

## Supplementary material

Table S1: The list of fern species and reference vegetables whose fiddleheads/young leaves were analysed, and source of plant material collection.

Species	Family	Source of plant material
<sup>H</sup> <i>Asplenium scolopendrium</i>	<i>Aspleniaceae</i>	Garden centre Krulich
<i>Athyrium distentifolium</i>	<i>Athyriaceae</i>	Fern collection garden in Telč
<sup>H</sup> <i>Athyrium filix-femina</i>	<i>Athyriaceae</i>	Garden centre Krulich
<sup>W</sup> <i>Pteridium aquilinum</i>	<i>Dennstaedtiaceae</i>	Wild collection (49°16'13.325 N; 15°22'46.346 E)
<i>Dryopteris aemula</i>	<i>Dryopteridaceae</i>	Fern collection garden in Telč
<i>Dryopteris affinis</i>	<i>Dryopteridaceae</i>	Fern collection garden in Telč
<i>Dryopteris borrieri</i>	<i>Dryopteridaceae</i>	Fern collection garden in Telč
<i>Dryopteris cambrensis</i>	<i>Dryopteridaceae</i>	Fern collection garden in Telč
<i>Dryopteris carthusiana</i>	<i>Dryopteridaceae</i>	Botanical garden of the Charles University in Prague
<i>Dryopteris caucasica</i>	<i>Dryopteridaceae</i>	Fern collection garden in Telč
<sup>H</sup> <i>Dryopteris dilatata</i>	<i>Dryopteridaceae</i>	Garden centre Franc
<i>Dryopteris expansa</i>	<i>Dryopteridaceae</i>	Fern collection garden in Telč
<sup>H</sup> <i>Dryopteris filix-mas</i>	<i>Dryopteridaceae</i>	Garden centre Krulich
<i>Dryopteris oreades</i>	<i>Dryopteridaceae</i>	Fern collection garden in Telč
<i>Dryopteris remota</i>	<i>Dryopteridaceae</i>	Fern collection garden in Telč
<sup>H</sup> <i>Polystichum aculeatum</i>	<i>Dryopteridaceae</i>	Garden centre Franc
<i>Polystichum aculeatum</i>	<i>Dryopteridaceae</i>	Botanical garden of the Charles University in Prague
<i>Polystichum setiferum</i>	<i>Dryopteridaceae</i>	Fern collection garden in Telč
<sup>H</sup> <i>Matteuccia struthiopteris</i>	<i>Onocleaceae</i>	Garden centre Krulich
<i>Onoclea sensibilis</i>	<i>Onocleaceae</i>	Botanical garden of the Charles University in Prague
<sup>H</sup> <i>Osmunda regalis</i>	<i>Osmundaceae</i>	Garden centre Franc
<i>Osmunda regalis</i>	<i>Osmundaceae</i>	Botanical garden of the Charles University in Prague
<sup>H</sup> <i>Polypodium vulgare</i>	<i>Polypodiaceae</i>	Garden centre Franc
<i>Polypodium vulgare</i>	<i>Polypodiaceae</i>	Botanical garden of the Charles University in Prague
<i>Lastrea limbosperma</i>	<i>Thelypteridaceae</i>	Fern collection garden in Telč
<sup>W</sup> <i>Lastrea limbosperma</i>	<i>Thelypteridaceae</i>	Wild collection (49°13'14.214"N, 15°33'50.667"E)
<i>Phegopteris connectilis</i>	<i>Thelypteridaceae</i>	Botanical garden of the Charles University in Prague
<i>Thelypteris palustris</i>	<i>Thelypteridaceae</i>	Botanical garden of the Charles University in Prague
<i>Eruca sativa</i>	<i>Brassicaceae</i>	seedling, SEMO a.s. (Smržice, CZ)
<i>Spinacia oleracea</i>	<i>Amaranthaceae</i>	seedling, Seva Moravia s.r.o. (Valtice, CZ)

<sup>H</sup> = marks horticultural species from garden centres Krulich (Jakub Krulich, Prague, Czech Republic) and Franc (FRANC, Kamenné Žehrovice, Czech Republic) and were cultivated in pots; <sup>W</sup> = marks species collected in the wild, coordinates of the locality are stated in brackets; unmarked fern species were collected in private fern collection garden of RNDr. Libor Ekrt, Ph.D. in Telč (Czech Republic, coordinates: 49°11'19.385"N, 15°27'11.701"E), or in the Botanical Garden Charles University of Prague (Czech Republic, coordinates: 50°4'14.988"N, 14°25'14.621"E).

Table S2: The content of minor xanthophylls in fern fiddleheads analysed by HPLC.

