

Table S1. Phenolic compounds of herbs/spices added to extruded snacks.

Raw materials	Phenolic compounds [mg/100g d.m.]									
	NCA	CA	p-CA	FA	MYR	QUE	LUT	KEMP	API	Total
Lovage	16,4±2,6 ^b	181,4±24,1 ^c	27,6±1,2 ^c	123,2±3,3 ^d	4,3±0,1 ^a	588,6±57,2 ^b	nd	59±4,8	nd	1000,5
Basil	4,06±0,9 ^a	174,2±9,2 ^c	28,6±0,8 ^c	22,05±2,6 ^b	10,9±0,6 ^b	4,2±0,2 ^a	11,7±2,7 ^a	nd	15,7±0,6 ^a	271,4
Oregano	4,11±0,5 ^a	60,3±0,7 ^b	18,4±0,9 ^b	8,5±0,5 ^a	nd	nd	363,3±25,1 ^c	nd	37,2±2,5 ^c	491,8
Thyme	nd	12,06±0,5 ^a	11,4±0,6 ^a	26,03±0,6 ^c	nd	nd	202,3±0,1 ^b	nd	28,06±1,4 ^b	279,85

NCA – neochlorogenic acid, CA - caffeic acid, p-CA -p-coumaric acid, FA – ferulic acid, MYR – myricetin, QUE – quercetin, LUT – luteolin, KEMP – kaempferol, API – apigenin; nd – not detected

It was according to the methodology: Wojdyło, A.; Oszmiański, J.; Czemerys, R. Antioxidant activity and phenolic compounds in 32 selected herbs. Food Chemistry, 2007,105, 940-949.

Table S2. Mean scores of consumer desirability of extruded snacks with fermented broad bean or bean and herb/spices, and the control sample (without herb/spices addition).

		Desirability				
		aroma	colour	taste	texture	overall
broad bean grinded	Control	5.21±0.9 ^a	6.51±0.8 ^a	4.49±1.0 ^a	7.25±0.7 ^a	4.49±1.1 ^a
	Thyme	4.96±1.2 ^a	6.11±0.9 ^a	4.58±0.9 ^a	7.15±0.5 ^a	4.58±0.9 ^a
	Oregano	4.93±1.3 ^a	6.27±0.7 ^a	4.93±0.8 ^a	7.19±0.9 ^a	4.93±1.0 ^a
	Basil	5.78±1.1 ^a	6.18±0.8 ^a	4.05±1.0 ^a	7.16±1.0 ^a	4.04±1.0 ^a
	Lovage	4.96±1.2 ^a	6.26±1.1 ^a	7.98±0.7 ^b	7.16±1.1 ^a	7.92±0.8 ^b
broad bean husk	Control	3.80±0.8 ^a	5.50±0.9 ^a	4.15±0.9 ^a	7.09±0.9 ^a	4.15±1.1 ^a
	Thyme	4.72±1.1 ^a	5.70±0.9 ^a	4.25±0.8 ^a	7.01±0.7 ^a	4.25±1.2 ^a
	Oregano	4.74±1.0 ^a	5.74±0.7 ^a	4.62±0.9 ^a	7.06±0.7 ^a	4.59±1.0 ^a
	Basil	5.32±1.1 ^a	5.79±1.2 ^a	4.01±1.1 ^a	7.03±0.8 ^a	3.99±1.3 ^a
	Lovage	4.85±1.2 ^a	5.85±1.2 ^a	7.55±0.9 ^b	7.03±1.1 ^a	7.75±0.7 ^b
bean e grinded	Control	4.15±0.8 ^a	5.50±1.0 ^a	4.53±1.0 ^a	7.09±1.0 ^a	4.53±1.0 ^a
	Thyme	4.72±1.1 ^a	5.70±1.1 ^a	4.35±0.9 ^a	7.01±1.1 ^a	4.35±1.1 ^a
	Oregano	4.75±1.1 ^a	5.74±1.2 ^a	4.72±1.2 ^a	7.06±0.9 ^a	4.72±1.0 ^a
	Basil	5.33±1.2 ^a	5.79±1.0 ^a	3.75±0.9 ^a	7.03±1.2 ^a	3.90±0.9 ^a
	Lovage	4.85±1.1 ^a	5.85±1.2 ^a	7.75±1.0 ^b	7.03±1.1 ^a	7.95±0.8 ^b
bean husk	Control	3.93±0.9 ^a	4.82±1.2 ^a	4.29±0.9 ^a	6.93±0.9 ^a	4.29±0.9 ^a
	Thyme	4.68±1.3 ^a	5.65±1.3 ^a	4.21±1.1 ^a	6.90±1.0 ^a	4.12±1.1 ^a
	Oregano	4.67±1.2 ^a	5.69±0.9 ^a	4.61±1.0 ^a	6.95±1.1 ^a	4.43±1.0 ^a
	Basil	5.45±1.0 ^a	5.73±0.9 ^a	4.03±0.9 ^a	6.93±0.9 ^a	4.06±1.1 ^a
	Lovage	4.55±1.1 ^a	5.80±0.9 ^a	7.68±0.7 ^b	6.93±1.1 ^a	7.68±0.8 ^b

