

Supplementary data related to the article

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Tab. S1. Volatile compounds identified in blank models.

Compound	SAA					SSU			MAA	MSU
	Phe	Leu	Ile	Lys	Arg	GLU	GAL	ARA		
	[μg·kg <sup>-1</sup> ]									
3-Methylbutanal	ND	15 ± 0.4	ND	ND	ND	ND	ND	ND	ND	ND
Benzeneacetaldehyde	16 ± 1.6 <sup>b</sup>	ND	ND	ND	ND	ND	ND	ND	32 ± 0.4 <sup>a</sup>	ND
Benzaldehyde	39 ± 0.3 <sup>a</sup>	ND	ND	ND	ND	ND	ND	ND	19 ± 0.4 <sup>b</sup>	ND
2-Piperidinone	ND	ND	ND	620 ± 35.9 <sup>a</sup>	ND	ND	ND	ND	192 ± 1.4 <sup>b</sup>	ND
2,3-Dihydro-3,5-dihydroxy-6-methyl-4H-pyran-4-one	ND	ND	ND	ND	ND	4 ± 0.1 <sup>c</sup>	119 ± 2.5 <sup>b</sup>	ND	ND	272 ± 16.0 <sup>a</sup>
2,5-Dimethylfuran-3,4(2H,5H)-dione	ND	ND	ND	ND	ND	ND	ND	ND	ND	20 ± 3.3
3,5-Dihydroxy-2-methyl-4H-Pyran-4-one	ND	ND	ND	ND	ND	ND	ND	ND	ND	173 ± 10.4
3-Hydroxy-3-methyl-2-butanone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Hydroxy-5-methylfuran-3(2H)-one	ND	ND	ND	ND	ND	ND	6 ± 2.6 <sup>c</sup>	112 ± 16.0 <sup>b</sup>	ND	251 ± 33.9 <sup>a</sup>
5-Methyl-2-furanmethanol	ND	ND	ND	ND	ND	ND	ND	ND	ND	19 ± 5.2
Benzoic acid	98 ± 0.2 <sup>b</sup>	ND	ND	ND	ND	ND	ND	ND	55 ± 4.7 <sup>a</sup>	ND
Benzeneacetic acid	439 ± 5.9 <sup>a</sup>	ND	ND	ND	ND	ND	ND	ND	237 ± 13.7 <sup>b</sup>	ND

Different lowercase letters in superscript indicate significant differences in the contents of the same volatile compound (*P* < 0.05). One-way analysis of variance (ANOVA) with Tukey's post-hoc test or T-test was performed using SPSS 23 software (IBM, Armonk, New York, USA) to analyse significant differences (*P* < 0.05, two-tailed).  
SAA – single amino acid, SSU – single sugar, MAA – mixed amino acid, MSU – mixed sugar, GLU – D-glucose, GAL – D-galactose, ARA – D-arabinose, ND – not determined.

Tab. S2. Volatile compounds identified in dried shrimp and reaction models.