Species	Neoxanthin ( $\mu\text{g}\cdot\text{g}^{-1}$ DW)	Violaxanthin ( $\mu\text{g}\cdot\text{g}^{-1}$ DW)	Antheraxanthin ( $\mu\text{g}\cdot\text{g}^{-1}$ DW)	Zeaxanthin ( $\mu\text{g}\cdot\text{g}^{-1}$ DW)
<sup>H</sup> <i>Asplenium scolopendrium</i>	47.01 ± 3.37	27.19 ± 1.20	10.18 ± 0.70	4.28 ± 0.41 >1.5M
<i>Athyrium distentifolium</i>	39.43 ± 4.37	48.60 ± 1.08	10.77 ± 1.15 >1.5M	3.85 ± 0.17
<sup>H</sup> <i>Athyrium filix-femina</i>	54.76 ± 4.18 >1.5M	34.03 ± 1.87	7.67 ± 0.16	3.84 ± 0.26
<sup>W</sup> <i>Pteridium aquilinum</i>	39.77 ± 3.05	40.85 ± 3.16	6.69 ± 0.37	3.14 ± 0.13
<i>Dryopteris aemula</i>	23.04 ± 2.32	21.86 ± 3.15	1.16 ± 0.16	0.43 ± 0.05
<i>Dryopteris affinis</i>	22.48 ± 3.06	20.62 ± 1.17	2.44 ± 0.30	2.32 ± 0.25
<i>Dryopteris borrieri</i>	23.11 ± 2.12	29.45 ± 2.92	0.72 ± 0.18	1.22 ± 0.21
<i>Dryopteris cambrensis</i>	15.38 ± 4.44	8.73 ± 1.08	1.11 ± 0.24	0.79 ± 0.00
<i>Dryopteris carthusiana</i>	53.52 ± 5.33 >1.5M	60.28 ± 7.15 >1.5M	10.70 ± 2.00 >1.5M	4.09 ± 0.51 >1.5M
<i>Dryopteris caucasica</i>	28.68 ± 2.14	42.32 ± 1.97	9.07 ± 0.56	2.15 ± 0.25
<sup>H</sup> <i>Dryopteris dilatata</i>	8.38 ± 2.32	13.73 ± 2.26	1.40 ± 0.12	3.38 ± 0.16
<i>Dryopteris expansa</i>	27.41 ± 1.51	26.34 ± 3.18	1.43 ± 0.16	1.64 ± 0.13
<sup>H</sup> <i>Dryopteris filix-mas</i>	52.01 ± 4.87 >1.5M	14.87 ± 0.49	1.68 ± 0.26	3.23 ± 0.58
<i>Dryopteris oreades</i>	52.11 ± 2.77 >1.5M	42.46 ± 1.71	8.99 ± 0.65	2.66 ± 0.49
<i>Dryopteris remota</i>	17.13 ± 2.75	18.14 ± 0.82	5.46 ± 0.31	2.08 ± 0.29
<sup>H</sup> <i>Polystichum aculeatum</i>	70.95 ± 6.69 * >1.5M	51.45 ± 4.32 >1.5M	16.57 ± 1.07 * >1.5M	3.27 ± 0.37
<i>Polystichum aculeatum</i>	53.99 ± 2.50 >1.5M	43.10 ± 3.22	6.78 ± 0.60	2.01 ± 0.66
<i>Polystichum setiferum</i>	57.64 ± 5.31 >1.5M	84.19 ± 1.77 * >1.5M	12.15 ± 1.39 * >1.5M	3.02 ± 0.92
<sup>H</sup> <i>Matteuccia struthiopteris</i>	43.62 ± 5.02	56.91 ± 5.93 >1.5M	7.55 ± 0.88	2.54 ± 0.18
<i>Onoclea sensibilis</i>	20.51 ± 2.59	19.28 ± 2.14	9.52 ± 0.96	2.23 ± 0.09
<sup>H</sup> <i>Osmunda regalis</i>	26.54 ± 4.22	32.06 ± 2.89	10.28 ± 0.96	3.56 ± 0.37
<i>Osmunda regalis</i>	26.41 ± 1.63	27.75 ± 1.44	10.83 ± 0.51 >1.5M	2.99 ± 1.09
<sup>H</sup> <i>Polypodium vulgare</i>	52.12 ± 4.90 >1.5M	40.82 ± 2.84	3.47 ± 0.11	1.37 ± 0.32
<i>Polypodium vulgare</i>	45.67 ± 2.17	47.46 ± 2.14	3.34 ± 0.32	3.77 ± 0.15
<i>Lastrea limbosperma</i>	31.72 ± 1.97	39.15 ± 1.81	6.63 ± 0.37	3.12 ± 0.27
<sup>W</sup> <i>Lastrea limbosperma</i>	54.46 ± 4.05 >1.5M	53.65 ± 4.22 >1.5M	13.02 ± 0.68 * >1.5M	4.08 ± 0.23 >1.5M
<i>Phegopteris connectilis</i>	23.59 ± 2.68	21.69 ± 1.15	4.34 ± 0.73	2.26 ± 0.43
<i>Thelypteris palustris</i>	25.31 ± 3.49	27.99 ± 5.40	5.75 ± 0.46	2.21 ± 0.23
Average of all ferns	37.03 ± 3.42	35.53 ± 2.59	6.78 ± 0.58	2.70 ± 0.33
<i>Eruca sativa</i>	41.73 ± 4.20	42.21 ± 2.57	12.35 ± 0.89 * >1.5M	3.72 ± 0.70
<i>Spinacia oleracea</i>	14.67 ± 2.68	4.73 ± 1.71	2.34 ± 0.40	0.91 ± 0.11

<sup>H</sup> marks horticulture species from garden centres, cultivated in pots, <sup>W</sup> marks species collected in wild, unmarked fern species were collected in botanical gardens, \* marks species statistically distinguished from all samples, >1.5M marks values exceeding 1.5 times higher to median value. Anova, Duncan test at  $p \leq 0.05$

Table S3: The average content of individual FAMES in *Aspleniaceae*, *Athyriaceae*, and *Dennstaedtiaceae* fern samples.

