Supplementary data related to the article

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Tab. S1. Peroxide value of edible oils before and after repeated frying.

Oil sample	Peroxide value [meq·kg^{-1}]				*F*-value (ANOVA)
	Before frying	1st frying	2nd frying	3rd frying	
Coconut	0.640 ± 0.009^{d}	1.007 ± 0.008^{c}	1.420 ± 0.010^{b}	2.190 ± 0.037^{a}	
Almond	1.100 ± 0.014^{d}	1.490 ± 0.016^{c}	2.470 ± 0.039^{b}	2.880 ± 0.020^{a}	
Corn	1.910 ± 0.016^{d}	2.490 ± 0.045^{c}	2.860 ± 0.007^{b}	3.340 ± 0.037^{a}	
Canola	1.130 ± 0.007^{d}	1.601 ± 0.001^{c}	2.510 ± 0.050^{b}	3.001 ± 0.038^{a}	
Sesame	1.030 ± 0.007^{d}	1.470 ± 0.023^{c}	2.300 ± 0.014^{b}	2.900 ± 0.034^{a}	
Soybean	2.750 ± 0.034^{d}	4.105 ± 0.030^{c}	7.130 ± 0.093^{b}	8.246 ± 0.079^{a}	1118.8
Sunflower	1.610 ± 0.004^{d}	3.003 ± 0.029^{c}	4.105 ± 0.031^{b}	4.713 ± 0.016^{a}	
Palm olein	1.004 ± 0.011^{d}	1.980 ± 0.020^{c}	2.630 ± 0.029^{b}	3.410 ± 0.006^{a}	
Mustard	0.860 ± 0.004^{d}	1.350 ± 0.012^{c}	1.930 ± 0.022^{b}	2.800 ± 0.038^{a}	
Olive	0.840 ± 0.008^{d}	1.880 ± 0.006^{c}	2.960 ± 0.021^{b}	3.660 ± 0.023^{a}	
Can olive	2.680 ± 0.022^{d}	3.650 ± 0.048^{c}	3.990 ± 0.029^{b}	4.350 ± 0.067^{a}	

The peroxide value is expressed as milliequivalents of active oxygen per kilogram of oil. Values are presented as mean ± standard error of mean (n = 3). Superscript letters (a, b, c, d) indicate significant differences between frying cycles within each oil type (Tukey's HSD post hoc test, $p \leq 0.05$). All ANOVA comparisons yielded $p < 0.001$.

Tab. S2. Iodine value of edible oils before and after repeated frying.

Oil sample	Iodine value [g·kg^{-1}]				*F*-value (ANOVA)
	Before frying	1st frying	2nd frying	3rd frying	
Coconut	124.2 ± 0.4^{a}	116.4 ± 1.1^{b}	111.2 ± 1.7^{c}	109.0 ± 1.3^{c}	
Almond	991.6 ± 9.4^{a}	951.6 ± 9.7^{b}	920.9 ± 9.7^{b}	899.8 ± 6.4^{b}	
Corn	1126.9 ± 7.5^{a}	1075.6 ± 10.8^{b}	1044.9 ± 8.9^{b}	1025.1 ± 2.9^{b}	
Canola	1116.6 ± 9.3^{a}	1052.3 ± 5.0^{b}	1013.6 ± 5.4^{c}	994.9 ± 8.6^{c}	
Sesame	1162.1 ± 11.1^{a}	1104.7 ± 7.7^{b}	1069.8 ± 11.6^{b}	1050.1 ± 8.8^{b}	
Soybean	1284.5 ± 11.0^{a}	1202.1 ± 9.5^{b}	1136.4 ± 5.0^{c}	1109.1 ± 13.9^{c}	31.37
Sunflower	1330.8 ± 8.1^{a}	1228.9 ± 7.1^{b}	1169.6 ± 13.0^{c}	1126.1 ± 7.2^{d}	
Palm olein	582.5 ± 9.6^{a}	539.7 ± 4.8^{b}	510.0 ± 2.5^{c}	498.6 ± 4.1^{c}	
Mustard	1074.7 ± 10.3^{a}	1015.7 ± 11.7^{b}	976.1 ± 3.9^{c}	949.2 ± 8.2^{c}	
Olive	848.3 ± 7.3^{a}	817.2 ± 8.0^{a}	788.1 ± 7.3^{a}	769.3 ± 9.2^{a}	
Can olive	1168.7 ± 9.5^{a}	1094.3 ± 3.6^{b}	1037.6 ± 9.5^{c}	1005.8 ± 8.3^{d}	

The iodine value is expressed as grams of iodine per kilogram of oil. Values are presented as mean ± standard error of mean (n = 3). Superscript letters (a, b, c, d) indicate significant differences between frying cycles within each oil type (Tukey's HSD post hoc test, $p \leq 0.05$). All ANOVA comparisons yielded $p < 0.001$.

