

Lipid profile variability in children at different ages measured in dried blood spots

Helena Beatriz Ferreira^{1,2}, Tânia Melo^{1,2}, Hugo Rocha^{3,4}, Artur Paiva^{5,6,7}, Pedro Domingues¹, M.

Rosário Domingues^{1,2*}

1. Mass Spectrometry Center, LAQV-REQUIMTE, Department of Chemistry, University of Aveiro, Campus Universitário de Santiago, 3810-193 Aveiro, Portugal

2. CESAM, Centre for Environmental and Marine Studies, Department of Chemistry, University of Aveiro, Campus Universitário de Santiago 3810-193 Aveiro, Portugal

3. Newborn Screening, Metabolism and Genetics Unit, Human Genetics Department, National Institute of Health Doutor Ricardo Jorge, 4000-053 Porto, Portugal

4. Superior School of Health, Polytechnic Institute of Porto, 4200-072 Porto, Portugal

5. Unidade de Gestão Operacional em Citometria, Centro Hospitalar e Universitário de Coimbra (CHUC, Portugal).

6. Coimbra Institute for Clinical and Biomedical Research (iCBR), Faculty of Medicine, University of Coimbra, (Coimbra, Portugal).

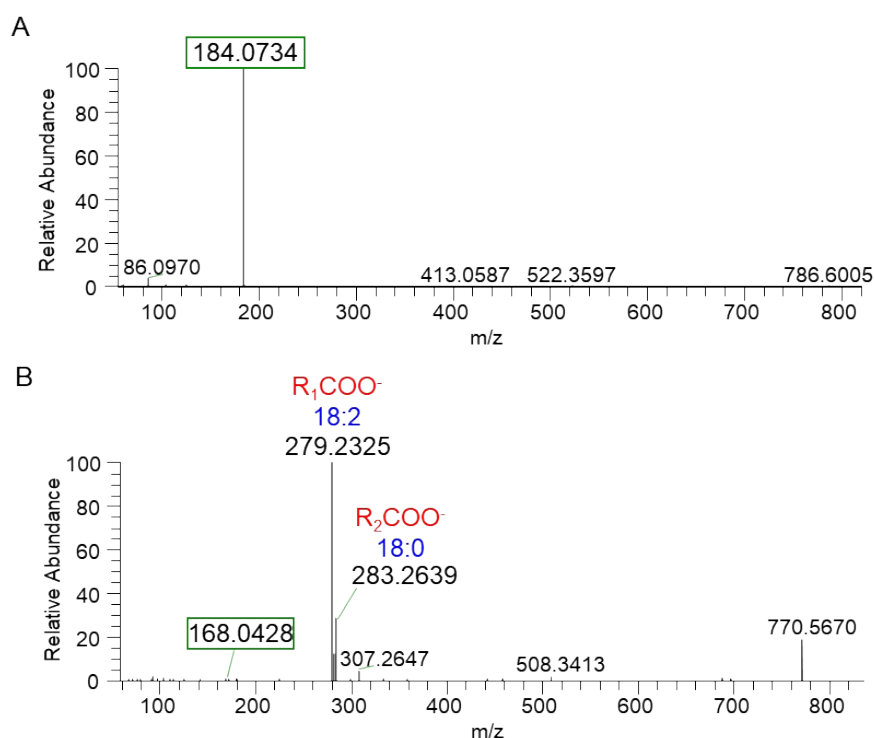
7. Instituto Politécnico de Coimbra, ESTESC - Coimbra Health School, Ciências Biomédicas Laboratoriais (Portugal).