Species/Family	<sup>H</sup> <i>Asplenium scolopendrium</i>	<i>Athyrium distentifolium</i>	<sup>H</sup> <i>Athyrium filix-femina</i>	<sup>W</sup> <i>Pteridium aquilinum</i>
FAME ( $\mu\text{g}\cdot\text{g}^{-1}\text{DW}$ )	Aspleniaceae	Athyriaceae	Athyriaceae	Dennstaedtiaceae
1 Caproic A (C6:0)	22.62 ± 4.63	25.93 ± 0.33	23.62 ± 2.59	15.29 ± 7.60
2 Caprylic A (C8:0)	3.29 ± 0.96	3.31 ± 0.32	3.19 ± 0.54	3.41 ± 0.13
3 Capric A (C10:0)	4.39 ± 1.03	4.41 ± 0.53	4.46 ± 0.72	4.17 ± 0.68
4 Lauric A (C12:0)	5.49 ± 0.75	5.50 ± 0.49	6.14 ± 0.25	5.85 ± 0.77
5 Myristoleic A (C14:1n5)	0.00 ± 0.00	8.86 ± 1.34	9.78 ± 0.02	3.86 ± 5.46
6 Myristic A (C14:0)	26.82 ± 1.78	27.34 ± 0.48	21.36 ± 5.80	30.03 ± 1.30
7 Pentadecanoic A (C15:0)	32.70 ± 2.25	27.30 ± 0.23	19.05 ± 1.61	15.05 ± 0.05
8 Palmitoleic A (C16:1n7)	302.82 ± 23.34	490.41 ± 9.16	475.76 ± 75.72	234.01 ± 3.38
9 Palmitic A (C16:0)	1266.89 ± 65.85	1702.06 ± 14.44	1743.98 ± 140.88	2092.96 ± 58.48
10 cis-10-Heptadecenoic A (C17:1n7)	13.73 ± 1.60	18.14 ± 0.38	14.71 ± 1.65	9.84 ± 0.39
11 Margaric A (C17:0)	32.67 ± 2.31	39.94 ± 0.17	41.25 ± 3.21	30.46 ± 0.02
12 gamma-Linolenic A (C18:3n6)	1191.81 ± 148.93	2147.43 ± 40.00	2122.30 ± 157.01	2013.23 ± 41.23
13 Linolenic A (C18:3n3)	1217.92 ± 68.05	2886.11 ± 86.90	3148.07 ± 214.28	2512.28 ± 43.15
14 Linoleic A (C18:2n6c)	3833.94 ± 252.56	4733.47 ± 171.93	4929.11 ± 374.99	5904.59 ± 51.63
15 Oleic A (C18:1n9c)	2118.44 ± 208.79	3345.88 ± 78.30	3042.41 ± 370.75	2937.21 ± 206.44
16 Stearic A (C18:0)	54.94 ± 6.55	102.83 ± 2.67	113.46 ± 18.44	189.74 ± 3.78
17 Timnodonic A (C20:5n3) - EPA	111.83 ± 11.03	1593.45 ± 217.04	548.24 ± 34.09	501.54 ± 88.36
18 Arachidonic A (C20:4n6)	3161.12 ± 327.83	3632.39 ± 30.04	4673.32 ± 288.23	5649.10 ± 62.58
19 DGLA (C20:3n6)	470.29 ± 54.50	537.30 ± 131.79	960.37 ± 61.37	968.97 ± 19.58
20 Eicosatrienoic A (C20:3n3) - ETE	7.17 ± 2.28	17.62 ± 1.01	17.45 ± 5.19	8.86 ± 0.06
21 Eicosadienoic A (C20:2n6)	27.25 ± 7.11	24.39 ± 0.01	34.12 ± 3.20	48.83 ± 5.26
22 Gondoic A (C20:1n9)	68.33 ± 25.80	132.16 ± 0.51	89.04 ± 0.17	88.26 ± 8.62
23 Arachidic A (C20:0)	19.67 ± 2.87	46.64 ± 1.20	49.35 ± 5.45	101.14 ± 2.76
24 Heneicosanoic A (C21:0)	3.20 ± 0.57	2.99 ± 0.59	2.84 ± 0.23	2.38 ± 0.28
25 Cervonic A (C22:6n3) - DHA	17.66 ± 16.10	18.94 ± 0.86	15.11 ± 12.69	14.94 ± 1.90
26 Docosadienoic A (C22:2n6)	4.62 ± 0.77	7.44 ± 0.59	3.92 ± 0.54	4.49 ± 0.15
27 Erucic A (C22:1n9)	15.25 ± 3.42	19.65 ± 6.38	12.60 ± 0.82	11.77 ± 1.47
28 Behenic A (C22:0)	235.18 ± 25.94	175.41 ± 4.12	175.85 ± 9.39	408.49 ± 6.08
29 Tricosanoic A (C23:0)	12.37 ± 1.85	13.95 ± 0.89	12.76 ± 0.55	9.68 ± 0.29
30 Nervonic A (C24:1n9)	271.86 ± 32.95	164.90 ± 2.90	47.60 ± 2.04	13.20 ± 6.76
31 Lignoceric A (C24:0)	157.42 ± 18.88	135.24 ± 2.49	165.00 ± 8.83	196.14 ± 3.36

Table S4: The average content of individual FAMES in *Dryopteridaceae* fern samples.

