Detection of Vegetable Oil Adulteration in Pre-Grated Bovine Hard Cheeses Via ^{1}H NMR Spectroscopy

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Supplemental material:

Table S1. Raw integral values of cheese spectra for all samples.

Sample	**Unsaturated Bond Raw Integral**	**Triglyceride C2 Raw Integral**	**Polyunsaturated Raw Integral**	**ω3 Methyl Raw Integral**
Integration Range (ppm)	5.44–5.30	5.29–5.23	2.87–2.73	0.97–0.93
B1	11215.03	6122.93	1507.62	5867.57
B2	13330.51	7326.82	1786.93	6523.03
B3	16721.61	9873.71	2058.03	9654.26
B4	19120.96	9915.66	2398.15	9495.54
B5	12633.80	7511.8	1750.22	6795.81
B6	13392.30	7256.98	1905.7	5485.73
B7	14440.66	7160.02	2057.87	4612.56
B8	16858.04	11285.08	1703.53	10900
B9	13560.41	7564.52	1763.59	7293.11
B10	9598.85	5555.48	1296.17	5260.06
1	29517.02	10284.10	4468.45	5419.31
2	30490.16	10523.53	4598.03	4720.94
3	29149.25	9828.02	4397.71	4245.48
4	28481.36	9292.80	4323.40	4499.07
5	23567.49	13155.93	2805.12	13134.30
6	22827.78	12886.91	2796.74	13459.23
7	21543.35	11747.87	3217.43	11939.72
8	24574.88	9402.02	3567.79	5221.23
9	24233.60	10812.65	3364.62	8115.01
10	15873.56	7846.85	1968.87	7599.99
11	26441.74	14705.49	3273.75	15018.02
12	25361.17	14291.36	3117.73	13290.77
13	18807.29	5548.86	2979.17	1633.16
14	15386.89	4082.96	2520.28	1046.20

15	22006.39	12258.78	2776.24	11842.54
16	29979.40	9661.08	4620.69	3492.43
17	13671.69	6961.02	1752.13	6241.94
18	16402.28	9205.36	2022.72	9377.52
19	15234.79	8064.80	2053.37	8458.72
20	15251.12	6933.54	1977.17	6825.74
21	15564.70	9201.76	1921.62	8598.86
22	16954.23	9608.00	2033.48	9109.76
23	15673.78	8661.35	2001.03	8532.18
24	17217.09	9404.12	2100.22	9616.26
25	14541.49	8166.92	1812.29	8074.21
26	13631.51	6010.32	1648.23	7004.57
27	14411.33	8542.10	1748.98	8273.64
28	10240.96	5116.26	1283.58	5018.73
29	12819.18	6649.26	1532.18	6965.63
30	14267.80	7727.85	2160.02	7600.48
31	12923.47	7242.64	1549.16	7551.71
32	12341.41	6826.59	1553.88	6724.32
33	14226.59	7920.62	1664.14	7922.23
34	24518.64	7565.97	4210.70	1785.55
35	18988.60	5791.81	2998.43	2618.79
36	14749.27	4914.61	2153.04	2365.61
37	11311.17	6455.03	1443.40	6220.89
38	12099.86	6117.10	1391.19	5693.14
39	11511.96	6481.73	1431.11	6355.87
40	12611.94	7187.84	1534.14	7002.98
41	12269.11	6993.78	1507.41	6672.01
42	10373.24	5828.77	1193.18	5789.26
43	12536.51	7127.68	1633.60	6911.82
44	18986.99	11212.00	2315.47	11496.46
45	18917.02	10793.04	2426.96	10240.92
46	23901.96	8434.01	3668.47	4011.97
47	26271.81	8174.04	4088.53	3249.94
48	23490.27	13230.16	2907.87	13495.98
49	22411.74	13121.77	2813.55	12945.46
50	29046.62	8785.84	4619.22	2952.94
51	12267.37	7569.59	1714.65	6550.53
52	13776.43	7627.66	1790.21	7244.01

Table S2. Cheese integral ratios for all samples.