***Corresponding authors:**

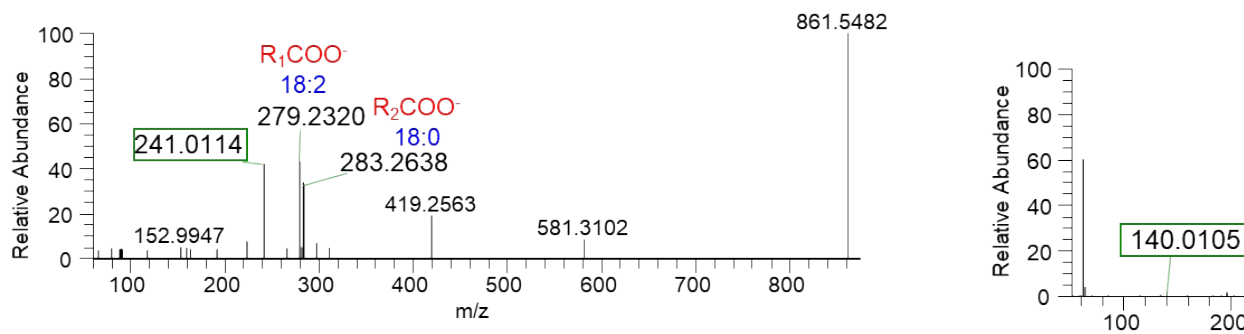
Helena Beatriz Ferreira, Chemistry Department of University of Aveiro, Campus Universitário de Santiago, 3810-193 Aveiro, Portugal. E-mail: helenabeatrizferreira@ua.pt

M. Rosário Domingues, Chemistry Department of University of Aveiro, Campus Universitário de Santiago, 3810-193 Aveiro, Portugal. E-mail: mrd@ua.pt

Tel.: +351 234 370 698



Supplementary Figure S1. PC identification. A: LC-MS/MS spectrum of the $[M+H]^+$ ion of PC(36:2) at m/z 786.6007. B: LC-MS/MS spectrum of the $[M+HCOO]^-$ ion of PC(36:2) at m/z 830.5914. Fragment ions characteristic of the polar head group of PC class (and thus also of LPC class) are highlighted in a green box, namely the typical product ions at m/z 184.07 in the LC-MS/MS spectrum of $[M+H]^+$ ions of PC that correspond to the phosphocholine polar head group, and the product ions at m/z 168.04 in the LC-MS/MS spectrum of $[M+HCOO]^-$ ions of PC that correspond to phosphocholine polar head group minus a methyl group (CH_3). The carboxylate anions of the fatty acyl residues were also identified at m/z 279.23 (R_1COO^-) and m/z 283.26 (R_2COO^-) corresponding to C18:2 and C18:0, respectively, forming the PC(18:0_18:2) species.



Supplementary Figure S2. PE identification. LC-MS/MS spectrum of the $[M-H]^-$ ion of PE(36:2) at m/z 742.5350. Fragment ion characteristic of the polar head group of PE class (and thus also of LPE class) is highlighted in a green box, namely the typical product ion at m/z 140.01 in the LC-MS/MS spectrum of $[M-H]^-$ ions of PE, which corresponds to the phosphoethanolamine polar head group. The carboxylate anions of the fatty acyl residues were also identified at m/z 281.2479 ($RCOO^-$) corresponding to C18:1, forming the PE(18:1_18:1) species.

Supplementary Figure S3. PI identification. LC-MS/MS spectrum of the $[M-H]^-$ ion of PI(36:2) at m/z 861.5468. Fragment ion characteristic of PI class is highlighted in a green box, namely the typical product ion at m/z 241.01, which correspond to the phosphoinositol polar head group. The carboxylate anions of the fatty acyl residues were also identified at m/z 279.23 (R_1COO^-) and m/z 283.26 (R_2COO^-) corresponding to C18:2 and C18:0, respectively, forming the PI(18:0_18:2) species.

Supplementary Table S1. Lipid species identified in DBS samples of all age groups.