* Different letters within the same column represent significant differences (n=380), at a $\alpha \leq 0.05$

Table S3. Mean scores (n=17) of sensory taste and aroma profiling of extruded snacks with fermented broad bean or bean and herb/spices, and the control sample (without herb/spices addition).

Sample		Descriptors															
		aroma	taste														
		essential oil	herbal	starch	lemon	bitter	strange	sour	broth	essential oil	herbal	sour	starch	salty	broth	bitter	strange
Fermented broad bean grinded	Control	0.25 ^{a*}	3.25 ^{cb}	0.00 ^a	3.00 ^c	2.00 ^b	3.25 ^{cb}	0.00 ^a	0.85 ^a	0.55 ^a	0.55 ^a	1.00 ^{ba}	3.00 ^{ba}	1.12 ^a	0.00 ^a	2.50 ^{cb}	3.00
	Thyme	1.50 ^{cb}	3.40 ^c	1.00 ^{cb}	3.20 ^{dc}	0.85 ^{ba}	0.00 ^a	0.30 ^{ba}	1.30 ^{ba}	1.00 ^{ba}	1.00 ^{ba}	0.50 ^a	3.50 ^{ba}	1.65 ^{ba}	0.00 ^a	3.50 ^{dc}	1.75 ^{ba}
	Oregano	3.00 ^{dc}	2.50 ^b	1.25 ^c	2.25 ^{cb}	0.85 ^{ba}	0.00 ^a	0.25 ^{ba}	1.85 ^b	1.80 ^b	1.80 ^b	0.45 ^a	3.00 ^{ba}	2.01 ^{ba}	0.00 ^a	1.75 ^{ba}	1.50 ^{ba}
	Basil	1.00 ^b	1.80 ^{ba}	1.00 ^{cb}	1.95 ^{ba}	0.80 ^{ba}	0.00 ^a	0.25 ^{ba}	1.25 ^a	0.85 ^{ba}	0.85 ^{ba}	0.75 ^{ba}	2.50 ^a	2.00 ^{ba}	0.75 ^b	4.50 ^d	2.25 ^b
	Lovage	1.00 ^b	1.20 ^a	0.75 ^b	0.75 ^a	0.85 ^{ba}	0.50 ^{ba}	1.95 ^c	1.00 ^a	0.85 ^{ba}	0.85 ^{ba}	0.75 ^{ba}	4.00 ^{ba}	2.50 ^{ba}	4.50 ^c	0.75 ^a	0.75 ^a
Fermented broad bean husk	Control	0.00 ^a	3.00 ^{cb}	0.50 ^b	4.00 ^d	3.95 ^c	2.85 ^{cb}	0.00 ^{ba}	0.95 ^a	0.25 ^a	0.25 ^a	1.15 ^b	4.05 ^{ba}	1.25 ^{ba}	0.00 ^a	4.75 ^d	3.50
	Thyme	1.85 ^{cb}	3.00 ^{cb}	1.00 ^{cb}	2.45 ^{cb}	1.25 ^{ba}	0.00 ^a	0.25 ^{ba}	1.25 ^{ba}	1.25 ^{ba}	1.25 ^b	0.50 ^a	3.50 ^{ba}	1.85 ^{ba}	0.00 ^a	3.75 ^{dc}	1.50 ^{ba}
	Oregano	3.10 ^{dc}	2.25 ^{ba}	1.25 ^c	2.00 ^b	0.55 ^a	0.00 ^a	0.25 ^{ba}	2.25 ^b	2.00 ^b	2.00 ^b	0.45 ^a	3.00 ^{ba}	2.12 ^{ba}	0.00 ^a	1.50 ^{ba}	1.80 ^{ba}
	Basil	1.25 ^b	2.00 ^{ba}	1.00 ^c	2.50 ^{cb}	0.80 ^{ba}	0.00 ^a	0.25 ^{ba}	1.00 ^a	0.75 ^{ba}	0.75 ^{ba}	0.75 ^{ba}	2.50 ^a	1.98 ^{ba}	0.50 ^b	4.25 ^d	2.00 ^b