Tab. S3. Specific gravity of edible oils before and after repeated frying.

Oil sample	Specific gravity				*F*-value (ANOVA)
	Before frying	1st frying	2nd frying	3rd frying	
Coconut	0.8396 ± 0.0001 b	0.8412 ± 0.0001 a	0.8413 ± 0.0001 a	0.8413 ± 0.0001 a	209.00
Almond	0.8411 ± 0.0001 b	0.8596 ± 0.0001 a	0.8598 ± 0.0001 a	0.8598 ± 0.0001 a	
Corn	0.8420 ± 0.0001 b	0.8612 ± 0.0001 a	0.8613 ± 0.0001 a	0.8613 ± 0.0001 a	
Canola	0.8559 ± 0.0001 a	0.8559 ± 0.0001 a	0.8561 ± 0.0001 a	0.8561 ± 0.0001 a	
Sesame	0.8417 ± 0.0001 b	0.8618 ± 0.0001 a	0.8619 ± 0.0001 a	0.8619 ± 0.0001 a	
Soybean	0.8420 ± 0.0001 b	0.8631 ± 0.0001 a	0.8632 ± 0.0001 a	0.8632 ± 0.0001 a	
Sunflower	0.8403 ± 0.0001 b	0.8604 ± 0.0001 a	0.8605 ± 0.0001 a	0.8605 ± 0.0001 a	
Palm olein	0.8320 ± 0.0001 b	0.8396 ± 0.0001 a	0.8397 ± 0.0001 a	0.8397 ± 0.0001 a	
Mustard	0.8499 ± 0.0001 a	0.8386 ± 0.0001 b	0.8386 ± 0.0001 b	0.8305 ± 0.0001 c	
Olive	0.8436 ± 0.0001 b	0.8538 ± 0.0001 a	0.8539 ± 0.0001 a	0.8539 ± 0.0001 a	
Can olive	0.8315 ± 0.0001 b	0.8454 ± 0.0001 a	0.8455 ± 0.0001 a	0.8455 ± 0.0001 a	

The specific gravity is expressed as the ratio of the density of oil to the density of water. Values are presented as mean ± standard error of mean (n = 3). Superscript letters (a, b, c) indicate significant differences between frying cycles within each oil type (Tukey's HSD post hoc test, $p \leq 0.05$). All ANOVA comparisons yielded $p < 0.001$.

Tab. S4. Refractive index of edible oils before and after repeated frying.

Oil sample	Refractive index (at 40°C)				*F*-value (ANOVA)
	Before frying	1st frying	2nd frying	3rd frying	
Coconut	1.4490 ± 0.0149 a	1.4491 ± 0.0207 a	1.4492 ± 0.0270 a	1.4492 ± 0.0306 a	0.00
Almond	1.4630 ± 0.0135 a	1.4634 ± 0.0220 a	1.4635 ± 0.0282 a	1.4639 ± 0.0227 a	
Corn	1.4666 ± 0.0168 a	1.4667 ± 0.0223 a	1.4670 ± 0.0182 a	1.4671 ± 0.0252 a	
Canola	1.4650 ± 0.0156 a	1.4654 ± 0.0177 a	1.4655 ± 0.0231 a	1.4660 ± 0.0252 a	
Sesame	1.4656 ± 0.0189 a	1.4659 ± 0.0307 a	1.4663 ± 0.0174 a	1.4667 ± 0.0159 a	
Soybean	1.4673 ± 0.0272 a	1.4673 ± 0.0153 a	1.4677 ± 0.0167 a	1.4683 ± 0.0225 a	
Sunflower	1.4677 ± 0.0244 a	1.4681 ± 0.0309 a	1.4686 ± 0.0190 a	1.4688 ± 0.0151 a	
Palm olein	1.4585 ± 0.0135 a	1.4586 ± 0.0143 a	1.4589 ± 0.0224 a	1.4594 ± 0.0257 a	
Mustard	1.4665 ± 0.0151 a	1.4666 ± 0.0199 a	1.4668 ± 0.0285 a	1.4668 ± 0.0171 a	
Olive	1.4625 ± 0.0239 a	1.4627 ± 0.0166 a	1.4630 ± 0.0170 a	1.4631 ± 0.0169 a	
Can olive	1.4580 ± 0.0207 a	1.4597 ± 0.0192 a	1.4610 ± 0.0202 a	1.4610 ± 0.0163 a	