Lipid specie (C:N)	Theoretical <i>m/z</i>	Observed <i>m/z</i>	Error (ppm)	Fatty acyl chains (C:N)	Formula
PC identified as [M+H] ⁺					
PC 30:0	706.5386	706.5374	1.6984	14:0_16:0	C38H76NO8P
PC 32:0	734.5671	734.5696	-3.4034	16:0_16:0	C40H80NO8P
PC 32:1	732.5511	732.5534	-3.1397	14:0_18:1 16:0_16:1	C40H78NO8P
PC 32:2	730.5367	730.5370	-0.4107	14:0_18:2 16:1_16:1	C40H76NO8P
PC 34:0	762.5991	762.6004	-1.7047	16:0_18:0	C42H84NO8P
PC 34:1	760.5852	760.5850	0.2630	16:0_18:1	C42H82NO8P
PC 34:2	758.5699	758.5697	0.2637	16:0_18:2	C42H80NO8P
PC 36:1	788.6162	788.6146	2.0289	16:0_20:1 18:0_18:1	C44H86NO8P
PC 36:2	786.6035	786.6007	3.5596	18:0_18:2 18:1_18:1	C44H84NO8P
PC 36:3	784.5834	784.5826	1.0196	16:0_20:3 18:0_18:3 18:1_18:2	C44H82NO8P
PC 36:4	782.5704	782.5679	3.1946	18:2_18:2	C44H80NO8P
PC 38:3	812.6162	812.6143	2.3381	18:0_20:3	C46H86NO8P
PC 38:4	810.5988	810.6005	-2.0972	16:0_22:4 18:0_20:4 18:1_20:3	C46H84NO8P
PC 38:5	808.5835	808.5844	-1.1131	16:0_22:5 18:0_20:5	C46H82NO8P
PC 40:4	838.6323	838.6353	-3.5773	*	C48H88NO8P
PC 40:5	836.6148	836.6146	0.2391	18:0_22:5 20:1_20:4	C48H86NO8P
PC 40:6	856.5817	856.5844	-3.1521	*	C48H84NO8P
PC 42:2	870.6940	870.6927	1.4931	*	C50H96NO8P
PC O-30:0	692.5577	692.5590	-1.8771	O-14:0_16:0	C38H78NO7P
PC O-30:2	688.5229	688.5206	3.3405	*	C38H74NO7P
PC O-32:0	720.5902	720.5902	0.0000	O-16:0_16:0	C40H82NO7P
PC O-32:1	718.5759	718.5743	2.2266	*	C40H80NO7P
PC O-34:0	748.6229	748.6206	3.0723	*	C42H86NO7P
PC O-34:1	746.6070	746.6055	2.0091	O-16:0_18:1	C42H84NO7P
PC O-38:4	796.6205	796.6206	-0.1255	*	C46H86NO7P
PC O-38:5	794.6041	794.6058	-2.1394	*	C46H84NO7P