Compound	Dried shrimp	SAA + MSU					SSU + MAA			TL	MAA + MSU	TL + MAA	TL + MSU	TL + MAA + MSU
		Phe + MSU	Leu + MSU	Ile + MSU	Lys + MSU	Arg + MSU	GLU + MAA	ARA + MAA	GAL + MAA					
	[μg·kg <sup>-1</sup> ]													
Pyrazines														
2,3,5-Trimethylpyrazine	158 ± 14.5 <sup>a</sup>	ND	ND	2 ± 0.0 <sup>c</sup>	52 ± 4.1 <sup>b</sup>	22 ± 1.9	74 ± 12.5 <sup>b</sup>	50 ± 5.4 <sup>b</sup>	77 ± 2.1 <sup>b</sup>	ND	67 ± 11.8 <sup>b</sup>	ND	ND	145 ± 17.1 <sup>a</sup>
2,3-Dimethylpyrazine	6 ± 0.3 <sup>b</sup>	ND	ND	ND	6 ± 0.4 <sup>b</sup>	7 ± 0.9 <sup>b</sup>	9 ± 2.9 <sup>b</sup>	7 ± 1.9 <sup>b</sup>	ND	ND	56 ± 7.9 <sup>a</sup>	ND	ND	52 ± 9.4 <sup>a</sup>
2,5-Dimethyl-3-(2-methylbutyl)pyrazine	2 ± 0.1 <sup>e</sup>	ND	ND	ND	52 ± 2.6 <sup>c</sup>	61 ± 4.3 <sup>c</sup>	108 ± 16.9 <sup>b</sup>	28 ± 0.5 <sup>d</sup>	46 ± 5.1 <sup>c</sup>	ND	103 ± 2.3 <sup>b</sup>	ND	ND	158 ± 7.2 <sup>a</sup>
2,5-Dimethyl-3-propylpyrazine	1 ± 0.1 <sup>d</sup>	ND	ND	ND	12 ± 1.1 <sup>b</sup>	22 ± 5.4 <sup>a</sup>	4 ± 0.1 <sup>c</sup>	ND	ND	ND	11 ± 0.2 <sup>b</sup>	ND	ND	10 ± 0.6 <sup>b</sup>
2,5-Dimethylpyrazine	175 ± 8.6 <sup>b</sup>	4 ± 1.0 <sup>f</sup>	4 ± 0.9 <sup>f</sup>	5 ± 1.3 <sup>f</sup>	93 ± 0.7 <sup>d</sup>	128 ± 11.5	134 ± 6.7 <sup>c</sup>	85 ± 2.1 <sup>d</sup>	133 ± 1.4 <sup>c</sup>	22 ± 0.8 <sup>e</sup>	158 ± 14.7 <sup>b</sup>	36 ± 3.6 <sup>e</sup>	35 ± 3.4 <sup>e</sup>	246 ± 28.9 <sup>a</sup>
2,6-Diethylpyrazine	1 ± 0.0 <sup>e</sup>	ND	ND	ND	4 ± 0.0 <sup>d</sup>	1 ± 0.3 <sup>e</sup>	10 ± 1.3 <sup>a</sup>	6 ± 0.4 <sup>b</sup>	ND	ND	5 ± 0.8 <sup>c</sup>	ND	ND	7 ± 0.1 <sup>b</sup>
2,6-Dimethylpyrazine	13 ± 1.2 <sup>b</sup>	2 ± 0.2 <sup>d</sup>	5 ± 0.7 <sup>c</sup>	5 ± 0.7 <sup>c</sup>	4 ± 1.0 <sup>c</sup>	19 ± 1.4 <sup>b</sup>	11 ± 2.8 <sup>b</sup>	8 ± 2.5 <sup>bc</sup>	19 ± 1.7 <sup>b</sup>	ND	125 ± 18.8 <sup>a</sup>	ND	ND	126 ± 9.3 <sup>a</sup>
2-Acetyl-3-methylpyrazine	4 ± 0.6 <sup>f</sup>	6 ± 2.2 <sup>f</sup>	ND	ND	35 ± 1.3 <sup>cd</sup>	31 ± 1.3 <sup>cd</sup>	41 ± 3.3 <sup>c</sup>	21 ± 0.4 <sup>e</sup>	36 ± 1.9 <sup>cd</sup>	ND	54 ± 2.3 <sup>b</sup>	ND	ND	63 ± 3.1 <sup>a</sup>
