

Supplementary materials

Table 1 The specific information of mixed fatty acid standards.

Fatty acids	Percentage (%)	Fatty acids	Percentage (%)	Fatty acids	Percentage (%)	Fatty acids	Percentage (%)
C 4:0	2	C 6:0	2	C 8:0	2	C 10:0	4
C 11:0	2	C 12:0	4	C 13:0	2	C 14:1 n-5	2
C 14:0	2	C 15:1 n-5	2	C 15:0	2	C 16:1 n-7	2
C 16:0	4	C 17:1 n-8	2	C 17:0	4	C 18:0	4
C 18:1 t n-9	2	C 18:1 n-9	2	C 18:2 t n-6	2	C 18:2 n-6	2
C 20:0	4	C 18:3 n-3	4	C 20:1 n-9	2	C 18:3 n-6	2
C 21:0	2	C 20:2 n-9	2	C 22:0	4	C 20:3 t n-6	2
C 22:1 n-9	2	C 20:3 n-6	2	C 20:4 n-6	2	C 23:0	2
C 22:2 n-9	2	C 24:0	4	C 20:5 n-3	2	C 24:1 n-9	2
C 22:6 n-3	2	C 22:5 n-3	2	C 22:4 n-6	2	C 22:5 n-6	2

Table 2 Linear range, regression equations and correlation coefficients of multi-component in fatty acid mixed standard solution.

Peak	Component name	CN/DB ⁽¹⁾	Abbr.	RT (min)	Formula	Neutral mass (Da)	Regression equation (y=ax+b)	R ²	Linear range (ng/mL)	LOQ (ng/mL)	LOD (ng/mL)
1	Decanoic acid	C 10:0	Cap	4.30	C ₁₀ H ₂₀ O ₂	172.1463	y = 16077x - 269.23	0.9946	62.5-2000	62.5	20
2	Undecanoic acid	C 11:0	Und	4.90	C ₁₁ H ₂₂ O ₂	186.1620	y = 29292x - 902.72	0.9840	7.81-1000	62.5	5
3	Dodecanoic acid	C 12:0	Lau	5.54	C ₁₂ H ₂₄ O ₂	200.1776	y = 33715x + 356.89	0.9997	15.6-250	15.6	2
4	Tetradecenoic acid	C 14:1 n-5	Myr	5.84	C ₁₄ H ₂₆ O ₂	226.1933	y = 100000x + 0.01	0.9954	1.95-500	1.95	2
5	Tridecanoic acid	C 13:0	Trd	6.17	C ₁₃ H ₂₆ O ₂	214.1933	y = 100000x + 0.02	0.9926	1.95-1000	1.95	2
6	Pentadecenoic acid	C 15:1 n-5	Ped	6.43	C ₁₅ H ₂₈ O ₂	240.2089	y = 129092x - 2018.1	0.9939	1.95-1000	1.95	1.8
7	Eicosapentaenoic acid	C 20:5 n-3	EPA	6.51	C ₂₀ H ₃₀ O ₂	302.2246	y = 663622x + 27.50	0.9995	0.98-15.63	0.98	0.2
8	Linolenic acid	C 18:3 n-3	Ln	6.60	C ₁₈ H ₃₀ O ₂	278.2246	y = 159418x - 5154.8	0.9989	62.5-2000	62.5	0.4
9	γ-Linoenic acid	C 18:3 n-6	γ- Ln	6.70	C ₁₈ H ₃₀ O ₂	278.2246	y = 1000000x - 2266.1	0.9991	1.95-1000	1.95	0.2
10	Myristic acid	C 14:0	M	6.78	C ₁₄ H ₂₈ O ₂	228.2089	y = 87468x + 1425.8	0.9966	15.6-250	15.6	2.0
11	Docosahexaenoic acid	C 22:6 n-3	DHA	6.97	C ₂₂ H ₃₂ O ₂	328.2402	y = 1000000x - 7144.4	0.9968	0.49-1000	0.49	0.3
12	Hexadecenoic acid	C 16:1 n-7	Po	6.98	C ₁₆ H ₃₀ O ₂	254.2246	y = 188317x - 110.78	0.9982	3.91-62.5	3.91	1.0
13	Arachidonic acid	C 20:4 n-6	ARA	7.14	C ₂₀ H ₃₂ O ₂	304.2402	y = 856304x + 80.07	0.9993	0.49-7.81	0.49	0.2
14	Linoleic acid	C 18:2 n-6	L	7.28	C ₁₈ H ₃₂ O ₂	280.2402	y = 369343x + 648.4	0.9995	31.25-1000	31.25	3.2
15	Docosapentaenoic acid	C 22:5 n-6	DPA	7.32	C ₂₂ H ₃₄ O ₂	329.2472	y = 756179x + 93.56	0.9986	0.49-7.81	0.49	0.2
16	Pentadecanoic acid	C 15:0	Pa	7.34	C ₁₅ H ₃₀ O ₂	242.2246	y = 118427x + 917.11	0.9976	7.81-125	7.81	1.8
17	Margaroleic acid	C 17:1 n-8	Mo	7.49	C ₁₇ H ₃₂ O ₂	268.2402	y = 250469x - 108.38	0.9998	1.95-31.25	1.95	0.4
18	Leinoleic acid	C 18:2 t n-6	t-L	7.51	C ₁₈ H ₃₂ O ₂	280.2402	y = 245453x + 181.3	0.9970	7.81-125	7.81	1.2
19	Docosapentaenoic acid	C 22:5 n-3	Dop	7.57	C ₂₂ H ₃₄ O ₂	330.2559	y = 1000000x - 4072.3	0.9990	0.98-1000	0.98	0.1
20	Eicosatrienoic acid	C 20:3 n-6	E	7.59	C ₂₀ H ₃₄ O ₂	306.2559	y = 975766x - 267.34	0.9992	0.98-31.25	0.98	0.1