PC O-40:4	824.6499	824.6513	-1.6977	*	C48H90NO7P
PC O-40:5	822.6377	822.6351	3.1606	*	C48H88NO7P
PC O-40:7	818.6079	818.6048	3.7869	*	C48H84NO7P
PC O-42:5	850.6687	850.6706	-2.2335	*	C50H92NO7P
LPC identified as [M+H]⁺					
LPC 14:0	468.3081	468.3079	0.4271	14:0	C22H46NO7P
LPC 16:0	496.3397	496.3397	0.0000	16:0	C24H50NO7P
LPC 16:1	494.3243	494.3242	0.2023	16:1	C24H48NO7P
LPC 18:0	524.3709	524.3715	-1.1442	18:0	C26H54NO7P
LPC 18:1	522.3554	522.3557	-0.5743	18:1	C26H52NO7P
LPC 18:2	520.3400	520.3399	0.1922	18:2	C26H50NO7P
LPC 20:1	550.3867	550.3865	0.3634	20:1	C28H56NO7P
LPC 20:3	546.3551	546.3556	-0.9152	20:3	C28H52NO7P
LPC 20:4	544.3409	544.3392	3.1230	20:4	C28H50NO7P
LPC 20:5	542.3251	542.3231	3.6878	20:5	C28H48NO7P
LPC 22:5	570.3564	570.3561	0.5260	22:5	C30H52NO7P
LPC 22:6	568.3397	568.3398	-0.1760	22:6	C30H50NO7P
CAR identified as [M+H]⁺					
CAR 14:0	372.3109	372.3101	2.1487	14:0	C21H41NO4
CAR 16:0	400.3414	400.3419	-1.2489	16:0	C23H45NO4
CAR 16:1	398.3263	398.3255	2.0084	16:1	C23H43NO4
CAR 18:0	428.3729	428.3731	-0.4669	18:0	C25H49NO4
CAR 18:1	426.3576	426.3574	0.4691	18:1	C25H47NO4
CAR 18:2	424.3415	424.3420	-1.1783	18:2	C25H45NO4
CE identified as [M+NH₄]⁺					
CE 16:0	642.6179	642.6182	-0.4668	16:0	C43H76O2
CE 18:1	668.6343	668.6350	-1.0469	18:1	C45H78O2
CE 18:2	666.6180	666.6190	-1.5001	18:2	C45H76O2
CE 20:4	690.6179	690.6175	0.5792	20:4	C47H76O2
CE 22:5	716.6201	716.6173	3.9072	22:5	C49H78O2
DG identified as [M+Na]⁺					
DG 24:3	473.3172	473.3186	-2.9578	*	C27H46O5
DG 26:1	505.3913	505.3898	2.9680	*	C29H54O5
DG 28:2	531.4072	531.4078	-1.1291	*	C31H56O5
DG 30:0	563.4688	563.4671	3.0170	*	C33H64O5
DG 30:3	557.4136	557.4132	0.7176	*	C33H58O5
DG 30:5	553.3914	553.3898	2.8913	*	C33H54O5
DG 32:0	591.4963	591.4971	-1.3525	*	C35H68O5
DG 32:1	589.4813	589.4827	-2.3750	*	C35H66O5
DG 32:6	579.4017	579.4019	-0.3452	*	C35H56O5
DG 34:0	619.5263	619.5268	-0.8071	*	C37H72O5

DG 36:0	647.5584	647.5585	-0.1544	*	C39H76O5
DG 36:5	637.4695	637.4684	1.7256	*	C39H66O5
DG 38:5	665.5015	665.5006	1.3524	*	C41H70O5
DG 40:4	695.5757	695.5728	4.1692	*	C43H76O5
DG 44:6	747.5947	747.5920	3.6116	*	C47H80O5
DG identified as [M+NH ₄] ⁺					
DG 34:1	612.5552	612.5559	-1.1428	16:0_18:1	C37H70O5
DG 34:2	610.5425	610.5412	2.1293	16:0_18:2	C37H68O5
DG 36:2	638.5736	638.5721	2.3490	18:1_18:1	C39H72O5
DG 36:3	636.5549	636.5565	-2.5135	18:1_18:2	C39H70O5
TG identified as [M+NH ₄] ⁺					
TG 44:0	768.7070	768.7072	-0.2602	12:0_14:0_18:0	C47H90O6
TG 44:1	766.6896	766.6915	-2.4782	12:0_18:0_14:1	C47H88O6
TG 44:2	764.6750	764.6765	-1.9616	12:0_14:0_18:2	C47H86O6
TG 46:0	796.7385	796.7385	0.0000	14:0_16:0_16:0	C49H94O6
TG 46:1	794.7216	794.7228	-1.5100	14:0_16:0_16:1	C49H92O6
TG 46:2	792.7069	792.7073	-0.5046	12:0_16:0_18:2	C49H90O6
TG 46:3	790.6943	790.6920	2.9088	10:0_18:1_18:2	C49H88O6
TG 48:0	824.7697	824.7689	0.9700	16:0_16:0_16:0	C51H98O6
TG 48:1	822.7558	822.7543	1.8231	14:0_16:0_18:1	C51H96O6
TG 48:2	820.7396	820.7384	1.4621	14:0_16:0_18:2	C51H94O6
TG 48:3	818.7252	818.7228	2.9314	12:0_18:1_18:2	C51H92O6
TG 50:0	852.8033	852.8008	2.9315	16:0_16:0_18:0	C53H102O6
TG 50:1	850.7875	850.7860	1.7631	16:0_16:0_18:1	C53H100O6
TG 50:2	848.7715	848.7701	1.6494	16:0_16:1_18:1	C53H98O6
TG 50:3	846.7523	846.7542	-2.2439	16:0_16:1_18:2	C53H96O6
TG 50:4	844.7401	844.7377	2.8733	16:0_16:1_18:3	C53H94O6
TG 52:2	876.8036	876.8015	2.3951	16:0_18:1_18:1	C55H102O6
TG 52:3	874.7879	874.7858	2.4006	16:0_18:1_18:2	C55H100O6
TG 52:4	872.7733	872.7699	3.8956	16:0_18:1_18:3	C55H98O6
TG 52:5	870.7531	870.7536	-0.5742	16:1_18:2_18:2	C55H96O6
TG 52:7	866.7220	866.7205	1.7307	16:1_16:1_20:5	C55H92O6
TG 54:1	906.8496	906.8476	2.2054	16:0_20:0_18:1	C57H108O6
TG 54:2	904.8330	904.8307	2.5419	16:0_18:1_20:1	C57H106O6
TG 54:3	902.8165	902.8160	0.5538	18:0_18:1_18:2	C57H104O6
TG 54:4	900.8003	900.8005	-0.2220	16:0_18:1_20:3	C57H102O6
TG 54:5	898.7847	898.7849	-0.2225	16:0_18:2_20:3	C57H100O6
TG 54:6	896.7692	896.7694	-0.2230	16:0_16:0_22:6	C57H98O6
TG 54:7	894.7540	894.7539	0.1118	18:2_18:2_18:3	C57H96O6
TG 54:8	892.7393	892.7390	0.3360	16:1_18:2_20:5	C57H94O6