Species/Family	<i>Dryopteris aemula</i>	<i>Dryopteris affinis</i>	<i>Dryopteris borrieri</i>	<i>Dryopteris cambrensis</i>	<i>Dryopteris carthusiana</i>	<i>Dryopteris caucasica</i>	<sup>H</sup> <i>Dryopteris dilatata</i>
FAME (µg.g <sup>-1</sup> DW)	<i>Dryopteridaceae</i>	<i>Dryopteridaceae</i>	<i>Dryopteridaceae</i>	<i>Dryopteridaceae</i>	<i>Dryopteridaceae</i>	<i>Dryopteridaceae</i>	<i>Dryopteridaceae</i>
1 Caproic A (C6:0)	25.24 ± 1.57	24.18 ± 0.90	28.54 ± 3.80	25.50 ± 4.27	22.92 ± 0.27	23.16 ± 1.29	20.89 ± 1.11
2 Caprylic A (C8:0)	3.29 ± 0.11	3.13 ± 0.11	3.52 ± 0.16	5.18 ± 0.35	2.92 ± 0.13	2.78 ± 0.22	2.52 ± 0.22
3 Capric A (C10:0)	4.23 ± 0.01	4.36 ± 0.06	4.36 ± 0.17	4.18 ± 0.32	4.03 ± 0.18	3.99 ± 0.27	4.25 ± 0.19
4 Lauric A (C12:0)	5.64 ± 0.55	5.99 ± 0.30	6.52 ± 0.46	9.97 ± 0.18	6.09 ± 0.24	5.14 ± 0.61	5.73 ± 0.33
5 Myristoleic A (C14:1n5)	10.81 ± 0.24	8.86 ± 0.13	9.96 ± 0.09	9.95 ± 0.59	9.87 ± 0.63	10.44 ± 0.49	8.29 ± 0.53
6 Myristic A (C14:0)	23.65 ± 2.31	14.16 ± 0.06	21.67 ± 0.92	14.62 ± 1.15	17.84 ± 0.61	24.01 ± 0.29	20.66 ± 0.88
7 Pentadecanoic A (C15:0)	39.76 ± 1.13	20.77 ± 1.26	19.17 ± 0.41	11.08 ± 9.24	30.60 ± 0.88	31.99 ± 0.69	12.83 ± 11.64
8 Palmitoleic A (C16:1n7)	351.00 ± 366.13	388.09 ± 8.15	465.11 ± 20.90	427.92 ± 26.63	461.43 ± 17.24	797.43 ± 34.81	629.86 ± 23.47
9 Palmitic A (C16:0)	1770.20 ± 48.70	1068.88 ± 67.29	1391.46 ± 46.81	994.11 ± 82.91	1376.87 ± 80.31	1792.02 ± 30.30	1434.82 ± 87.67
10 cis-10-Heptadecenoic A (C17:1n7)	15.38 ± 0.45	18.38 ± 0.45	17.34 ± 1.23	20.58 ± 0.05	19.28 ± 0.04	18.54 ± 4.16	17.97 ± 0.10
11 Margaric A (C17:0)	46.68 ± 2.54	40.73 ± 1.98	37.99 ± 1.11	40.35 ± 0.07	56.40 ± 3.44	52.50 ± 1.18	47.00 ± 1.78
12 gamma-Linolenic A (C18:3n6)	1618.36 ± 28.13	1086.66 ± 34.65	1745.97 ± 123.46	975.57 ± 78.37	1249.67 ± 61.34	1770.06 ± 1.88	1520.34 ± 46.79
13 Linolenic A (C18:3n3)	3092.90 ± 50.35	1576.83 ± 160.87	1984.12 ± 110.11	1568.83 ± 106.22	2499.51 ± 106.93	3416.47 ± 42.60	2627.98 ± 38.05
14 Linoleic A (C18:2n6c)	4744.69 ± 427.05	2828.20 ± 19.91	3226.28 ± 413.30	3232.14 ± 232.06	4016.83 ± 79.40	5166.56 ± 54.30	4046.01 ± 47.68
