

Table S1. Moisture content (%) of sunflower seeds.

Fractions	Moisture content (%)	
	Striped seed	Black oil seed
Raw	3.43±0.01	3.42±0.01
S2	24.52±0.12	24.46±0.12
S12	29.03±0.24	29.03±0.25
S24	28.59±0.07	28.53±0.07
G24	29.24±0.04	29.23±0.04
G48	42.86±0.06	42.86±0.06
R5	1.62±0.04	1.75±0.08
R6	1.31±0.17	1.90±0.11
R7	1.60±0.02	1.33±0.09

Values are expressed as mean ± SD (n = 3) of triplicate measurement. S2, soaked 2 hours; S12, soaked 12 hours; S24, soaked 24 hours; G24, germinated at 24 hours; G48, germinated at 48 hours; R5, roasted at 5 minutes; R6, roasted at 6 minutes; R7, roasted at 7 minutes.

Table S2. Fatty acid composition (% total fatty acids) of raw and processed black oil seeds.

Fractions	Fatty acid composition (%)								Total
	16:0	18:0	18:1	18:2	18:3	ΣSFA	ΣMUFA	ΣPUFA	
Raw	6.08±0.03 ^b	3.11±0.04 ^b	32.53±0.36 ^{ab}	56.57±0.31 ^{de}	1.75±0.06 ^a	9.15±0.01 ^{bc}	32.53±0.36 ^{ab}	58.33±0.35 ^b	100
S2	5.86±0.14 ^{cd}	2.91±0.06 ^c	33.06±0.34 ^a	56.87±0.54 ^d	1.30±0.03 ^e	8.77±0.20 ^{ef}	33.06±0.34 ^a	58.17±0.51 ^{bc}	100
S12	6.00±0.03 ^{bc}	2.90±0.01 ^c	32.52±0.18 ^{ab}	57.34±0.20 ^{cd}	1.24±0.02 ^f	8.90±0.03 ^{de}	32.52±0.18 ^{ab}	58.58±0.21 ^b	100
S24	6.44±0.17 ^a	3.05±0.01 ^b	32.98±0.25 ^a	55.90±0.15 ^e	1.63±0.02 ^b	9.49±0.18 ^a	32.98±0.25 ^a	57.53±0.15 ^c	100
G24	5.84±0.12 ^{cd}	2.88±0.03 ^c	31.78±0.06 ^c	57.95±0.17 ^{bc}	1.54±0.04 ^c	8.73±0.14 ^{ef}	31.78±0.06 ^c	59.49±0.13 ^a	100
G48	5.73±0.03 ^d	2.84±0.04 ^c	31.98±0.48 ^{bc}	58.30±0.49 ^b	1.15±0.02 ^g	8.57±0.02 ^f	31.98±0.48 ^{bc}	59.45±0.50 ^a	100
R5	5.98±0.13 ^{bc}	3.03±0.03 ^b	31.55±0.65 ^c	58.22±0.80 ^b	1.22±0.01 ^f	9.02±0.15 ^{cd}	31.55±0.65 ^c	59.44±0.80 ^a	100
R6	6.38±0.02 ^a	3.07±0.06 ^b	30.36±0.17 ^d	59.37±0.26 ^a	0.81±0.01 ^h	9.46±0.08 ^a	30.36±0.17 ^d	60.19±0.25 ^a	100
R7	6.12±0.04 ^b	3.17±0.05 ^a	31.17±0.33 ^{bc}	57.12±0.37 ^d	1.42±0.02 ^d	9.29±0.05 ^{ab}	31.17±0.33 ^{bc}	58.54±0.38 ^b	100

Values are expressed as mean ± SD (n = 3) of triplicate measurement. Superscripts with different letters are significantly different at $p < 0.05$ within the same column. S2, soaked 2 hours; S12, soaked 12 hours; S24, soaked 24 hours; G24, germinated at 24 hours; G48, germinated at 48 hours; R5, roasted at 5 minutes; R6, roasted at 6 minutes; R7, roasted at 7 minutes.

Table S3. Fatty acids concentrations (mg/100g) of raw and processed black oil sunflower seeds.

Fractions	Fatty acids concentrations (mg/100g)								Total
	16:0	18:0	18:1	18:2	18:3	ΣSFA	ΣMUFA	ΣPUFA	
Raw	52.78±0.32 ^f	26.60±0.33 ^h	282.29±3.34 ^h	491.00±2.35 ^f	15.21±0.48 ^e	79.38±0.02 ^g	282.29±3.34 ^h	506.21±2.76 ^f	867.89±1.07 ^h
S2	111.42±1.27 ^b	55.42±0.27 ^c	628.90±4.39 ^b	1082.15±27.89 ^b	24.66±0.24 ^b	166.84±1.46 ^b	628.90±4.39 ^b	1106.81±27.72 ^b	1902.55±30.83 ^b
S12	64.87±0.37 ^e	31.38±0.16 ^g	351.83±2.35 ^g	620.29±3.61 ^e	13.47±0.23 ^f	96.25±0.49 ^f	351.83±2.35 ^g	633.76±3.84 ^e	1081.84±4.77 ^g
S24	28.65±0.77 ^g	13.58±0.07 ⁱ	146.70±1.93 ⁱ	248.65±0.97 ^g	7.25±0.09 ^h	42.23±0.82 ^h	146.70±1.93 ⁱ	255.90±1.03 ^g	444.82±2.94 ⁱ
G24	104.55±1.09 ^c	51.61±0.27 ^d	568.60±8.30 ^d	1036.88±17.86 ^c	27.50±0.39 ^a	156.15±0.94 ^c	568.60±8.30 ^d	1064.38±17.59 ^c	1789.13±25.68 ^d
G48	120.41±1.44 ^a	59.60±0.46 ^a	671.90±4.19 ^a	1224.84±22.23 ^a	24.17±0.47 ^b	180.01±1.31 ^a	671.90±4.19 ^a	1249.00±22.57 ^a	2100.92±20.67 ^a
R5	111.52±1.76 ^b	56.56±0.42 ^b	588.10±8.64 ^c	1085.44±21.22 ^b	22.78±0.05 ^c	168.08±1.82 ^b	588.10±8.64 ^c	1108.22±21.26 ^b	1864.39±10.99 ^c
R6	88.75±0.73 ^d	42.73±0.47 ^g	422.08±2.45 ^f	825.60±13.00 ^d	11.28±0.08 ^g	131.48±0.38 ^e	422.08±2.45 ^f	836.89±12.92 ^d	1390.45±15.71 ^f
R7	89.38±0.86 ^d	46.23±0.29 ^e	469.45±2.37 ^e	833.60±10.07 ^d	20.67±0.38 ^d	135.61±0.52 ^d	469.45±2.37 ^e	854.27±10.37 ^d	1459.33±0.42 ^e

Values are expressed as mean \pm SD (n = 3) of triplicate measurement. Superscripts with different letters are significantly different at $p < 0.05$ within the same column. S2, soaked 2 hours; S12, soaked 12 hours; S24, soaked 24 hours; G24, germinated at 24 hours; G48, germinated at 48 hours; R5, roasted at 5 minutes; R6, roasted at 6 minutes; R7, roasted at 7 minutes.