TG 56:0	936.8945	936.8929	1.7078	14:0_20:0_22:0	C59H114O6
TG 56:1	934.8783	934.8790	-0.7488	16:0_22:0_18:1	C59H112O6
TG 56:2	932.8622	932.8624	-0.2144	16:0_18:1_22:1	C59H110O6
TG 56:3	930.8470	930.8464	0.6446	20:0_18:1_18:2	C59H108O6
TG 56:4	928.8303	928.8319	-1.7226	18:0_18:1_20:3	C59H106O6
TG 56:5	926.8196	926.8155	4.4237	18:1_18:2_20:2	C59H104O6
TG 56:6	924.8012	924.8011	0.1081	16:0_18:1_22:5	C59H102O6
TG 56:7	922.7842	922.7849	-0.7586	16:0_18:1_22:6	C59H100O6
TG 56:8	920.7673	920.7698	-2.7151	16:1_18:2_22:5	C59H98O6
TG 58:0	964.9253	964.9246	0.7254	16:0_18:0_24:0	C61H118O6
TG 58:2	960.8922	960.8943	-2.1855	16:0_20:1_22:1	C61H114O6
TG 58:3	958.8773	958.8787	-1.4600	22:0_18:1_18:2	C61H112O6
TG 58:4	956.8652	956.8638	1.4631	18:1_22:1_18:2	C61H110O6
TG 58:7	950.8168	950.8157	1.1569	18:1_18:1_22:5	C61H104O6
TG 58:8	948.8037	948.8006	3.2673	18:1_18:2_22:5	C61H102O6
TG 58:10	944.7697	944.7702	-0.5292	18:2_18:2_22:6	C61H98O6
TG 60:2	988.9277	988.9254	2.3258	24:0_18:1_18:1	C63H118O6
TG 60:3	986.9122	986.9095	2.7358	18:1_18:1_24:1	C63H116O6
PE identified as [M-H] ⁻					
PE 32:0	690.5078	690.5075	0.4345	16:0_16:0	C37H74NO8P
PE 32:1	688.4918	688.4900	2.6144	16:0_16:1	C37H72NO8P
PE 34:1	716.5214	716.5204	1.3956	16:0_18:1	C39H76NO8P
PE 36:1	744.5551	744.5531	2.6862	*	C41H80NO8P
PE 36:2	742.5366	742.5350	2.1548	18:1_18:1	C41H78NO8P
PE 36:4	738.5059	738.5064	-0.6770	16:0_20:4	C41H74NO8P
PE 38:4	766.5391	766.5381	1.3046	16:0_22:4 18:0_20:4	C43H78NO8P
PE 38:5	764.5241	764.519	6.1607	*	C43H76NO8P
PE 40:4	794.5704	794.5711	-0.8810	18:0_22:4	C45H82NO8P
PE O-34:2	700.5283	700.5283	0.0000	O-16:1_18:1	C39H76NO7P
PE O-34:3	698.5137	698.5125	1.7179	O-16:1_18:2	C39H74NO7P
PE O-36:2	728.5580	728.5580	0.0000	O-18:1_18:1	C41H80NO7P
PE O-36:3	726.5431	726.5417	1.9269	O-18:2_18:1	C41H78NO7P
PE O-36:5	722.5100	722.5114	-1.9377	O-16:1_20:4	C41H74NO7P
PE O-36:6	720.4973	720.4961	1.6655	O-16:1_20:5	C41H72NO7P
PE O-38:5	750.5411	750.5419	-1.0659	*	C43H78NO7P
PE O-38:6	748.5255	748.5275	-2.6719	O-18:1_20:5 O-18:2_20:4	C43H76NO7P
PE O-38:7	746.5115	746.5117	-0.2679	O-16:1_22:6	C43H74NO7P
PE O-40:5	778.5741	778.5746	-0.6422	O-18:1_22:4	C45H82NO7P
PE O-40:7	774.5447	774.5430	2.1948	O-18:1_22:6	C45H78NO7P