The refractive index is expressed as the ratio of the speed of light in vacuum to the speed of light in oil, measured at 40 °C. Values are presented as mean ± standard error of mean (n = 3). Superscript letters (a, b, c, d) indicate significant differences between frying cycles within each oil type (Tukey's HSD post hoc test, $p \leq 0.05$). All ANOVA comparisons yielded $p < 0.001$ except Canola (p = 0.052, not significant).

Tab. S5. Acid value of edible oils before and after repeated frying.

Oil sample	Acid value [g·kg^{-1}]				*F*-value (ANOVA)
	Before frying	1st frying	2nd frying	3rd frying	
Coconut	0.1711 ± 0.0021^{d}	0.1930 ± 0.0032^{c}	0.2289 ± 0.0047^{b}	0.2706 ± 0.0033^{a}	158.9
Almond	0.2826 ± 0.0013^{d}	0.3144 ± 0.0002^{c}	0.3582 ± 0.0021^{b}	0.4139 ± 0.0097^{a}	
Corn	0.3104 ± 0.0029^{d}	0.3502 ± 0.0062^{c}	0.3920 ± 0.0086^{b}	0.4418 ± 0.0086^{a}	
Canola	0.2289 ± 0.0028^{d}	0.2547 ± 0.0026^{c}	0.2925 ± 0.0019^{b}	0.3363 ± 0.0018^{a}	
Sesame	0.2846 ± 0.0019^{d}	0.3224 ± 0.0029^{c}	0.3642 ± 0.0048^{b}	0.4139 ± 0.0097^{a}	
Soybean	0.3980 ± 0.0031^{d}	0.4477 ± 0.0074^{c}	0.4935 ± 0.0099^{b}	0.5433 ± 0.0041^{a}	
Sunflower	0.3423 ± 0.0031^{d}	0.3801 ± 0.0040^{c}	0.4238 ± 0.0089^{b}	0.4696 ± 0.0054^{a}	
Palm olein	0.2228 ± 0.0033^{d}	0.2567 ± 0.0038^{c}	0.2985 ± 0.0032^{b}	0.3442 ± 0.0035^{a}	
Mustard	0.2865 ± 0.0041^{d}	0.3224 ± 0.0029^{c}	0.3642 ± 0.0048^{b}	0.4119 ± 0.0055^{a}	
Olive	0.2726 ± 0.0016^{d}	0.2945 ± 0.0009^{c}	0.3383 ± 0.0021^{b}	0.4139 ± 0.0097^{a}	
Can olive	0.3602 ± 0.0064^{c}	0.3999 ± 0.0048^{b}	0.4238 ± 0.0089^{b}	0.5040 ± 0.0027^{a}	

The acid value is expressed as grams of potassium hydroxide per kilogram of oil. Values are presented as mean ± standard error of mean (n = 3). Superscript letters (a, b, c, d) indicate significant differences between frying cycles within each oil type (Tukey's HSD post hoc test, $p \leq 0.05$). All ANOVA comparisons yielded $p < 0.001$.

Tab. S6. Free fatty acids of edible oils before and after repeated frying.