Sample	Unsaturated Bonds vs. Glycerol C2 Ratio	Polyunsaturated vs. Glycerol C2 Ratio	ω3 Methyl vs. Remaining Methyl Ratio	ω3 Methyl vs. Glycerol C2 Ratio
B1	1.831644	0.246225	0.117850	0.958294
B2	1.819413	0.243889	0.129701	0.890295
B3	1.693549	0.208435	0.123275	0.977774
B4	1.928360	0.241855	0.117452	0.957631
B5	1.681861	0.232996	0.107207	0.904685
B6	1.845437	0.262602	0.081174	0.755925
B7	2.016846	0.287411	0.067784	0.644210
B8	1.493834	0.150954	0.119308	0.965877
B9	1.792633	0.233140	0.121001	0.964121
B10	1.727816	0.233314	0.121384	0.946824
1	2.870161	0.434501	0.059583	0.526960
2	2.897332	0.436928	0.050980	0.448608
3	2.965933	0.447467	0.048042	0.431977
4	3.064885	0.465242	0.052595	0.484146
5	1.791397	0.213221	0.127508	0.998356
6	1.771393	0.217022	0.129916	1.044411
7	1.833809	0.273873	0.132512	1.016331
8	2.613787	0.379471	0.063308	0.555331
9	2.241227	0.311174	0.090138	0.750511
10	2.022921	0.250912	0.111818	0.968540
11	1.798086	0.222621	0.130623	1.021253
12	1.774581	0.218155	0.114691	0.929986
13	3.389397	0.536898	0.031562	0.294324
14	3.768563	0.617268	0.025438	0.256236
15	1.795153	0.226470	0.123481	0.966046
16	3.103111	0.478279	0.040141	0.361495
17	1.964035	0.251706	0.103302	0.896699
18	1.781818	0.219733	0.131397	1.018702
19	1.889047	0.254609	0.130511	1.048844
20	2.199615	0.285160	0.115302	0.984452
21	1.691492	0.208832	0.121023	0.934480
22	1.764595	0.211644	0.117282	0.948143
23	1.809623	0.231030	0.124763	0.985087

24	1.830803	0.223330	0.127658	1.022558
25	1.780535	0.221906	0.123193	0.988648
26	2.268017	0.274233	0.114241	1.165424
27	1.687095	0.204748	0.123297	0.968572
28	2.001650	0.250882	0.114530	0.980937
29	1.927911	0.230429	0.120420	1.047580
30	1.846283	0.279511	0.127309	0.983518
31	1.784359	0.213894	0.130280	1.042674
32	1.807844	0.227622	0.118449	0.985019
33	1.796146	0.210102	0.121922	1.000203
34	3.240647	0.556531	0.025259	0.235997
35	3.278526	0.517702	0.047650	0.452154
36	3.001107	0.438090	0.051898	0.481342
37	1.752303	0.223609	0.124178	0.963728
38	1.978039	0.227426	0.107985	0.930693
39	1.776063	0.220791	0.121196	0.980582
40	1.754622	0.213435	0.122717	0.974282
41	1.754289	0.215536	0.120147	0.953992
42	1.779662	0.204705	0.123947	0.993222
43	1.758849	0.229191	0.125583	0.969715
44	1.693453	0.206517	0.130724	1.025371
45	1.752705	0.224863	0.120957	0.948845
46	2.833997	0.434962	0.054101	0.475690
47	3.214054	0.500185	0.042771	0.397593
48	1.775509	0.219791	0.124449	1.020092
49	1.707981	0.214418	0.126485	0.986564
50	3.306072	0.525757	0.035746	0.336102
51	1.620612	0.226518	0.107960	0.865374
52	1.806115	0.234700	0.117029	0.949703