PE O-40:8	772.5298	772.5268	3.8833	O-18:2_22:6	C45H76NO7P
LPE identified as [M-H]⁻					
LPE 16:0	452.2783	452.2774	1.9899	16:0	C21H44NO7P
LPE 18:0	480.3095	480.3086	1.8738	18:0	C23H48NO7P
LPE 18:1	478.2928	478.2931	-0.6272	18:1	C23H46NO7P
LPE 18:2	476.2771	476.2775	-0.8398	18:2	C23H44NO7P
LPE 20:4	500.2782	500.2777	0.9994	20:4	C25H44NO7P
LPE 22:4	528.3080	528.3091	-2.0821	22:4	C27H48NO7P
LPE 22:6	524.2776	524.2777	-0.1907	22:6	C27H44NO7P
PI identified as [M-H]⁻					
PI 34:1	835.5337	835.5320	2.0346	16:0_18:1	C43H81O13P
PI 36:2	861.5496	861.5468	3.2500	18:0_18:2	C45H83O13P
PI 38:4	885.5489	885.5472	1.9197	18:0_20:4	C47H83O13P
PS identified as [M-H]⁻					
PS 36:1	788.5413	788.5442	-3.6777	18:0_18:1	C42H80NO10P
PS 38:4	810.5254	810.5273	-2.3442	18:0_20:4	C44H78NO10P
PS 40:6	834.5284	834.5260	2.8759	18:0_22:6	C46H78NO10P
SM identified as [M+HCOO]⁻					
SM 34:2;2O	745.5487	745.5488	-0.1341	12:2;2O/22:0	C39H77N2O6P
SM 38:1;2O	803.6270	803.6277	-0.8711	*	C43H87N2O6P
SM 42:2;2O	859.6882	859.6890	-0.9306	18:1;2O/24:0	C47H95N2O6P

C – total of carbon atoms in fatty acids; N – number of double bonds; *identified based on exact mass measurements and retention time, no loss of the polar head group and FA acyl-chain fragments observed.

Supplementary Table S2. Univariate analysis of the RP-LC-MS data from of the three groups. Homogeneity of variances was tested using the Levine test. Normality was assessed using Shapiro-Wilk normality test. P-values were calculated using the ANOVA test (in green). In cases where non-normality was suspected, p-values were calculated using the Kruskal-Wallis test (in orange). P-values were adjusted using Benjamin-Hochberg correction (p.adj). Adjusted p-value significance symbols (p.adj.signif): **** p<0.0001, *** p<0.001, ** p<0.01, *p<0.05.