Oil sample	Free fatty acids [g·kg^{-1}]				*F*-value (ANOVA)
	Before frying	1st frying	2nd frying	3rd frying	
Coconut	0.860 ± 0.004^{d}	0.970 ± 0.021^{c}	1.150 ± 0.008^{b}	1.360 ± 0.014^{a}	269.4
Almond	1.420 ± 0.009^{d}	1.580 ± 0.005^{c}	1.800 ± 0.025^{b}	2.080 ± 0.023^{a}	
Corn	1.560 ± 0.016^{d}	1.760 ± 0.016^{c}	1.970 ± 0.020^{b}	2.220 ± 0.025^{a}	
Canola	1.150 ± 0.005^{d}	1.280 ± 0.012^{c}	1.470 ± 0.016^{b}	1.690 ± 0.016^{a}	
Sesame	1.430 ± 0.009^{d}	1.620 ± 0.012^{c}	1.830 ± 0.012^{b}	2.080 ± 0.023^{a}	
Soybean	2.000 ± 0.023^{d}	2.250 ± 0.025^{c}	2.480 ± 0.045^{b}	2.730 ± 0.040^{a}	
Sunflower	1.720 ± 0.016^{d}	1.910 ± 0.020^{c}	2.130 ± 0.005^{b}	2.360 ± 0.025^{a}	
Palm olein	1.120 ± 0.009^{d}	1.290 ± 0.009^{c}	1.500 ± 0.017^{b}	1.730 ± 0.017^{a}	
Mustard	1.440 ± 0.011^{d}	1.620 ± 0.012^{c}	1.830 ± 0.012^{b}	2.070 ± 0.028^{a}	
Olive	1.370 ± 0.016^{d}	1.480 ± 0.017^{c}	1.700 ± 0.016^{b}	1.930 ± 0.019^{a}	
Can olive	1.810 ± 0.030^{d}	2.010 ± 0.023^{c}	2.130 ± 0.005^{b}	2.540 ± 0.026^{a}	

The free fatty acid content is expressed as grams of fatty acid per kilogram of oil. Values are presented as mean ± standard error of mean (n = 3). Superscript letters (a, b, c, d) indicate significant differences between frying cycles within each oil type (Tukey's HSD post hoc test, $p \leq 0.05$). All ANOVA comparisons yielded $p < 0.001$.

Tab. S7. Saponification value of edible oils before and after repeated frying.

Oil sample	Saponification value [g·kg^{-1}]				*F*-value (ANOVA)
	Before frying	1st frying	2nd frying	3rd frying	
Coconut	260.69 ± 3.16^{d}	291.81 ± 1.38^{c}	319.55 ± 2.70^{b}	349.02 ± 1.44^{a}	269.5
Almond	187.03 ± 0.19^{d}	219.43 ± 1.69^{c}	261.78 ± 2.51^{b}	285.19 ± 2.42^{a}	
Corn	192.59 ± 2.32^{d}	216.13 ± 1.56^{c}	241.77 ± 1.31^{b}	279.07 ± 1.49^{a}	
Canola	197.01 ± 1.61^{d}	235.37 ± 1.87^{c}	283.27 ± 1.76^{b}	301.91 ± 2.05^{a}	
Sesame	192.36 ± 0.54^{d}	208.06 ± 0.40^{c}	225.10 ± 2.36^{b}	264.09 ± 1.13^{a}	
Soybean	196.78 ± 0.33^{d}	229.01 ± 1.07^{c}	279.97 ± 3.29^{b}	296.03 ± 2.36^{a}	
Sunflower	189.43 ± 1.28^{d}	214.18 ± 1.94^{c}	232.54 ± 2.92^{b}	260.67 ± 1.20^{a}	
Palm olein	181.64 ± 0.61^{d}	201.03 ± 1.55^{c}	217.91 ± 2.89^{b}	243.67 ± 2.58^{a}	
Mustard	185.52 ± 1.73^{d}	211.73 ± 1.72^{c}	230.01 ± 1.31^{b}	264.57 ± 1.99^{a}	
Olive	186.60 ± 1.32^{c}	206.56 ± 2.28^{b}	213.30 ± 1.37^{b}	229.43 ± 2.01^{a}	
Can olive	191.93 ± 0.98^{d}	220.24 ± 1.97^{c}	236.20 ± 1.46^{b}	257.93 ± 2.40^{a}	

The saponification value is expressed as grams of potassium hydroxide required to saponify one kilogram of oil. Values are presented as mean ± standard error of mean ($n = 3$). Superscript letters (a, b, c, d) indicate significant differences between frying cycles within each oil type (Tukey's HSD post hoc test, $p \leq 0.05$). All ANOVA comparisons yielded $p < 0.001$.

Tab. S8. Ester value of edible oils before and after repeated frying.