15 Oleic A (C18:1n9c)	3651.67 ± 184.02	2046.82 ± 20.44	2754.73 ± 73.32	2203.02 ± 127.30	2762.80 ± 79.82	4186.26 ± 72.02	2795.75 ± 28.23
16 Stearic A (C18:0)	101.13 ± 3.35	69.88 ± 1.19	100.92 ± 1.93	64.19 ± 9.46	117.07 ± 5.21	142.54 ± 28.55	108.21 ± 4.17
17 Timnodonic A (C20:5n3) - EPA	292.94 ± 45.32	381.43 ± 25.41	492.38 ± 29.58	369.32 ± 51.50	490.65 ± 68.95	722.25 ± 26.59	298.10 ± 9.70
18 Arachidonic A (C20:4n6)	3762.90 ± 50.61	2560.64 ± 164.54	3495.40 ± 350.94	2514.86 ± 237.70	3105.17 ± 53.33	4380.75 ± 2.59	3330.77 ± 153.57
19 DGLA (C20:3n6)	1020.93 ± 12.72	570.28 ± 16.31	902.07 ± 72.19	433.50 ± 22.20	1260.01 ± 18.33	957.32 ± 34.10	1137.34 ± 21.97
20 Eicosatrienoic A (C20:3n3) - ETE	9.65 ± 4.53	18.52 ± 7.62	14.07 ± 1.39	11.33 ± 0.21	19.29 ± 2.25	16.72 ± 3.02	13.98 ± 0.79
21 Eicosadienoic A (C20:2n6)	41.28 ± 17.07	30.90 ± 15.39	27.47 ± 6.38	22.41 ± 3.86	44.62 ± 1.40	42.85 ± 1.94	42.55 ± 8.01
22 Gondoic A (C20:1n9)	119.03 ± 2.17	204.13 ± 0.20	204.73 ± 8.87	227.60 ± 14.46	267.45 ± 0.02	241.70 ± 23.93	285.80 ± 9.14
23 Arachidic A (C20:0)	104.81 ± 2.00	80.35 ± 2.98	94.17 ± 5.94	91.66 ± 2.67	215.31 ± 5.67	108.46 ± 5.68	110.11 ± 5.30
24 Heneicosanoic A (C21:0)	4.88 ± 0.09	8.17 ± 0.54	7.73 ± 0.23	8.20 ± 0.03	17.88 ± 0.19	8.92 ± 0.89	7.22 ± 0.22
25 Cervonic A (C22:6n3) - DHA	23.36 ± 0.16	14.55 ± 11.07	14.94 ± 11.45	13.49 ± 8.81	20.73 ± 19.62	24.45 ± 2.51	21.98 ± 0.56
26 Docosadienoic A (C22:2n6)	4.91 ± 0.61	6.32 ± 0.12	8.02 ± 0.69	7.19 ± 0.90	7.35 ± 0.06	7.23 ± 0.39	8.88 ± 0.85
27 Erucic A (C22:1n9)	6.50 ± 5.39	8.03 ± 5.55	9.85 ± 6.66	10.11 ± 4.98	18.05 ± 17.28	6.27 ± 0.24	30.98 ± 12.90
28 Behenic A (C22:0)	170.35 ± 1.58	203.78 ± 10.60	208.03 ± 12.10	162.30 ± 2.93	221.14 ± 9.28	221.33 ± 4.63	208.86 ± 7.26
29 Tricosanoic A (C23:0)	11.33 ± 0.39	19.43 ± 25.14	28.52 ± 1.79	17.91 ± 22.40	46.28 ± 0.71	38.52 ± 2.48	39.57 ± 0.11
30 Nervonic A (C24:1n9)	224.99 ± 25.02	99.13 ± 19.24	104.70 ± 9.48	69.62 ± 14.96	131.51 ± 1.59	151.85 ± 24.12	150.76 ± 5.99
31 Lignoceric A (C24:0)	197.33 ± 1.32	150.96 ± 9.72	148.39 ± 7.40	135.15 ± 0.30	138.66 ± 2.97	158.86 ± 5.72	157.05 ± 2.36