2-Ethyl-3,6-dimethylpyrazine	87 ± 1.8 <sup>c</sup>	18 ± 2.4 <sup>d</sup>	ND	2 ± 0.4 <sup>e</sup>	292 ± 10.3 <sup>a</sup>	225 ± 7.2 <sup>b</sup>	79 ± 8.0 <sup>c</sup>	103 ± 1.7 <sup>c</sup>	78 ± 5.1 <sup>c</sup>	ND	181 ± 24.6 <sup>b</sup>	ND	ND	296 ± 16.3 <sup>a</sup>
2-Ethyl-5-methylpyrazine	23 ± 0.5 <sup>c</sup>	ND	ND	ND	6 ± 0.4 <sup>d</sup>	11 ± 2.1 <sup>d</sup>	44 ± 1.7 <sup>b</sup>	43 ± 8.5 <sup>b</sup>	21 ± 0.2 <sup>c</sup>	ND	33 ± 4.1 <sup>bc</sup>	ND	ND	63 ± 0.8 <sup>a</sup>
Tetramethylpyrazine	5 ± 0.9 <sup>c</sup>	ND	ND	ND	8 ± 0.6 <sup>b</sup>	9 ± 0.3 <sup>b</sup>	9 ± 0.4 <sup>b</sup>	ND	ND	ND	15 ± 0.8 <sup>a</sup>	ND	ND	18 ± 0.5 <sup>a</sup>
2-Methylpyrazine	14 ± 1.6 <sup>d</sup>	ND	5 ± 1.7 <sup>e</sup>	3 ± 0.9 <sup>e</sup>	11 ± 2.6 <sup>cd</sup>	33 ± 1.8 <sup>c</sup>	37 ± 1.3 <sup>c</sup>	9 ± 1.3 <sup>d</sup>	20 ± 2.9 <sup>d</sup>	ND	123 ± 16.0 <sup>b</sup>	ND	ND	197 ± 22.6 <sup>a</sup>
2-Acetylpyrazine	3 ± 1.2 <sup>d</sup>	5 ± 1.6 <sup>cd</sup>	ND	ND	20 ± 0.4 <sup>b</sup>	25 ± 3.5 <sup>b</sup>	8 ± 2.2 <sup>c</sup>	ND	9 ± 1.3 <sup>c</sup>	ND	54 ± 3.5 <sup>a</sup>	ND	ND	75 ± 10.3 <sup>a</sup>
2,3-Dimethyl-5-n-propylpyrazine	1 ± 0.2 <sup>d</sup>	ND	ND	ND	ND	ND	47 ± 8.4 <sup>c</sup>	100 ± 2.7 <sup>b</sup>	76 ± 12.5 <sup>b</sup>	ND	144 ± 4.2 <sup>a</sup>	ND	ND	159 ± 9.8 <sup>a</sup>
2-Ethyl-6-methylpyrazine	5 ± 0.5 <sup>b</sup>	ND	ND	ND	1 ± 0.2 <sup>c</sup>	3 ± 0.7 <sup>c</sup>	6 ± 0.4 <sup>b</sup>	ND	5 ± 0.1 <sup>b</sup>	ND	19 ± 2.5 <sup>a</sup>	ND	ND	17 ± 0.3 <sup>a</sup>
3,5-Diethyl-2-methylpyrazine	6 ± 0.3 <sup>b</sup>	ND	ND	ND	57 ± 0.8 <sup>a</sup>	ND	6 ± 0.9 <sup>b</sup>	7 ± 1.1 <sup>b</sup>	ND	ND	ND	ND	ND	ND
2,5-Dimethyl-3-(3-methylbutyl)pyrazine	20 ± 1.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Ethenyl-6-methylpyrazine	20 ± 1.8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Isoamyl-6-methylpyrazine	2 ± 0.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Methyl-6-(1-propenyl)pyrazine	18 ± 1.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,3,5-Trimethyl-6-ethylpyrazine	6 ± 0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-(1-Methylpropyl)pyrazine	ND	9 ± 3.2 <sup>c</sup>	ND	4 ± 0.7 <sup>c</sup>	290 ± 16.7 <sup>a</sup>	227 ± 2.2 <sup>a</sup>	62 ± 3.1 <sup>b</sup>	ND	50 ± 7.4 <sup>b</sup>	ND	47 ± 8.1 <sup>b</sup>	ND	ND	69 ± 3.4 <sup>b</sup>
