	0.0251	0.0155	0.0429	0.35	1.87	0.08	0.78	23.38	41.63
X	36	4895.74	1.84	0.0416	0.0155	0.0468	0.36	2.2	0.08	1.12	21.66	51
X	37	4933.6	1.04	0.0416	0.0155	0.0302	0.3	1.34	0.03	0.63	9.77	47.15
X	33	4664.2	1.05	0.0523	0.028	0.0398	0.61	1.66	0.08	0.7	12.54	42.29
X	29	1912.98	1.57	0.0823	0.305	0.476	6.16	4.6	1.16	0.91	18.78	19.89
X	34	4721.25	2.74	0.0931	0.0155	0.0188	1.08	3.82	0.13	2.29	12.28	59.91
X	11	721.72	11.53	0.207	0.141	0.00112	1.84	13.37	0.34	13.67	18.65	102.23
X	31	2077.53	3	0.207	0.141	0.352	5.69	8.69	2.33	3.22	40.94	37.11
X	3	546.49	8.35	0.21	0.141	0.00149	2.11	10.46	0.6	10.38	28.35	99.28
X	4	547.46	3.2	0.21	0.141	0.00151	1.96	5.17	0.43	4	21.84	77.35
X	13	808.85	6.97	0.218	0.305	0.00149	2.86	9.83	1.47	9.02	51.46	91.74
X	9	584.58	4.5	0.258	0.502	0.00151	2.68	7.18	0.84	6.47	31.44	90.13

ClinProt Peak Statistic

X	16	946.07	7.85	0.267	0.751	0.00928	6.35	14.2	2.79	11.64	43.88	81.98
X	30	1975.06	1.45	0.312	0.409	0.318	5.54	6.99	0.9	2.36	16.17	33.72
X	8	569.36	3.22	0.379	0.751	0.00174	2.63	5.84	0.91	6.27	34.76	107.42
X	19	984.11	1.53	0.422	0.502	0.34	6.17	4.63	1.51	3.15	24.43	67.9
X	1	506.41	3.65	0.437	0.889	0.0000651	3.12	6.76	0.55	8.69	17.53	128.49
X	5	550.43	3.55	0.437	1	0.0000651	2.36	5.91	0.82	8.25	34.95	139.65
X	7	568.41	3.84	0.494	1	0.0318	6.41	10.26	2.88	10.47	44.94	102.07
X	2	524.41	1.43	0.614	0.751	0.00149	4.22	5.65	1	5.52	23.64	97.58
X	15	916.01	0.74	0.651	0.502	0.0854	6.08	5.34	2.12	2.77	34.92	51.88

Table S4

Statistical analysis of male and female bleaks. S – inclusion (X)/exclusion (-) state of the peak, Index – peak index, Mass – m/z value, DAve – difference between the maximal and the minimal average peak area/ intensity of all groups, PTTA – p-value of t-test and analysis of variance (ANOVA), PWKW – p-value of Wilcoxon test, PAD – p-value of Anderson-Darling test, Ave1 – average peak intensity of male (peak by peak), Ave2 – average peak intensity of female (peak by peak), StdDev – the standard deviation of the peak area/ intensity average of group, CV – means coefficient of variation of group.
Use of different peak picking methods (monoisotopic mass - manually, and average mass - ClinProTools) caused the differences between m/z value of similar peaks from manually (e.g. m/z 1749.1, see Table 3) and ClinProTools data (e.g. m/z 1749.9, see Supplementary data Table S4).