Oil sample	Ester value [g·kg^{-1}]				*F*-value (ANOVA)
	Before frying	1st frying	2nd frying	3rd frying	
Coconut	260.5188 ± 2.8489^{d}	280.1700 ± 3.0533^{c}	308.4260 ± 2.4618^{b}	338.1190 ± 3.7701^{a}	121.45
Almond	186.7474 ± 1.5903^{d}	219.0855 ± 0.4632^{c}	261.4218 ± 1.9543^{b}	284.7761 ± 2.5858^{a}	
Corn	192.2795 ± 1.7389^{d}	215.7797 ± 2.5273^{c}	241.3779 ± 2.4238^{b}	278.6582 ± 2.5597^{a}	
Canola	196.7781 ± 1.3180^{d}	235.1153 ± 1.7743^{c}	283.0085 ± 4.2280^{b}	301.5737 ± 0.6251^{a}	
Sesame	192.0754 ± 1.3932^{d}	207.7376 ± 1.7816^{c}	224.7358 ± 2.7504^{b}	269.6761 ± 2.1541^{a}	
Soybean	196.3820 ± 1.8877^{d}	228.5623 ± 0.7468^{c}	279.4765 ± 4.3592^{b}	295.4867 ± 2.8015^{a}	
Sunflower	189.0577 ± 0.5108^{d}	213.7990 ± 2.3813^{c}	232.1162 ± 1.1139^{b}	260.5324 ± 0.6743^{a}	
Palm olein	123.3940 ± 0.1661^{d}	147.0590 ± 0.6567^{c}	166.9140 ± 1.0370^{b}	193.8080 ± 1.7671^{a}	
Mustard	185.2335 ± 1.9244^{d}	211.4076 ± 1.2515^{c}	229.6458 ± 1.2625^{b}	264.1581 ± 1.1504^{a}	
Olive	186.3274 ± 1.2758^{c}	206.2655 ± 1.3027^{b}	212.9617 ± 3.0734^{b}	228.8981 ± 1.7354^{a}	
Can olive	191.5698 ± 0.5583^{d}	219.8401 ± 1.4862^{c}	235.7762 ± 1.2295^{b}	257.5637 ± 1.2577^{a}	

The ester value is expressed as grams of potassium hydroxide equivalent to the esterified fatty acids per kilogram of oil. Values are presented as mean ± standard error of mean ($n = 3$). Superscript letters (a, b, c, d) indicate significant differences between frying cycles within each oil type (Tukey's HSD post hoc test, $p \leq 0.05$). All ANOVA comparisons yielded $p < 0.001$.

Tab. S9. Viscosity of edible oils before and after repeated frying.

Oil sample	Viscosity [cP]				*F*-value (ANOVA)
	Before frying	1st frying	2nd frying	3rd frying	
Coconut	28.60 ± 0.07^{d}	31.20 ± 0.08^{c}	33.80 ± 0.08^{b}	36.50 ± 0.09^{a}	1 729.6
Almond	72.10 ± 0.18^{d}	76.40 ± 0.19^{c}	80.20 ± 0.20^{b}	85.30 ± 0.21^{a}	
Corn	55.40 ± 0.14^{d}	60.10 ± 0.15^{c}	66.30 ± 0.17^{b}	73.80 ± 0.18^{a}	
Canola	82.61 ± 0.21^{d}	88.50 ± 0.22^{c}	95.20 ± 0.24^{b}	103.04 ± 0.26^{a}	
Sesame	69.42 ± 0.17^{d}	73.80 ± 0.18^{c}	78.10 ± 0.20^{b}	82.54 ± 0.21^{a}	
Soybean	85.70 ± 0.21^{d}	90.20 ± 0.23^{c}	95.40 ± 0.24^{b}	100.60 ± 0.25^{a}	
Sunflower	50.30 ± 0.13^{d}	56.10 ± 0.14^{c}	62.40 ± 0.16^{b}	70.20 ± 0.18^{a}	
Palm olein	44.50 ± 0.11^{d}	48.90 ± 0.12^{c}	52.80 ± 0.13^{b}	58.30 ± 0.15^{a}	
Mustard	88.40 ± 0.22^{d}	93.10 ± 0.23^{c}	98.60 ± 0.25^{b}	105.20 ± 0.26^{a}	
Olive	78.30 ± 0.20^{d}	83.60 ± 0.21^{c}	89.20 ± 0.22^{b}	96.10 ± 0.24^{a}	
Can olive	68.50 ± 0.17^{d}	74.20 ± 0.19^{c}	80.60 ± 0.20^{b}	87.30 ± 0.22^{a}	