Variable	p.adj	p.adj.signif
PC.36.2	1.20E-05	****
PE.O.34.3	1.37E-05	****
TG.52.3	1.37E-05	****
PC.34.2	1.37E-05	****
PC.O.40.4	6.16E-05	****
PI.36.2	9.42E-05	****
DG.32.6	0.000133	***
PE.36.2	0.000139	***
CE.18.2	0.000176	***
CAR.16.0	0.000205	***
CAR.14.0	0.000234	***
CAR.18.0	0.000299	***
DG.40.4	0.000299	***
PC.32.2	0.000354	***
PC.36.4	0.000366	***
TG.58.0	0.000424	***
PC.O.38.4	0.000425	***
TG.54.6.TG.16.0_16.0_22.6	0.000425	***
PE.36.1	0.000448	***
TG.52.4	0.000452	***
TG.54.5.TG.18.1_18.2_18.2	0.000537	***
DG.36.0	0.000537	***
TG.54.4.TG.18.0_18.2_18.2	0.0006	***
SM.42.1.2O	0.0006	***
PC.38.5	0.000668	***
PC.O.38.5	0.000669	***
CAR.16.1	0.000778	***
TG.50.3.TG.16.1_16.1_18.1	0.000793	***
TG.52.2	0.000948	***
TG.52.5.TG.16.1_18.2_18.2	0.001061	**
TG.54.3.TG.18.0_18.1_18.2	0.001132	**
PE.O.36.5	0.001285	**
SM.34.2.2O	0.001298	**
PE.O.38.6.PE.O.18.1_20.5	0.001405	**
LPC.18.2	0.001561	**
DG.36.3	0.001903	**

PC.32.1	0.001903	**
LPE.18.2	0.002	**
TG.52.5.TG.16.0_16.0_20.5	0.002063	**
PC.34.0	0.00216	**
TG.44.1.TG.12.0_18.0_14.1	0.002714	**
CE.18.1	0.003125	**
PE.O.38.6.PE.O.18.2_20.4	0.003125	**
PE.32.0	0.003125	**
TG.50.2	0.003125	**
PE.O.38.5	0.003125	**
CAR.18.2	0.003125	**
PC.O.30.2	0.003125	**
TG.56.7	0.005833	**
LPE.22.4	0.005833	**
PC.O.34.0	0.007648	**
TG.46.2	0.007648	**
TG.56.4	0.007955	**
TG.54.1.TG.16.0_20.0_18.1	0.007955	**
PC.O.32.0	0.007955	**
LPC.18.0	0.007955	**
PC.O.32.1	0.007955	**
CE.22.5	0.008413	**
TG.54.4.TG.16.0_18.1_20.3	0.008468	**
PC.O.34.1	0.008468	**
PE.38.5	0.008468	**
TG.56.2	0.009859	**
DG.44.6	0.009859	**
TG.56.5.TG.18.0_18.1_20.4	0.009859	**
DG.36.5	0.009859	**
PE.O.36.3	0.009859	**
TG.54.5.TG.16.0_18.2_20.3	0.01088	*
PC.O.42.5	0.010929	*
PC.O.40.7	0.011513	*
CAR.18.1	0.011513	*
DG.30.3	0.011513	*
TG.44.2.TG.10.0_16.0_18.2	0.011513	*
PC.38.4	0.012547	*
DG.30.0	0.013291	*
PC.32.0	0.013291	*
LPE.16.0	0.015123	*
TG.51.0	0.015901	*
PC.O.40.5	0.016042	*
PE.32.1	0.016471	*
CE.20.4	0.016471	*
LPC.20.4	0.016471	*
TG.54.6.TG.16.1_18.1_20.4	0.017787	*