Table S5: The average content of individual FAMES in *Dryopteridaceae* fern samples.

Species/Family	<i>Dryopteris expansa</i>	<sup>H</sup> <i>Dryopteris filix-mas</i>	<i>Dryopteris oreades</i>	<i>Dryopteris remota</i>	<sup>H</sup> <i>Polystichum aculeatum</i>	<i>Polystichum aculeatum</i>	<i>Polystichum setiferum</i>
FAME (µg.g <sup>-1</sup> DW)	Dryopteridaceae	Dryopteridaceae	Dryopteridaceae	Dryopteridaceae	Dryopteridaceae	Dryopteridaceae	Dryopteridaceae
1 Caproic A (C6:0)	24.20 ± 3.41	22.28 ± 0.27	22.85 ± 3.59	23.83 ± 2.30	22.90 ± 2.35	23.70 ± 4.78	19.93 ± 4.16
2 Caprylic A (C8:0)	2.76 ± 0.08	2.87 ± 0.21	2.65 ± 0.04	5.03 ± 0.08	2.52 ± 0.15	3.00 ± 0.06	2.63 ± 0.17
3 Capric A (C10:0)	4.23 ± 0.21	3.93 ± 0.08	3.84 ± 0.09	5.55 ± 0.05	3.67 ± 0.07	3.92 ± 0.33	3.84 ± 0.05
4 Lauric A (C12:0)	4.99 ± 0.40	5.86 ± 0.30	5.15 ± 0.08	8.35 ± 0.36	5.04 ± 0.02	5.60 ± 0.14	4.97 ± 0.14
5 Myristoleic A (C14:1n5)	10.37 ± 0.39	9.35 ± 0.04	9.41 ± 0.35	9.48 ± 0.04	8.41 ± 0.21	9.12 ± 0.51	10.54 ± 0.11
6 Myristic A (C14:0)	24.87 ± 0.68	22.39 ± 0.56	17.37 ± 0.19	20.51 ± 1.39	30.47 ± 0.94	25.05 ± 0.91	35.13 ± 2.40
7 Pentadecanoic A (C15:0)	27.67 ± 0.62	25.45 ± 0.26	11.36 ± 16.06	21.69 ± 0.95	17.31 ± 0.44	27.52 ± 0.65	18.15 ± 19.48
8 Palmitoleic A (C16:1n7)	1342.11 ± 40.27	428.61 ± 3.40	458.82 ± 11.31	56.32 ± 0.15	393.19 ± 17.90	391.74 ± 19.40	475.47 ± 23.54
9 Palmitic A (C16:0)	1914.39 ± 26.40	1509.99 ± 87.73	1310.25 ± 4.74	1378.95 ± 43.28	1783.41 ± 84.70	1392.77 ± 63.79	1581.31 ± 130.99
10 cis-10-Heptadecenoic A (C17:1n7)	25.36 ± 2.34	17.36 ± 0.32	23.72 ± 0.58	15.83 ± 0.30	13.69 ± 0.86	12.00 ± 0.14	13.35 ± 1.06
11 Margaric A (C17:0)	60.19 ± 7.18	49.28 ± 0.44	49.19 ± 1.97	37.55 ± 1.66	43.49 ± 1.11	36.24 ± 2.73	49.35 ± 2.01
12 gamma-Linolenic A (C18:3n6)	2622.62 ± 37.60	1614.35 ± 141.59	1536.95 ± 35.13	1581.63 ± 53.65	1916.90 ± 87.61	1077.47 ± 75.33	1575.75 ± 167.97
13 Linolenic A (C18:3n3)	4461.73 ± 22.81	2961.72 ± 172.74	2716.36 ± 114.10	1963.78 ± 2.78	3721.08 ± 155.08	1965.81 ± 130.02	2767.26 ± 150.70
14 Linoleic A (C18:2n6c)	5008.30 ± 6.33	4167.96 ± 170.78	4628.72 ± 90.34	4196.43 ± 769.50	4299.44 ± 433.75	4130.62 ± 704.55	4064.88 ± 304.11
15 Oleic A (C18:1n9c)	4826.76 ± 147.86	3030.56 ± 126.34	2975.79 ± 33.72	2447.19 ± 38.83	3424.16 ± 20.39	2377.88 ± 221.31	3097.68 ± 327.94
16 Stearic A (C18:0)	147.68 ± 0.51	119.35 ± 3.53	91.97 ± 13.03	92.80 ± 5.83	107.20 ± 11.86	134.84 ± 1.51	88.07 ± 117.05
17 Timnodonic A (C20:5n3) - EPA	962.06 ± 37.00	322.78 ± 34.22	206.09 ± 11.39	545.17 ± 50.21	330.11 ± 9.63	211.04 ± 9.78	315.10 ± 40.39
18 Arachidonic A (C20:4n6)	4890.14 ± 176.99	3301.80 ± 107.90	3351.06 ± 86.70	3322.04 ± 43.81	4603.39 ± 90.13	3743.65 ± 185.25	4009.64 ± 366.05
19 DGLA (C20:3n6)	1771.26 ± 59.35	977.81 ± 73.03	741.07 ± 43.94	746.05 ± 0.84	955.85 ± 85.02	889.94 ± 55.85	851.87 ± 136.70
20 Eicosatrienoic A (C20:3n3) - ETE	32.28 ± 1.01	15.69 ± 0.60	16.31 ± 0.43	15.65 ± 0.93	8.33 ± 1.15	14.04 ± 0.71	14.70 ± 1.69
21 Eicosadienoic A (C20:2n6)	54.67 ± 3.09	72.79 ± 0.14	33.41 ± 0.11	83.61 ± 1.67	68.35 ± 2.39	58.78 ± 0.13	65.75 ± 3.67
22 Gondoic A (C20:1n9)	390.05 ± 66.61	187.19 ± 9.81	158.29 ± 14.37	269.65 ± 30.03	441.60 ± 9.85	291.29 ± 73.73	398.10 ± 5.50
23 Arachidic A (C20:0)	224.89 ± 11.89	90.75 ± 2.03	89.24 ± 1.79	92.77 ± 2.71	170.12 ± 3.54	223.39 ± 7.86	234.17 ± 5.84
24 Heneicosanoic A (C21:0)	11.93 ± 0.52	8.51 ± 0.32	7.51 ± 0.38	7.87 ± 0.32	7.48 ± 0.30	9.35 ± 0.39	10.39 ± 0.59
25 Cervonic A (C22:6n3) - DHA	25.32 ± 0.11	21.69 ± 1.68	18.75 ± 0.81	26.41 ± 0.50	30.03 ± 0.12	29.71 ± 2.09	16.93 ± 14.47
26 Docosadienoic A (C22:2n6)	14.00 ± 0.91	6.49 ± 0.03	5.10 ± 0.34	6.51 ± 0.27	6.76 ± 0.08	6.12 ± 0.23	10.62 ± 0.16
27 Erucic A (C22:1n9)	24.49 ± 0.75	22.20 ± 0.75	7.03 ± 4.56	9.11 ± 5.22	11.58 ± 3.82	9.53 ± 1.63	16.69 ± 4.96
28 Behenic A (C22:0)	304.12 ± 11.84	172.17 ± 1.71	183.30 ± 7.67	190.18 ± 4.52	361.05 ± 7.50	369.25 ± 7.41	466.73 ± 27.72
29 Tricosanoic A (C23:0)	52.57 ± 4.28	18.77 ± 23.95	30.51 ± 1.48	34.44 ± 1.34	19.65 ± 0.62	21.47 ± 0.39	17.46 ± 0.62
30 Nervonic A (C24:1n9)	313.15 ± 5.54	96.88 ± 44.77	132.15 ± 65.17	123.95 ± 29.44	6.43 ± 0.09	46.77 ± 26.51	122.83 ± 88.42
31 Lignoceric A (C24:0)	178.00 ± 5.89	137.43 ± 2.00	140.21 ± 5.30	132.10 ± 1.55	174.79 ± 3.55	146.93 ± 1.94	123.28 ± 7.40