The viscosity is expressed as centipoise. Values are presented as mean ± standard error of mean ($n = 3$). Superscript letters (a, b, c, d) indicate significant differences between frying cycles within each oil type (Tukey's HSD post hoc test, $p \leq 0.05$). All ANOVA comparisons yielded $p < 0.001$.

Tab. S10. Benchmarking of machine learning models for prediction of oil degradation indicators.

Model	R^2 (CV)	*RMSE*	*MAE*	Rank
Multiple linear regression	0.61	1.14	0.89	4th
Support vector regression	0.79	0.83	0.65	3rd
Gradient boosting regression	0.89	0.57	0.44	2nd
Random forest (selected model)	0.92	0.52	0.39	1st

R^2 (CV) – coefficient of determination (5-fold cross-validation), *RMSE* – root mean square error, MAE – mean absolute error.

Tab. S11. Effect of storage conditions on peroxide value of edible oils before and after frying.

Oil sample	Frying stage	Peroxide value [meq·kg^{-1}]			*t*	Statistical significance
		Control	After 2 months in dark zone	After 2 months in light zone		
Coconut	Before frying	0.640 ± 0.009	1.450 ± 0.025	2.130 ± 0.015	23.10	***
	1st frying	1.007 ± 0.018	1.402 ± 0.011	2.170 ± 0.031	23.65	***
	2nd frying	1.420 ± 0.028	1.980 ± 0.015	2.733 ± 0.032	21.25	***
	3rd frying	2.190 ± 0.037	2.760 ± 0.036	3.560 ± 0.036	15.69	***
Almond	Before frying	1.100 ± 0.014	1.570 ± 0.025	2.320 ± 0.020	23.33	***
	1st frying	1.490 ± 0.016	2.220 ± 0.020	3.130 ± 0.046	18.20	***
	2nd frying	2.470 ± 0.018	2.891 ± 0.022	3.541 ± 0.041	13.94	***
	3rd frying	2.880 ± 0.020	3.510 ± 0.042	4.140 ± 0.047	10.00	***
Corn	Before frying	1.910 ± 0.016	2.590 ± 0.045	2.903 ± 0.023	6.18	***
	1st frying	2.490 ± 0.023	2.770 ± 0.020	3.550 ± 0.050	14.40	***
	2nd frying	2.860 ± 0.030	3.610 ± 0.026	4.400 ± 0.050	13.89	***
	3rd frying	3.340 ± 0.037	3.920 ± 0.051	5.630 ± 0.062	21.16	***
Canola	Before frying	1.130 ± 0.007	1.330 ± 0.025	2.510 ± 0.020	36.71	***
	1st frying	1.601 ± 0.017	2.014 ± 0.016	3.009 ± 0.044	21.29	***
	2nd frying	2.510 ± 0.028	3.210 ± 0.025	4.003 ± 0.047	14.95	***
	3rd frying	3.001 ± 0.038	3.610 ± 0.046	4.360 ± 0.046	11.57	***
Sesame	Before frying	1.030 ± 0.007	1.310 ± 0.025	2.390 ± 0.020	33.60	***
	1st frying	1.470 ± 0.016	1.990 ± 0.015	2.700 ± 0.040	16.43	***
	2nd frying	2.300 ± 0.025	3.100 ± 0.025	3.720 ± 0.046	11.86	***
	3rd frying	2.900 ± 0.034	3.870 ± 0.051	4.590 ± 0.051	9.92	***
Soybean	Before frying	2.750 ± 0.034	3.340 ± 0.060	3.882 ± 0.031	7.99	***
	1st frying	4.105 ± 0.049	4.650 ± 0.035	7.321 ± 0.108	23.62	***
	2nd frying	7.130 ± 0.064	7.640 ± 0.057	10.733 ± 0.125	22.47	***
	3rd frying	8.246 ± 0.079	11.069 ± 0.136	16.973 ± 0.183	25.84	***
Sunflower	Before frying	1.610 ± 0.004	1.989 ± 0.035	2.310 ± 0.020	7.92	***
	1st frying	3.003 ± 0.008	3.470 ± 0.030	3.930 ± 0.056	7.27	**
	2nd frying	4.105 ± 0.012	4.760 ± 0.036	6.430 ± 0.076	19.77	***
	3rd frying	4.713 ± 0.016	5.190 ± 0.067	7.011 ± 0.076	18.06	***
Palm olein	Before frying	1.004 ± 0.011	1.930 ± 0.035	2.640 ± 0.020	17.57	***
	1st frying	1.980 ± 0.009	2.560 ± 0.020	4.880 ± 0.071	31.47	***
	2nd frying	2.630 ± 0.008	3.120 ± 0.024	3.860 ± 0.046	14.32	***
	3rd frying	3.410 ± 0.006	3.940 ± 0.051	4.790 ± 0.051	11.71	***
Mustard	Before frying	0.860 ± 0.004	1.870 ± 0.035	2.990 ± 0.025	25.92	***
	1st frying	1.350 ± 0.015	2.305 ± 0.019	3.610 ± 0.050	24.34	***
	2nd frying	1.930 ± 0.027	2.710 ± 0.021	3.912 ± 0.046	23.93	***
	3rd frying	2.800 ± 0.038	3.570 ± 0.042	4.620 ± 0.051	15.89	***
Olive	Before frying	0.840 ± 0.008	1.980 ± 0.035	2.670 ± 0.020	17.07	***
	1st frying	1.880 ± 0.013	2.700 ± 0.020	3.550 ± 0.050	15.69	***
	2nd frying	2.960 ± 0.018	4.140 ± 0.031	5.006 ± 0.058	13.14	***
	3rd frying	3.660 ± 0.023	4.490 ± 0.057	5.680 ± 0.062	14.09	***
Can olive	Before frying	2.680 ± 0.022	3.510 ± 0.060	3.976 ± 0.032	6.82	***
	1st frying	3.650 ± 0.037	3.990 ± 0.030	4.671 ± 0.068	9.14	***
	2nd frying	3.990 ± 0.052	4.010 ± 0.031	4.790 ± 0.056	12.28	***
	3rd frying	4.350 ± 0.067	5.660 ± 0.072	5.910 ± 0.061	2.65	ns

