

The phospholipid molecular species profile of *Apostichopus japonicus* tissues modifies through exposure to n-3 polyunsaturated fatty acid-deficient diet

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Table S2. Pairwise comparison of the studied tissues of wild and cultivated sea cucumbers of the sea cucumber *Apostichopus japonicus* based on the results HSD test ($p < 0.05$)

Group	Molecular species pf PL	P value	Group	Molecular species pf PL	P value	Group	Molecular species pf PL	P value
Body wall			Respiratory tree		0.0048	Intestine		0.0014
Wild vs cultured	37:6alk PE	0.0034	Wild vs cultured	18:1alk/18:1 ¹ PE		Wild vs cultured	37:6alk PE	
	18:1alk/20:5 PE	0.0000		37:6alk PE	0.0184		18:1alk/19:1 PE	0.0311
	18:1alk/20:4 PE	0.0000		18:1alk/19:1 PE	0.0290		18:1alk/20:5 PE	0.0000
	18:1alk/20:2 PE	0.0111		18:1alk/20:5 PE	0.0000		18:1alk/20:4 PE	0.0001
	18:1alk/20:1; 19:1alk/19:1 PE	0.0017		18:1alk/20:4 PE	0.0002		18:1alk/20:2 PE	0.0109
	19:1alk/20:4 PE	0.0007		18:1alk/20:1; 19:1alk/19:1 PE	0.0014		19:1alk/20:5 PE	0.0328
	18:0/20:5; 18:1/20:4 PE	0.0481		19:1alk/20:5 PE	0.0006		18:1/20:5 PE	0.0009
	19:0alk/20:4 PE	0.0324		18:1/20:5 ² PE	0.0003		19:1alk/20:4 PE	0.0008
	18:1alk/22:6 PE	0.0000		19:1alk/20:4 PE	0.0033		18:0/20:5; 18:1/20:4 PE	0.0029

20:1alk/20:4; 18:0alk/22:5 PE	0.0000
19:0/20:4 PE	0.0000
19:1alk/22:5 PE	0.0001
20:1/20:5 PE	0.0005
19:1alk/22:4; 21:1alk/20:4 PE	0.0002
21:0/20:4 PE	0.0000
22:0/20:4 PE	0.0004
23:1/20:5 PE	0.0003
16:0alk/20:5 PC	0.0000
16:1alk/20:4 PC	0.0000
16:0alk/20:4 PC	0.0002
18:1alk/18:1 PC	0.0002
15:1alk/22:5 PC	0.0039
16:1/20:5 PC	0.0000
17:0alk/20:5 PC	0.0000
17:1alk/20:4 PC	0.0001
16:0/20:5 PC	0.0006
37:4alk PC	0.0000
36:3 PC	0.0003
18:1/18:1 PC	0.0000
38:7alk PC	0.0000
18:0alk/20:5 PC	0.0000
18:1alk/20:4 PC	0.0000
18:0alk/20:4 PC	0.0000
16:1alk/22:1 PC	0.0007
38:7 PC	0.0000
18:1/20:5 PC	0.0000
19:0alk/20:5 PC	0.0038
18:0/20:5 PC	0.0000
18:1/20:4 PC	0.0000
39:4alk PC	0.0000
18:0/20:4 PC	0.0032

18:0/20:5; 18:1/20:4 PE	0.0144
18:0/20:4 PE	0.0003
20:1alk/20:4; 18:0alk/22:5 PE	0.0009
19:1/20:4 PE	0.0004
19:1alk/22:5 PE	0.0005
20:1/20:5 PE	0.0002
19:1alk/22:4; 21:1alk/20:4 PE	0.0003
20:1/20:4 PE	0.0005
20:1alk/22:5 PE	0.0012
21:0/20:5; 21:1/20:4 PE	0.0000
23:1/20:5 PE	0.0001
23:1/20:4 PE	0.0002
16:1alk/20:5; 16:2alk/20:4 PC	0.0147
16:0alk/20:5 PC	0.0000
16:1alk/20:4 PC	0.0000
18:1alk/18:1 PC	0.0047
15:1alk/22:5 PC	0.0054
16:1/20:5 PC	0.0001
17:0alk/20:5 PC	0.0004
17:1alk/20:4 PC	0.0000
16:0/20:5 PC	0.0048
36:3 PC	0.0031
18:1/18:1 PC	0.0014
38:7alk PC	0.0027
18:1alk/20:5; 18:2alk/20:4 PC	0.0002
18:0alk/20:5 PC	0.0000
18:1alk/20:4 PC	0.0000
38:3alk PC	0.0000
39:6alk PC	0.0000
18:1/20:5 PC	0.0000
19:0alk/20:5 PC	0.0035
18:0/20:5 PC	0.0000