2-Acetyl-3,5-dimethylpyrazine	1 ± 0.1 <sup>d</sup>	ND	ND	ND	ND	ND	5 ± 0.7 <sup>c</sup>	ND	8 ± 2.3 <sup>b</sup>	ND	ND	ND	ND	13 ± 0.9 <sup>a</sup>
2-Ethenyl-6-methylpyrazine	ND	5 ± 0.3 <sup>c</sup>	6 ± 1.0 <sup>c</sup>	19 ± 1.4 <sup>b</sup>	ND	ND	6 ± 0.1 <sup>c</sup>	ND	ND	ND	5 ± 0.7 <sup>c</sup>	ND	ND	59 ± 10.6 <sup>a</sup>

Tab. S2. continued

Compound	Dried shrimp	SAA + MSU					SSU + MAA			TL	MAA + MSU	TL + MAA	TL + MSU	TL + MAA + MSU
		Phe + MSU	Leu + MSU	Ile + MSU	Lys + MSU	Arg + MSU	GLU + MAA	ARA + MAA	GAL + MAA					
	[μg·kg <sup>-1</sup> ]													
2-Ethyl-3,5-dimethylpyrazine	ND	ND	ND	ND	45 ± 0.3 <sup>a</sup>	ND	ND	ND	8 ± 2.6 <sup>b</sup>	ND	ND	ND	ND	ND
2-Ethylpyrazine	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	13 ± 3.1 <sup> b</sup>	ND	ND	25 ± 3.2 <sup>a</sup>
2-Hydroxymethyl-5-methylpyrazine	ND	ND	ND	ND	23 ± 0.9 <sup>a</sup>	2 ± 0.3 <sup> b</sup>	ND	ND	ND	ND	ND	ND	ND	ND
2-Methyl-3-isopropylpyrazine	ND	ND	8 ± 0.7 <sup> b</sup>	ND	ND	ND	36 ± 4.7 <sup> a</sup>	5 ± 0.4 <sup> b</sup>	ND	ND	3 ± 0.4 <sup> b</sup>	ND	ND	37 ± 1.8 <sup> a</sup>
2-Methyl-5-propylpyrazine	ND	17 ± 1.7 <sup> b</sup>	2 ± 0.0 <sup> d</sup>	3 ± 0.4 <sup> cd</sup>	40 ± 1.6 <sup> a</sup>	17 ± 2.6 <sup> b</sup>	5 ± 0.9 <sup> c</sup>	ND	16 ± 0.6 <sup> b</sup>	ND	5 ± 0.4 <sup> c</sup>	ND	ND	ND
Aldehydes														
2-Methylbutanal	27 ± 3.2 <sup> e</sup>	ND	ND	231 ± 22.1 <sup> b</sup>	ND	ND	93 ± 6.4 <sup> c</sup>	65 ± 4.1 <sup> d</sup>	63 ± 6.5 <sup> d</sup>	ND	72 ± 6.3 <sup> d</sup>	ND	ND	354 ± 7.3 <sup> a</sup>
3-Methylbutanal	35 ± 5.2 <sup> d</sup>	ND	184 ± 11.0 <sup> b</sup>	ND	ND	ND	64 ± 3.6 <sup> c</sup>	45 ± 2.9 <sup> cd</sup>	45 ± 3.7 <sup> cd</sup>	ND	56 ± 7.1 <sup> c</sup>	ND	ND	234 ± 15.2 <sup> a</sup>