	Lovage	0.85 ^{ba}	1.25 ^a	0.75 ^b	0.80 ^a	0.70 ^a	0.65 ^{ba}	1.25 ^{cb}	1.25 ^{ba}	0.70 ^a	0.70 ^{ba}	0.85 ^{ba}	4.50 ^b	2.62 ^a	3.50 ^c	0.80 ^a	0.80 ^a
Fermented bean grinded	Control	0.30 ^a	3.25 ^{cb}	0.00 ^a	3.00 ^c	1.00 ^{ba}	3.25 ^{cb}	0.00 ^{ba}	0.75 ^a	0.40 ^a	0.40 ^a	1.75 ^b	3.00 ^{ba}	1.20 ^{ba}	0.00 ^a	3.00 ^a	1.75 ^{ba}
	Thyme	1.75 ^{cb}	3.25 ^{cb}	0.80 ^{cb}	3.25 ^c	1.00 ^{ba}	0.00 ^a	0.25 ^{ba}	1.00 ^a	1.00 ^{ba}	1.00 ^{ba}	0.75 ^{ba}	3.45 ^{ba}	1.80 ^{ba}	0.00 ^a	3.25 ^{dc}	1.50 ^{ba}
	Oregano	3.25	2.50 ^b	1.20	2.00 ^b	0.85 ^{ba}	0.00 ^a	0.25 ^{ba}	1.75 ^{ba}	1.50 ^b	1.50 ^b	0.50 ^a	2.95 ^{ba}	2.25 ^{ba}	0.20 ^{ba}	1.75 ^{ba}	1.25 ^{ba}
	Basil	0.85 ^{ba}	1.85 ^{ba}	0.85 ^{cb}	1.50 ^{ba}	0.60 ^a	0.00 ^a	0.35 ^{ba}	1.10 ^a	0.90 ^{ba}	0.90 ^{ba}	0.80 ^{ba}	2.45 ^a	1.85 ^{ba}	0.75 ^b	4.00 ^d	2.20 ^b
	Lovage	0.75 ^{ba}	1.35 ^a	0.70 ^b	0.75 ^a	0.80 ^{ba}	0.75 ^b	2.25 ^c	0.85 ^a	0.85 ^{ba}	0.85 ^{ba}	0.75 ^{ba}	4.30 ^{ba}	2.59 ^b	3.90 ^c	0.80 ^a	0.80 ^a
Fermented bean husk	Control	0.00 ^a	3.50 ^c	0.25 ^b	4.00 ^d	3.95 ^c	2.85 ^b	0.00 ^{ba}	0.95 ^a	0.25 ^a	0.25 ^a	1.00 ^{ba}	3.75 ^{ba}	1.40 ^{ba}	0.00 ^a	3.25 ^{dc}	3.25 ^a
	Thyme	1.85 ^{cb}	3.25 ^{cb}	0.80 ^{cb}	2.45 ^{cb}	1.25 ^{ba}	0.00 ^a	0.25 ^{ba}	1.30 ^a	1.25 ^{ba}	1.25 ^b	0.65 ^a	3.25 ^{ba}	1.56 ^{ba}	0.00 ^a	3.50 ^{dc}	1.75 ^b
	Oregano	3.10 ^{dc}	2.84	1.20	2.00 ^b	0.55 ^a	0.00 ^a	0.25 ^{ba}	2.25 ^b	2.00 ^b	2.00 ^b	0.45 ^a	3.25 ^{ba}	2.30 ^{ba}	0.00 ^a	1.50 ^{ba}	1.80 ^b
	Basil	1.25 ^b	2.00 ^{ba}	0.85 ^{cb}	2.50 ^{cb}	0.80 ^{ba}	0.00 ^a	0.25 ^{ba}	1.00 ^a	0.75 ^{ba}	0.75 ^{ba}	0.75 ^{ba}	2.50 ^a	1.99 ^{ba}	0.50 ^{ba}	4.25 ^d	2.00 ^b
	Lovage	0.85 ^{ba}	1.25 ^a	0.50 ^b	0.80 ^a	0.70 ^a	0.65 ^b	1.25 ^{cb}	1.25 ^a	0.85 ^{ba}	0.85 ^{ba}	0.85 ^{ba}	4.50 ^{ba}	2.95 ^b	3.50 ^c	0.80 ^a	0.80 ^a

*Different letters within the same column represent significant differences (n=17), at a $\alpha \leq 0.05$