Table S6: The average content of individual FAMES in *Onocleaceae*, *Osmundaceae*, and *Polypodiaceae* fern samples.

Species/Family FAME ( $\mu\text{g}\cdot\text{g}^{-1}\text{DW}$ )	<sup>13</sup> C-Matteuccia <i>struthiopteris</i> <i>Onocleaceae</i>	<i>Onoclea sensibilis</i> <i>Onocleaceae</i>	<sup>13</sup> C-Osmunda <i>regalis</i> <i>Osmundaceae</i>	<i>Osmunda regalis</i> <i>Osmundaceae</i>	<sup>13</sup> C-Polypodium <i>vulgare</i> <i>Polypodiaceae</i>	<i>Polypodium vulgare</i> <i>Polypodiaceae</i>
1 Caproic A (C6:0)	18.83 ± 0.27	19.22 ± 2.86	16.41 ± 0.38	16.40 ± 1.42	19.33 ± 0.45	18.65 ± 7.75
2 Caprylic A (C8:0)	2.86 ± 0.01	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00	2.68 ± 0.05	2.87 ± 0.14
3 Capric A (C10:0)	4.25 ± 0.24	3.65 ± 0.47	3.96 ± 0.01	5.66 ± 0.13	0.00 ± 0.00	0.00 ± 0.00
4 Lauric A (C12:0)	7.29 ± 0.65	5.59 ± 0.65	5.13 ± 0.17	5.00 ± 0.00	7.53 ± 1.29	6.37 ± 0.04
5 Myristoleic A (C14:1n5)	8.57 ± 1.24	8.21 ± 1.09	8.02 ± 0.11	7.94 ± 0.25	8.20 ± 0.12	8.31 ± 0.49
6 Myristic A (C14:0)	17.81 ± 2.08	16.75 ± 0.90	11.63 ± 0.20	12.38 ± 0.16	21.06 ± 1.96	17.42 ± 0.07
7 Pentadecanoic A (C15:0)	23.26 ± 2.78	23.29 ± 1.58	12.03 ± 0.28	11.28 ± 0.66	10.57 ± 0.38	11.46 ± 0.69
8 Palmitoleic A (C16:1n7)	914.86 ± 66.06	394.63 ± 28.03	254.59 ± 9.53	190.15 ± 44.23	447.69 ± 24.76	402.57 ± 1.08
9 Palmitic A (C16:0)	1934.22 ± 194.62	1713.89 ± 111.30	2043.22 ± 88.67	2040.07 ± 1.77	1944.43 ± 62.83	1495.08 ± 41.73
10 cis-10-Heptadecenoic A (C17:1n7)	18.39 ± 1.21	13.47 ± 1.31	12.66 ± 0.60	10.99 ± 0.33	15.35 ± 1.06	14.53 ± 0.66
11 Margaric A (C17:0)	41.30 ± 0.43	48.91 ± 4.92	46.83 ± 2.69	36.60 ± 2.24	43.97 ± 4.00	32.22 ± 0.44
12 gamma-Linolenic A (C18:3n6)	2151.42 ± 116.45	1502.98 ± 145.41	1097.34 ± 76.36	1055.16 ± 34.78	2572.32 ± 81.77	1331.11 ± 54.25
13 Linolenic A (C18:3n3)	3345.94 ± 356.72	2434.59 ± 50.21	4149.79 ± 260.63	4118.78 ± 73.57	3800.96 ± 236.30	2341.05 ± 120.30
14 Linoleic A (C18:2n6c)	4595.90 ± 347.18	4868.95 ± 258.67	3834.53 ± 236.71	2791.62 ± 125.57	7173.74 ± 141.34	7250.33 ± 78.88
15 Oleic A (C18:1n9c)	3023.33 ± 301.78	2697.63 ± 264.53	2784.61 ± 161.65	2591.18 ± 1.20	4568.90 ± 137.67	3810.06 ± 23.40
16 Stearic A (C18:0)	155.70 ± 15.78	149.77 ± 0.11	152.20 ± 31.37	139.76 ± 46.21	140.39 ± 5.32	102.09 ± 4.03
17 Timnodonic A (C20:5n3) - EPA	1828.21 ± 366.38	397.97 ± 52.53	999.17 ± 2.08	1193.46 ± 232.08	154.39 ± 49.24	103.25 ± 4.99
18 Arachidonic A (C20:4n6)	4301.51 ± 391.83	3709.38 ± 192.89	2678.83 ± 27.10	2296.72 ± 174.62	6257.19 ± 176.28	5260.76 ± 136.99
19 DGLA (C20:3n6)	1152.59 ± 15.60	719.23 ± 48.03	630.18 ± 77.91	573.84 ± 52.57	1688.38 ± 30.14	1103.08 ± 53.52
20 Eicosatrienoic A (C20:3n3) - ETE	42.76 ± 1.78	15.64 ± 1.10	30.80 ± 0.26	25.70 ± 0.88	26.91 ± 1.61	21.30 ± 0.32
21 Eicosadienoic A (C20:2n6)	47.25 ± 4.31	56.12 ± 1.49	35.84 ± 1.14	55.41 ± 5.23	77.34 ± 1.29	81.18 ± 1.72
22 Gondoic A (C20:1n9)	113.84 ± 6.15	112.30 ± 2.00	69.62 ± 8.48	56.85 ± 4.00	85.38 ± 38.18	43.65 ± 0.89
23 Arachidic A (C20:0)	46.00 ± 10.25	48.23 ± 3.85	41.29 ± 7.53	12.81 ± 15.91	166.94 ± 13.56	97.41 ± 8.35
24 Heneicosanoic A (C21:0)	2.97 ± 0.26	2.40 ± 0.39	3.59 ± 0.44	2.35 ± 0.08	3.96 ± 0.54	3.21 ± 0.08
25 Cervonic A (C22:6n3) - DHA	35.39 ± 5.93	26.32 ± 2.32	12.52 ± 0.29	11.91 ± 0.15	10.80 ± 4.21	21.92 ± 20.06
26 Docosadienoic A (C22:2n6)	8.63 ± 0.23	2.41 ± 0.14	2.85 ± 0.07	1.83 ± 0.14	3.13 ± 0.58	2.47 ± 0.68
27 Erucic A (C22:1n9)	16.61 ± 7.73	5.95 ± 1.17	4.20 ± 0.34	3.41 ± 0.87	3.78 ± 0.71	3.10 ± 0.24
28 Behenic A (C22:0)	177.74 ± 8.64	137.88 ± 6.64	203.90 ± 7.89	171.45 ± 25.93	233.97 ± 11.01	177.03 ± 11.10
29 Tricosanoic A (C23:0)	13.01 ± 0.82	11.21 ± 0.48	17.12 ± 0.25	11.89 ± 0.42	6.91 ± 0.42	6.59 ± 0.51
30 Nervonic A (C24:1n9)	22.38 ± 7.36	39.20 ± 1.63	19.24 ± 16.63	8.80 ± 4.15	68.65 ± 12.13	9.49 ± 5.75
31 Lignoceric A (C24:0)	142.94 ± 6.98	166.55 ± 8.53	99.00 ± 4.52	85.80 ± 4.04	123.56 ± 4.09	112.40 ± 5.28

Table S7: The average content of individual FAMES in *Thelypteridaceae* fern samples and samples of reference vegetables.