Table 2 Continued

Peak	Component name	CN/DB ⁽²⁾	Abbr.	RT (min)	Formula	Neutral mass (Da)	Regression equation (y=ax+b)	R ²	Linear range (ng/mL)	LOQ (ng/mL)	LOD (ng/mL)
21	Docosatetraenoic acid	C 22:4 n-6	Dos	7.85	C ₂₂ H ₃₆ O ₂	332.2715	y = 1000000x - 7640.8	0.9982	1.95-1000	1.95	0.1
22	Palmitic acid	C 16:0	P	7.89	C ₁₆ H ₃₂ O ₂	256.2402	y = 183222x + 44180	0.9999	31.25-2000	31.25	0.5
23	Oleic acid	C 18:1 n-9	O	7.99	C ₁₈ H ₃₄ O ₂	282.2559	y = 738540x + 8249.5	0.9994	15.63-1000	15.63	0.5
24	Elaidic acid	C 18:1 t n-9	t-O	8.12	C ₁₈ H ₃₄ O ₂	282.2559	y = 372100x - 2464.7	0.9987	15.63-1000	15.63	0.5
25	Eicosadienoic acid	C 20:2 n-9	Ed	8.17	C ₂₀ H ₃₆ O ₂	308.2715	y = 542127x - 79.67	0.9986	0.98-31.25	0.98	0.2
26	Margaric acid	C 17:0	M	8.31	C ₁₇ H ₃₄ O ₂	270.2559	y = 576564x + 971.67	0.9991	1.95-62.50	1.95	0.2
27	Stearic acid	C 18:0	S	8.73	C ₁₈ H ₃₆ O ₂	284.2715	y = 301696x + 87866	0.9976	125-2000	125	0.4
28	Gadoleic acid	C 20:1 n-9	God	8.78	C ₂₀ H ₃₈ O ₂	310.2872	y = 657130x - 213.97	0.9993	3.91-62.50	3.91	0.2
29	Docosadienoic acid	C 22:2 n-9	Dad	8.92	C ₂₂ H ₄₀ O ₂	336.3028	y = 736100x + 192.14	0.9999	0.49-7.81	0.49	0.2
30	Arachidic acid	C 20:0	Ara	9.42	C ₂₀ H ₄₀ O ₂	312.3028	y = 621653x + 1941.9	0.9999	15.62-250	15.62	1.8
31	Erucic acid	C 22:1 n-9	Eru	9.44	C ₂₂ H ₄₂ O ₂	338.3185	y = 786416x + 741.43	0.9991	0.98-15.63	0.98	0.2
32	Heneicosanoic acid	C 21:0	Hen	9.72	C ₂₁ H ₄₂ O ₂	326.3185	y = 711092x + 156.04	0.9995	1.95-31.25	1.95	1.2
33	Nervonic acid	C 24:1 n-9	Ner	9.99	C ₂₄ H ₄₆ O ₂	366.3498	y = 895577x + 434.55	0.9991	0.49-15.63	0.49	0.2
34	Behenic acid	C 22:0	Beh	10.00	C ₂₂ H ₄₄ O ₂	340.3341	y = 842438x + 793.18	0.9977	3.91-250	1.95	0.4
35	Tricosanoic acid	C 23:0	Trc	10.25	C ₂₃ H ₄₆ O ₂	354.3498	y = 1000000x + 2372.7	0.9999	1.95-125	1.95	0.4
36	Lignoceric acid	C 24:0	Lig	10.49	C ₂₄ H ₄₈ O ₂	368.3854	y = 1000000x + 16719	0.9963	3.91-500	1.95	0.4

Cite: CN/DB:CN: carbon number DB: double bonds.