

## Supplementary Materials

**Table S1.** Average concentration of free sterols in canola seed and oil samples (mg/kg oil  $\pm$  standard deviation). Cumulative percentage gain/loss relative to previous process is represented in brackets under concentrations for refining methods. Total loss/gain is reported in the bottom row and represents the total loss or gain of bioactive compound from crude oil to the deodorisation step.

Oil sample	$\beta$ -sitosterol					Campesterol					Brassicasterol				
	BC	EC	EP	CM	CP	BC	EC	EP	CM	CP	BC	EC	EP	CM	CP
Crude	1920	1970	2090	1680	1410	1040	968	1040	961	941	474	516	549	420	378
	$\pm 367$	$\pm 269$	$\pm 446$	$\pm 323$	N/A	$\pm 124$	$\pm 157$	$\pm 154$	$\pm 135$	N/A	$\pm 58.1$	$\pm 36.7$	$\pm 63.7$	$\pm 72.2$	N/A
Degummed /Neutralised	1740 (-9.4)	1930 (-2.0)	2120 (+1.4)	–	1460 (+3.5)	908 (-12.7)	937 (-3.2)	1050 (+1.0)	–	932 (-1.0)	425 (-10.3)	489 (-5.2)	547 (-0.4)	–	422 (+11.6)
	$\pm 488$	$\pm 510$	$\pm 405$		N/A	$\pm 50.8$	$\pm 50.7$	$\pm 167$		N/A	$\pm 70.6$	$\pm 85.4$	$\pm 50.7$		N/A
Bleached	1640 (-5.7)	1830 (-5.2)	2130 (+0.5)	1550 (-7.7)	1180 (-19.2)	874 (-3.7)	893 (-4.7)	1040 (-1.0)	861 (-9.4)	719 (-22.9)	393 (-7.5)	469 (-4.1)	527 (-3.7)	415 (-1.2)	304 (-28.0)
	$\pm 379$	$\pm 527$	$\pm 546$	$\pm 421$	N/A	$\pm 68.9$	$\pm 44.7$	$\pm 101$	$\pm 28.5$	N/A	$\pm 55.1$	$\pm 87.0$	$\pm 70.6$	$\pm 89.8$	N/A
Deodorised	1600 (-2.4)	1760 (-3.8)	1840 (-13.6)	–	987 (-16.4)	857 (-1.9)	861 (-3.6)	873 (-16.1)	–	587 (-37.6)	384 (-2.3)	436 (-7.0)	467 (-11.4)	–	243 (-20.0)
	$\pm 427$	$\pm 585$	$\pm 476$		N/A	$\pm 39.6$	$\pm 7.18$	$\pm 63.2$		N/A	$\pm 67.3$	$\pm 112$	$\pm 84.8$		N/A
Total loss/gain (%)	-16.7	-10.6	-12.0	-7.7	-30.0	-17.6	-11.1	-16.1	-9.4	-37.6	-19.0	-15.5	-14.9	-1.2	-35.7

**Note:** Only those steps common to all processes are reported here. Full results are supplied in the supporting information. BC = Blended – chemical refining, EC = Expeller extracted – chemical refining, EP = Expeller extracted – physical refining, CB = Cold-pressed – bleaching only, CP = Cold pressed – physical refining. (–) = not part of this process. N/A = “not available”.

**Table S2.** Concentration of esterified sterols in canola seed and oil samples (mg/kg oil  $\pm$  standard deviation). Cumulative percentage gain/loss relative to previous process is represented in brackets under concentrations for refining methods. Total loss/gain is reported in the bottom row and represents the total loss or gain of bioactive compound from crude oil to the deodorisation step.

Oil sample	$\beta$ -sitosterol					Campesterol					Brassicasterol				
	BC	EC	EP	CM	CP	BC	EC	EP	CM	CP	BC	EC	EP	CM	CP
Crude	2210	2270	2390	1870	1890	1690	1640	1690	1550	1830	310	330	340	263	302
	$\pm 359$	$\pm 136$	$\pm 342$	$\pm 80.6$	N/A	$\pm 251$	$\pm 430$	$\pm 357$	$\pm 590$	N/A	$\pm 10.6$	$\pm 18.0$	$\pm 0.37$	$\pm 13.1$	N/A
Degummed/ Neutralised	2270 (+2.7)	2420 (+6.6)	2460 (+2.9)	–	1810 (-4.2)	1700 (+0.6)	1700 (+3.7)	1710 (+1.2)	–	1710 (-6.6)	314 (+1.3)	340 (+3.0)	340 (0.0)	–	296 (-2.0)
	$\pm 432$	$\pm 242$	$\pm 241$		N/A	$\pm 218$	$\pm 360$	$\pm 409$		N/A	$\pm 19.6$	$\pm 0.84$	$\pm 7.40$		N/A
Bleached	2290 (+0.9)	2430 (+0.4)	2480 (+0.8)	1850 (-1.1)	1800 (-0.6)	1750 (+2.9)	1670 (-1.8)	1720 (+0.6)	1510 (-2.4)	1730 (+1.2)	328 (+4.5)	346 (+1.8)	353 (+3.8)	274 (+4.2)	322 (+8.8)
	$\pm 409$	$\pm 246$	$\pm 353$	$\pm 250$	N/A	$\pm 269$	$\pm 292$	$\pm 329$	$\pm 314$	N/A	$\pm 21.8$	$\pm 13.0$	$\pm 1.15$	$\pm 26.7$	N/A
Deodorised	2280 (-0.4)	2440 (+0.4)	2490 (+0.4)	–	1870 (+3.9)	1750 (0.0)	1700 (+1.8)	1720 (0.0)	–	1790 (+3.5)	331 (+0.9)	353 (+2.0)	357 (+1.1)	–	347 (+7.8)
	$\pm 362$	$\pm 468$	$\pm 387$		N/A	$\pm 273$	$\pm 187$	$\pm 304$		N/A	$\pm 17.9$	$\pm 31.3$	$\pm 11.2$		N/A
Total loss/gain (%)	+3.2	+7.5	+4.2	-1.1	-1.0	+3.6	+3.7	+1.8	-2.4	-2.2	+6.8	+7.0	+5.0	+4.2	+14.9

**Note:** Only those steps common to all processes are reported here. Full results are supplied in the supporting information. BC = Blended – chemical refining, EC = Expeller extracted – chemical refining, EP = Expeller extracted – physical refining, CB = Cold-pressed – bleaching only, CP = Cold pressed – physical refining. (–) = not part of this process. N/A = “not available.