Species/Family FAME ( $\mu\text{g}\cdot\text{g}^{-1}\text{DW}$ )	<i>Lastrea limbosperma</i> Thelypteridaceae	<sup>w</sup> <i>Lastrea limbosperma</i> Thelypteridaceae	<i>Phegopteris connectilis</i> Thelypteridaceae	<i>Thelypteris palustris</i> Thelypteridaceae	<i>Eruca sativa</i> Brassicaceae	<i>Spinacia oleracea</i> Amaranthaceae
1 Caproic A (C6:0)	22.11 ± 0.05	20.40 ± 0.30	16.62 ± 7.18	25.53 ± 0.42	14.00 ± 5.90	14.37 ± 2.65
2 Caprylic A (C8:0)	2.49 ± 0.15	2.63 ± 0.14	2.94 ± 0.19	2.66 ± 0.07	3.94 ± 0.00	1.34 ± 1.90
3 Capric A (C10:0)	4.29 ± 0.19	4.39 ± 0.30	3.92 ± 0.22	3.91 ± 0.01	4.72 ± 0.05	3.62 ± 0.06
4 Lauric A (C12:0)	5.48 ± 0.28	5.90 ± 0.02	6.08 ± 0.29	7.41 ± 0.13	20.21 ± 0.70	8.28 ± 3.03
5 Myristoleic A (C14:1n5)	9.25 ± 0.42	9.30 ± 0.85	8.78 ± 0.57	9.62 ± 0.39	7.59 ± 1.13	7.59 ± 0.80
6 Myristic A (C14:0)	28.03 ± 1.22	23.96 ± 0.50	31.94 ± 0.95	61.53 ± 2.26	21.51 ± 1.40	19.07 ± 12.36
7 Pentadecanoic A (C15:0)	19.97 ± 1.54	25.67 ± 1.75	18.18 ± 0.35	16.08 ± 0.84	17.33 ± 0.36	26.25 ± 18.32
8 Palmitoleic A (C16:1n7)	385.51 ± 7.75	499.34 ± 34.66	368.08 ± 14.65	288.52 ± 337.40	233.95 ± 24.06	187.69 ± 120.78
9 Palmitic A (C16:0)	1748.64 ± 20.21	2072.57 ± 19.63	2252.86 ± 50.75	2015.77 ± 80.90	1274.59 ± 36.99	948.87 ± 684.67
10 cis-10-Heptadecenoic A (C17:1n7)	15.04 ± 0.39	16.86 ± 0.96	13.64 ± 1.19	17.62 ± 0.50	18.36 ± 2.12	9.88 ± 5.64
11 Margaric A (C17:0)	34.33 ± 0.02	55.88 ± 1.47	46.33 ± 1.47	40.84 ± 3.54	107.42 ± 8.91	28.06 ± 18.54
12 gamma-Linolenic A (C18:3n6)	1503.95 ± 47.09	1860.09 ± 29.16	1390.92 ± 3.31	1451.32 ± 112.91	0.00 ± 0.00	0.00 ± 0.00
13 Linolenic A (C18:3n3)	2945.97 ± 30.17	4753.61 ± 225.91	3510.88 ± 81.19	3274.88 ± 17.96	7008.02 ± 372.76	5771.87 ± 3635.94
14 Linoleic A (C18:2n6c)	4153.07 ± 37.70	4672.86 ± 47.90	6553.86 ± 339.72	5609.10 ± 388.22	2658.57 ± 332.03	1973.00 ± 1328.28
15 Oleic A (C18:1n9c)	2741.55 ± 53.51	3593.72 ± 160.56	3782.75 ± 109.63	3763.88 ± 88.66	1803.48 ± 77.94	1487.75 ± 1234.62
16 Stearic A (C18:0)	123.28 ± 0.97	160.42 ± 14.04	350.07 ± 3.50	144.53 ± 23.87	235.63 ± 9.41	92.56 ± 53.96
17 Timnodonic A (C20:5n3) - EPA	501.09 ± 12.72	726.05 ± 1.45	514.72 ± 112.63	1155.03 ± 24.66	0.00 ± 0.00	0.00 ± 0.00
18 Arachidonic A (C20:4n6)	3755.09 ± 85.45	3742.90 ± 83.03	4434.28 ± 134.55	3719.77 ± 230.97	5.17 ± 0.24	7.10 ± 0.84
19 DGLA (C20:3n6)	640.94 ± 39.07	575.70 ± 41.86	638.49 ± 40.60	724.66 ± 67.98	0.00 ± 0.00	0.00 ± 0.00
20 Eicosatrienoic A (C20:3n3) - ETE	13.77 ± 0.27	14.49 ± 0.48	12.00 ± 0.88	27.20 ± 1.13	48.84 ± 0.53	18.30 ± 10.40
21 Eicosadienoic A (C20:2n6)	43.96 ± 1.30	24.63 ± 1.86	61.85 ± 5.70	51.44 ± 12.93	19.71 ± 0.38	7.06 ± 1.65
22 Gondoic A (C20:1n9)	89.92 ± 2.35	124.74 ± 16.23	99.33 ± 30.89	111.18 ± 28.50	42.97 ± 8.22	66.14 ± 35.91
23 Arachidic A (C20:0)	55.00 ± 18.56	101.37 ± 1.27	261.10 ± 10.80	71.22 ± 22.26	26.12 ± 0.26	26.94 ± 18.83
24 Heneicosanoic A (C21:0)	4.66 ± 0.20	4.63 ± 0.11	3.85 ± 0.25	3.70 ± 0.24	2.72 ± 0.17	3.76 ± 1.73
25 Cervonic A (C22:6n3) - DHA	12.65 ± 0.40	17.88 ± 1.32	14.60 ± 10.68	15.40 ± 0.36	19.33 ± 16.31	7.41 ± 2.83
26 Docosadienoic A (C22:2n6)	9.40 ± 0.18	14.34 ± 1.91	12.77 ± 1.46	5.35 ± 0.14	5.21 ± 0.92	2.51 ± 0.88
27 Erucic A (C22:1n9)	32.00 ± 0.82	59.38 ± 4.31	14.83 ± 3.10	15.20 ± 2.85	11.98 ± 2.17	3.21 ± 2.15
28 Behenic A (C22:0)	437.96 ± 9.32	437.95 ± 23.43	642.81 ± 29.26	444.85 ± 51.78	110.30 ± 3.45	51.52 ± 36.53
29 Tricosanoic A (C23:0)	13.77 ± 0.70	11.34 ± 0.52	15.43 ± 0.76	12.94 ± 1.10	25.22 ± 0.18	7.66 ± 5.02
30 Nervonic A (C24:1n9)	113.60 ± 18.28	187.80 ± 50.37	24.01 ± 0.06	51.77 ± 3.31	55.39 ± 15.52	0.00 ± 0.00
31 Lignoceric A (C24:0)	154.13 ± 5.93	144.05 ± 5.26	302.49 ± 12.48	154.30 ± 20.52	341.84 ± 1.07	52.20 ± 37.38