LPC.20.1	0.017898	*
LPE.20.4	0.017898	*
PC.40.6	0.017898	*
PE.38.4.PE.16.0_22.4	0.019444	*
TG.56.5.TG.18.1_18.2_20.2	0.019961	*
PE.O.36.6	0.020924	*
PE.O.38.7	0.021209	*
LPC.20.3	0.022581	*
PE.40.4	0.023425	*
SM.38.1.2O	0.024623	*
TG.56.6	0.025789	*
TG.58.2.TG.16.0_20.1_22.1	0.026014	*
PE.36.4	0.027344	*
LPC.22.5	0.028866	*
PS.40.6	0.030357	*
PC.42.2	0.031205	*
PS.38.4	0.031818	*
TG.50.3.TG.16.0_16.1_18.2	0.031912	*
DG.24.3	0.031912	*
PC.40.4	0.032053	*
CE.16.0	0.032083	*
LPC.20.5	0.035	*
TG.56.8	0.035693	*
DG.30.5	0.036386	*
TG.52.0	0.039078	*
PE.38.4.PE.18.0_20.4	0.040385	*
TG.44.0.TG.14.0_14.0_16.0	0.043333	*
TG.56.1	0.04743	*
PC.36.3	0.048449	*
PI.34.1	0.055093	ns
PE.34.1	0.055093	ns
TG.46.1	0.065826	ns
PE.O.34.2	0.071591	ns
DG.28.2	0.078829	ns
TG.52.7	0.079688	ns
TG.58.7	0.080531	ns
TG.44.1.TG.10.0_16.0_18.1	0.08136	ns
TG.56.3.TG.20.0_18.1_18.2	0.085217	ns
TG.58.4	0.0875	ns
DG.32.0	0.088235	ns
DG.26.1	0.088235	ns
TG.48.2.TG.16.0_16.1_16.1	0.094792	ns
DG.38.5	0.095455	ns
TG.46.0	0.115244	ns
PE.O.40.8	0.117137	ns
TG.48.2.TG.14.0_16.0_18.2	0.122638	ns

DG.36.2	0.128516	ns
PC.O.30.0	0.130233	ns
TG.56.3.TG.18.1_18.1_20.1	0.130577	ns
TG.54.1.TG.18.0_18.0_18.1	0.133588	ns
TG.54.3.TG.18.1_18.1_18.1	0.151136	ns
TG.48.1	0.161842	ns
TG.58.10	0.173694	ns
PI.38.4	0.177574	ns
TG.58.2.TG.22.0_18.1_18.1	0.177574	ns
PE.O.36.2	0.180109	ns
TG.54.8	0.188949	ns
LPC.16.0	0.22536	ns
LPE.18.1	0.23	ns
LPC.16.1	0.230851	ns
LPE.18.0	0.232923	ns
TG.48.3	0.250874	ns
TG.44.0.TG.12.0_14.0_18.0	0.260069	ns
TG.54.2	0.26431	ns
TG.52.1	0.306849	ns
TG.44.2.TG.12.0_14.0_18.2	0.351174	ns
TG.46.3	0.351174	ns
TG.48.0	0.355833	ns
TG.50.4	0.410265	ns
TG.56.0	0.423684	ns
DG.34.1	0.435784	ns
TG.50.1	0.476136	ns
PS.36.1	0.483226	ns
LPC.14.0	0.528365	ns
LPC.22.6	0.534968	ns
PC.34.1	0.534968	ns
PC.30.0	0.537107	ns
DG.34.2	0.552344	ns
PE.O.40.5	0.56087	ns
TG.60.3	0.589815	ns
DG.32.1	0.613037	ns
LPC.18.1	0.621037	ns
TG.54.7	0.668182	ns
LPE.22.6	0.691566	ns
TG.58.8	0.748204	ns
PE.O.40.7	0.76875	ns
PC.36.1	0.783876	ns
TG.60.2	0.788529	ns
PC.40.5	0.819737	ns
DG.34.0	0.842442	ns
TG.58.3	0.906358	ns
PC.38.3	0.92227	ns

TG.50.0	0.927	ns
Species underlined in green show the result of the Anova test; species underlined in orange show the result of the Kruskal-wallis test		