Benzaldehyde	29 ± 0.7 <sup> d</sup>	186 ± 4.1 <sup> a</sup>	ND	ND	ND	ND	116 ± 19.5 <sup> b</sup>	132 ± 3.5 <sup> b</sup>	92 ± 11.2 <sup> bc</sup>	ND	85 ± 3.3 <sup> c</sup>	105 ± 14.1 <sup> b</sup>	ND	182 ± 15.1 <sup> a</sup>
Pentanal	27 ± 0.9 <sup> b</sup>	ND	ND	ND	ND	ND	ND	ND	ND	37 ± 2.7 <sup> a</sup>	ND	ND	ND	14 ± 2.4 <sup> c</sup>
Hexanal	2 ± 0.4 <sup> c</sup>	ND	ND	ND	ND	ND	ND	ND	ND	9 ± 0.5 <sup> b</sup>	ND	ND	ND	15 ± 1.3 <sup> a</sup>
2-Phenylpropenal	3 ± 0.7 <sup> d</sup>	11 ± 2.9 <sup> b</sup>	2 ± 0.3 <sup> d</sup>	ND	ND	ND	9 ± 0.5 <sup> c</sup>	ND	ND	11 ± 1.3 <sup> b</sup>	9 ± 1.3 <sup> b</sup>	ND	ND	17 ± 2.3 <sup> a</sup>
Decanal	ND	ND	ND	2 ± 0.6 <sup> d</sup>	ND	ND	7 ± 0.4 <sup> c</sup>	ND	5 ± 0.4 <sup> cd</sup>	13 ± 1.3 <sup> b</sup>	ND	ND	ND	38 ± 5.5 <sup> a</sup>
Octanal	1 ± 0.3 <sup> c</sup>	ND	ND	ND	ND	ND	ND	ND	ND	15 ± 2.8 <sup> b</sup>	ND	ND	ND	38 ± 3.2 <sup> a</sup>
(E)-2-Decenal	ND	ND	ND	ND	ND	ND	ND	ND	ND	29 ± 5.1	ND	ND	ND	ND
(E)-4-Decenal	ND	ND	ND	ND	ND	ND	ND	ND	ND	26 ± 1.5 <sup> b</sup>	ND	ND	ND	72 ± 8.3 <sup> a</sup>
3-Furaldehyde	ND	2 ± 0.5 <sup> c</sup>	4 ± 1.4 <sup> bc</sup>	7 ± 0.6 <sup> b</sup>	ND	ND	ND	ND	ND	ND	12 ± 1.3 <sup> a</sup>	ND	ND	ND
5-Methyl-2-phenylhex-2-enal	ND	61 ± 9.9 <sup> c</sup>	ND	ND	ND	ND	176 ± 12.5 <sup> b</sup>	37 ± 2.5 <sup> c</sup>	74 ± 3.6 <sup> c</sup>	ND	8 ± 1.6 <sup> d</sup>	ND	ND	373 ± 20.8 <sup> a</sup>
Benzeneacetaldehyde	ND	311 ± 6.9 <sup> a</sup>	ND	ND	ND	ND	77 ± 6.9 <sup> c</sup>	ND	ND	ND	190 ± 9.6 <sup> b</sup>	ND	ND	354 ± 25.6 <sup> a</sup>
Nonanal	ND	ND	ND	ND	ND	ND	ND	ND	ND	88 ± 5.0 <sup> b</sup>	ND	ND	ND	141 ± 18.5 <sup> a</sup>
Tetradecanal	ND	ND	ND	ND	ND	ND	ND	ND	ND	83 ± 1.5 <sup> b</sup>	ND	ND	ND	145 ± 1.5 <sup> a</sup>
Ketones														
2,3-Dihydro-3,5-dihydroxy-6-methyl-4H-pyran-4-one	13 ± 1.6 <sup> e</sup>	488 ± 14.5 <sup> a</sup>	123 ± 3.4 <sup> c</sup>	83 ± 4.9 <sup> d</sup>	19 ± 1.3 <sup> e</sup>	15 ± 2.9 <sup> e</sup>	192 ± 19.8 <sup> b</sup>	ND	145 ± 10.4 <sup> c</sup>	ND	79 ± 5.3 <sup> d</sup>	ND	89 ± 2.6 <sup> d</sup>	265 ± 14.9 <sup> b</sup>
2-Heptanone	6 ± 1.2 <sup> b</sup>	ND	ND	ND	ND	ND	ND	ND	ND	3 ± 0.6 <sup> b</sup>	ND	ND	ND	98 ± 5.5 <sup> a</sup>