18:1alk/22:6 PE	0.0075
20:1alk/20:4; 18:0alk/22:5 PE	0.0017
19:1/20:4 PE	0.0417
19:0/20:4 PE	0.0000
19:1alk/22:5 PE	0.0036
20:1/20:5 PE	0.0009
19:1alk/22:4; 21:1alk/20:4 PE	0.0000
20:1/20:4 PE	0.0155
20:0/20:4 PE	0.0002
21:0/20:5; 21:1/20:4 PE	0.0299
21:0/20:4 PE	0.0000
22:0/20:4 PE	0.0283
16:1alk/20:5; 16:2alk/20:4 PC	0.0132
16:0alk/20:5 PC	0.0000
16:1alk/20:4 PC	0.0000
18:1alk/18:1 PC	0.0131
15:1alk/22:5 PC	0.0055
16:1/20:5 PC	0.0000
17:0alk/20:5 PC	0.0000
17:1alk/20:4 PC	0.0000
16:0/20:5 PC	0.0031
37:4alk PC	0.0000
36:3 PC	0.0289
18:1/18:1 PC	0.0034
38:7alk PC	0.0083
18:0alk/20:5 PC	0.0000
18:1alk/20:4 PC	0.0000
37:5 PC	0.0000
18:0alk/20:4 PC	0.0002
38:7 PC	0.0001
39:6alk PC	0.0000
18:1/20:5 PC	0.0002

38:3 PC	0.0478	18:1/20:4 PC	0.0000	18:0/20:5 PC	0.0000
18:0alk/22:6 PC	0.0369	18:0/20:4 PC	0.0000	18:1/20:4 PC	0.0000
36:6 PC	0.0164	38:3 PC	0.0375	39:4alk PC	0.0088
40:5alk PC	0.0059	38:7alk PC	0.0004	18:0/20:4 PC	0.0000
39:5 PC	0.0002	18:0alk/22:6 PC	0.0006	38:7alk PC	0.0009
41:11alk PC	0.0000	36:6 PC	0.0005	18:0alk/22:6 PC	0.0200
40:10 PC	0.0000	39:5 PC	0.0005	36:6 PC	0.0060
18:1/22:6 PC	0.0000	41:11alk PC	0.0000	40:5alk PC	0.0004
20:1/20:5; 18:0/22:6 PC	0.0001	40:10 PC	0.0001	39:5 PC	0.0007
42:7alk PC	0.0000	40:9 PC	0.0002	41:11alk PC	0.0000
42:11 PC	0.0032	18:1/22:6 PC	0.0001	40:10 PC	0.0034
42:7 PC	0.0000	20:1/20:5; 18:0/22:6 PC	0.0000	40:9 PC	0.0146
42:6 PC	0.0000	40:5 PC	0.0027	20:1/20:5; 18:0/22:6 PC	0.0003
43:6 PC	0.0260	42:7alk PC	0.0031	42:11 PC	0.0000
44:6 PC	0.0000	42:11 PC	0.0000	42:7 PC	0.0000
18:0alk/20:5 PI	0.0054	42:7 PC	0.0000	42:6 PC	0.0007
18:1/20:5 PI	0.0010	42:6 PC	0.0000	44:6 PC	0.0001
18:0/20:5 PI	0.0003	43:6 PC	0.0000	18:0alk/20:4 PI	0.0000
18:1/20:4 PI	0.0002	44:6 PC	0.0009	18:1/20:5 PI	0.0002
19:1/20:5 PI	0.0098	18:0alk/20:5 PI	0.0008	18:0/20:5 PI	0.0000
19:0/20:4 PI	0.0000	18:1/20:5 PI	0.0000	18:1/20:4 PI	0.0000
20:1/20:5 PI	0.0001	18:0/20:5 PI	0.0000	19:0/20:4 PI	0.0042
20:1/20:4; 20:0/20:5 PI	0.0000	18:1/20:4 PI	0.0307	20:1/20:5 PI	0.0013
20:0/20:4 PI	0.0002	19:1/20:5 PI	0.0028	20:1/20:4; 20:0/20:5 PI	0.0152
20:1/20:2 PI	0.0010	19:0/20:4 PI	0.0093	20:0/20:4 PI	0.0000
21:1/20:5 PI	0.0000	20:1/20:5 PI	0.0018	20:1/20:2 PI	0.0000
21:0/20:5 PI	0.0000	20:1/20:4; 20:0/20:5 PI	0.0133	21:1/20:5 PI	0.0017
21:1/20:4 PI	0.0000	20:0/20:4 PI	0.0089	21:0/20:5 PI	0.0000
21:0/20:4 PI	0.0000	20:1/20:2 PI	0.0000	21:1/20:4 PI	0.0000
22:2/20:5 PI	0.0000	21:0/20:5 PI	0.0000	21:0/20:4 PI	0.0000
22:1/20:5 PI	0.0000	21:1/20:4 PI	0.0002	22:2/20:5 PI	0.0009
22:1/20:4 PI	0.0002	21:0/20:4 PI	0.0001	22:1/20:5 PI	0.0006