All oils were stored at room temperature (25 ± 2 °C) for 2 months.
The peroxide value is expressed as milliequivalents of active oxygen per kilogram of oil. Values are presented as mean ± standard error of mean (n = 3).
An independent-samples t-test was applied to compare oil sample under dark versus light storage conditions.
Statistical significance: *** – $p \leq 0.001$; ** – $p \leq 0.01$; ns – not significant, $p > 0.05$.

Tab. S12. Effect of storage material on peroxide value before and after frying.

Oil sample	Frying stage	Peroxide value [meq·kg^{-1}]			t	Statistical significance
		Control	After 2 months in coloured glass	After 2 months in transparent plastic		
Coconut	Before frying	0.640 ± 0.009	1.710 ± 0.031	2.830 ± 0.025	28.30	***
	1st frying	1.007 ± 0.018	1.930 ± 0.015	3.210 ± 0.050	24.34	***
	2nd frying	1.420 ± 0.028	2.530 ± 0.021	4.110 ± 0.046	31.39	***
	3rd frying	2.190 ± 0.037	3.550 ± 0.042	4.380 ± 0.046	13.41	***
Almond	Before frying	1.100 ± 0.014	2.400 ± 0.040	3.870 ± 0.030	29.21	***
	1st frying	1.490 ± 0.016	2.700 ± 0.020	4.230 ± 0.066	22.32	***
	2nd frying	2.470 ± 0.018	3.800 ± 0.031	4.580 ± 0.056	12.28	***
	3rd frying	2.880 ± 0.020	4.006 ± 0.049	4.760 ± 0.051	10.59	***
Corn	Before frying	1.910 ± 0.016	3.100 ± 0.056	3.660 ± 0.030	8.85	***
	1st frying	2.490 ± 0.023	3.570 ± 0.030	4.770 ± 0.071	15.58	***
	2nd frying	2.860 ± 0.030	4.110 ± 0.031	4.890 ± 0.056	12.28	***
	3rd frying	3.340 ± 0.037	3.980 ± 0.051	5.140 ± 0.057	15.14	***
Canola	Before frying	1.130 ± 0.007	1.880 ± 0.035	3.130 ± 0.025	28.93	***
	1st frying	1.601 ± 0.017	2.720 ± 0.020	3.770 ± 0.056	17.75	***
	2nd frying	2.510 ± 0.028	3.820 ± 0.031	4.270 ± 0.051	7.53	**
	3rd frying	3.001 ± 0.038	4.020 ± 0.051	4.930 ± 0.051	12.54	***
Sesame	Before frying	1.030 ± 0.007	1.900 ± 0.035	2.850 ± 0.025	21.99	***
	1st frying	1.470 ± 0.016	2.310 ± 0.020	3.670 ± 0.056	22.99	***
	2nd frying	2.300 ± 0.025	2.980 ± 0.021	4.090 ± 0.046	22.05	***
	3rd frying	2.900 ± 0.034	3.840 ± 0.051	4.580 ± 0.051	10.20	***