22:0/20:4 PI	0.0001
22:1/20:2 PI	0.0103
23:1/20:5 PI	0.0002
23:1/20:4 PI	0.0000
23:0/20:4 PI	0.0099
23:1/20:2 PI	0.0109
24:3/20:5 PI	0.0052
24:1/20:5 PI	0.0000
24:1/20:4 PI	0.0028
24:0/20:4; 24:1/20:3 PI	0.0056
24:1/20:2 PI	0.0380
18:0/20:5 PS	0.0000
18:1/20:1 PS	0.0003
20:1/20:5 PS	0.0000
20:0/20:5; 20:1/20:4 PS	0.0000
22:1/18:1; 20:1/20:1 PS	0.0022
21:0/20:5 PS	0.0003
22:1/20:5 PS	0.0009
22:0/20:4 PS	0.0377
23:1/20:1; 22:1/21:1 PS	0.0003
22:1/22:5 PS	0.0000
22:1/22:2 PS	0.0299
24:1/20:1; 23:1/21:1 PS	0.0000
23:1/22:6 PS	0.0000
24:1/22:6 PS	0.0482
24:1/22:2 PS	0.0009
Total 99 molecular species	

22:2/20:5 PI	0.0001
22:1/20:5 PI	0.0000
22:1/20:2 PI	0.0079
23:1/20:5 PI	0.0209
23:1/20:4 PI	0.0163
23:1/20:2 PI	0.0018
24:3/20:5 PI	0.0096
24:1/20:5 PI	0.0001
24:1/20:4 PI	0.0163
24:0/20:4; 24:1/20:3 PI	0.0278
24:1/20:2 PI	0.0000
18:0/20:5 PS	0.0011
18:0/20:4 PS	0.0168
18:1/20:1 PS	0.0000
20:1/20:5 PS	0.0000
20:0/20:5; 20:1/20:4 PS	0.0003
21:0/20:5 PS	0.0004
23:1/18:1; 22:1/19:1 PS	0.0028
22:1/20:5 PS	0.0000
22:0/20:4 PS	0.0193
42:3 PS	0.4423
22:1/20:1; 24:1/18:1 PS	0.0003
23:1/20:5 PS	0.0000
23:1/20:1; 22:1/21:1 PS	0.0001
24:1/20:5 PS	0.0000
22:1/22:5 PS	0.0016
24:1/20:4; 22:1/22:4 PS	0.0419
24:1/20:1; 23:1/21:1 PS	0.0037
23:1/22:6 PS	0.0002
23:1/22:5 PS	0.0158
24:1/22:6 PS	0.0019
24:1/22:4 PS	0.0053

22:1/20:4 PI	0.0012
22:0/20:4 PI	0.0019
22:1/20:2 PI	0.0223
23:1/20:5 PI	0.0239
23:1/20:4 PI	0.0000
23:0/20:4 PI	0.0142
23:1/20:2 PI	0.0032
24:3/20:5 PI	0.0000
24:1/20:5 PI	0.0000
24:1/20:4 PI	0.0083
24:0/20:4; 24:1/20:3 PI	0.0011
24:1/20:2 PI	0.0011
18:0/20:5 PS	0.0000
18:0/20:4 PS	0.0002
18:1/20:1 PS	0.0002
18:0/20:1 PS	0.0440
20:1/20:5 PS	0.0000
20:0/20:5; 20:1/20:4 PS	0.0000
22:1/18:1; 20:1/20:1 PS	0.0187
21:0/20:5 PS	0.0000
21:0/20:4 PS	0.0303
23:1/18:1; 22:1/19:1 PS	0.0430
22:1/20:5 PS	0.0000
22:1/20:4 PS	0.0004
22:0/20:4 PS	0.0009
22:1/20:1; 24:1/18:1 PS	0.0000
23:1/20:5 PS	0.0001
23:1/20:2 PS	0.0138
23:1/20:1; 22:1/21:1 PS	0.0000
24:1/20:5 PS	0.0000
22:1/22:5 PS	0.0000
24:1/20:4; 22:1/22:4 PS	0.0008

	24:1/22:2 PS	0.0179	24:1/20:1; 23:1/21:1 PS	0.0135
	Total 106 molecular species		23:1/22:6 PS	0.0000
			23:1/22:5 PS	0.0114
			23:1/22:4 PS	0.0029
			23:1/22:2 PS	0.0029
			24:1/22:6 PS	0.0000
			24:1/22:2 PS	0.0001
			Total 112 molecular species	

¹*sn*-1 alkyl/ *sn*-2 acyl

²*sn*-1(2) acyl/ *sn*-2(1) acyl

PE: Phosphatidylethanolamines; PC: Phosphatidylcholines; PI: Phosphatidylinositols; PS: Phosphatidylserines