Soybean	Before frying	2.750 ± 0.034	3.650 ± 0.066	4.720 ± 0.040	13.93	***
	1st frying	4.105 ± 0.049	5.720 ± 0.045	5.993 ± 0.088	2.76	ns
	2nd frying	7.130 ± 0.064	6.740 ± 0.051	8.760 ± 0.101	17.76	***
	3rd frying	8.246 ± 0.079	9.646 ± 0.119	11.430 ± 0.123	10.39	***
Sunflower	Before frying	1.610 ± 0.004	2.650 ± 0.050	4.020 ± 0.031	23.27	***
	1st frying	3.003 ± 0.008	4.140 ± 0.035	5.530 ± 0.081	15.77	***
	2nd frying	4.105 ± 0.012	4.798 ± 0.037	5.780 ± 0.066	13.07	***
	3rd frying	4.713 ± 0.016	5.640 ± 0.072	6.620 ± 0.072	9.61	***
Palm olein	Before frying	1.004 ± 0.011	1.820 ± 0.035	2.970 ± 0.025	26.62	***
	1st frying	1.980 ± 0.009	2.950 ± 0.025	3.780 ± 0.056	13.58	***
	2nd frying	2.630 ± 0.008	4.320 ± 0.031	5.010 ± 0.061	10.10	***
	3rd frying	3.410 ± 0.006	4.410 ± 0.051	5.060 ± 0.057	8.49	***
Mustard	Before frying	0.860 ± 0.004	1.620 ± 0.025	2.270 ± 0.020	20.22	***
	1st frying	1.350 ± 0.015	1.930 ± 0.015	3.810 ± 0.056	32.56	***
	2nd frying	1.930 ± 0.027	3.033 ± 0.023	3.640 ± 0.040	13.07	***
	3rd frying	2.800 ± 0.038	3.490 ± 0.042	3.370 ± 0.036	2.18	ns
Olive	Before frying	0.840 ± 0.008	1.630 ± 0.025	3.280 ± 0.025	46.36	***
	1st frying	1.880 ± 0.013	2.910 ± 0.025	3.860 ± 0.056	15.55	***
	2nd frying	2.960 ± 0.018	3.830 ± 0.031	4.310 ± 0.051	8.04	**
	3rd frying	3.660 ± 0.023	4.740 ± 0.057	5.430 ± 0.057	8.58	***
Can olive	Before frying	2.680 ± 0.022	2.710 ± 0.050	3.770 ± 0.030	18.09	***
	1st frying	3.650 ± 0.037	3.030 ± 0.025	4.005 ± 0.059	15.30	***
	2nd frying	3.990 ± 0.052	4.190 ± 0.031	5.160 ± 0.061	14.20	***
	3rd frying	4.350 ± 0.067	5.390 ± 0.067	5.900 ± 0.061	5.64	***

All samples were stored at room temperature (25 ± 2 °C) for 2 months.
The peroxide value is expressed as milliequivalents of active oxygen per kilogram of oil. Values are presented as mean ± standard error of mean (n = 3).
An independent-samples t-test was applied to compare oil sample stored in coloured glass versus in transparent plastic.
Statistical significance: *** – $p \leq 0.001$; ** – $p \leq 0.01$; ns – not significant, $p > 0.05$.