2-Decanone	7 ± 0.3 <sup> b</sup>	ND	ND	ND	ND	ND	ND	ND	ND	21 ± 3.6 <sup> a</sup>	ND	29 ± 4.3 <sup> a</sup>	ND	21 ± 3.2 <sup> a</sup>
2-Nonanone	9 ± 2.1 <sup> c</sup>	ND	ND	ND	ND	ND	ND	ND	ND	21 ± 2.8 <sup> b</sup>	ND	23 ± 5.7 <sup> ab</sup>	34 ± 5.68 <sup> a</sup>	4 ± 0.3 <sup> c</sup>
2-Octanone	5 ± 0.3 <sup> b</sup>	ND	ND	ND	ND	ND	ND	ND	ND	31 ± 0.0 <sup> a</sup>	ND	37 ± 1.6 <sup> a</sup>	ND	5 ± 0.6 <sup> b</sup>
2,5-Dimethylfuran-3,4(2H,5H)-dione	1 ± 0.1 <sup> d</sup>	33 ± 3.1 <sup> a</sup>	ND	14 ± 1.0 <sup> c</sup>	ND	23 ± 4.4 <sup> b</sup>	ND	ND	ND	ND	ND	ND	ND	ND
2-Pyrrolidinone	3 ± 0.2 <sup> c</sup>	ND	ND	ND	ND	ND	ND	ND	ND	3 ± 0.9 <sup> c</sup>	15 ± 0.3 <sup> a</sup>	15 ± 0.1 <sup> a</sup>	ND	9 ± 0.9 <sup> b</sup>
2-Piperidinone	4 ± 0.1 <sup> d</sup>	ND	ND	ND	660 ± 52.7 <sup> a</sup>	ND	153 ± 11.3 <sup> d</sup>	164 ± 7.8 <sup> d</sup>	148 ± 6.5 <sup> d</sup>	ND	256 ± 2.3 <sup> c</sup>	397 ± 11.9 <sup> b</sup>	ND	169 ± 13.2 <sup> d</sup>
2-Undecanone	2 ± 0.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
5-Methyl-2-hexanone	7 ± 0.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-Geranyl acetone	1 ± 0.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,3-Octandione	ND	ND	ND	ND	ND	ND	ND	ND	ND	14 ± 1.3 <sup> b</sup>	ND	ND	ND	50 ± 3.7 <sup> a</sup>
2-Methyl-3-octanone	ND	ND	ND	ND	ND	ND	ND	ND	ND	20 ± 2.3 <sup> b</sup>	ND	ND	ND	31 ± 4.6 <sup> a</sup>
3,5-Dihydroxy-2-methyl-4H-pyran-4-one	ND	145 ± 14.5 <sup> a</sup>	7 ± 2.3 <sup> c</sup>	42 ± 0.7 <sup> b</sup>	ND	ND	37 ± 2.3 <sup> b</sup>	ND	ND	ND	ND	ND	ND	ND
3-Hydroxy-3-methyl-2-butanone	ND	ND	ND	ND	ND	ND	ND	26 ± 1.3	ND	ND	ND	ND	ND	ND
3-Tridecanone	ND	ND	ND	ND	ND	ND	ND	ND	ND	4 ± 1.5 <sup> b</sup>	ND	10 ± 0.7 <sup> a</sup>	3 ± 0.00 <sup> b</sup>	ND
4-Hydroxy-5-methylfuran-3(2H)-one	ND	162 ± 9.0 <sup> a</sup>	11 ± 2.6	32 ± 9.4	ND	ND	ND	144 ± 9.6	ND	ND	ND	ND	ND	ND
Benzyl methyl ketone	ND	2 ± 0.6 <sup> c</sup>	ND	ND	ND	ND	11 ± 2.6 <sup> b</sup>	6 ± 0.5 <sup> c</sup>	18 ± 0.4 <sup> a</sup>	ND	ND	ND	ND	15 ± 1.2 <sup> a</sup>
Acetophenone	ND	ND	ND	ND	ND	ND	41 ± 5.0 <sup> c</sup>	82 ± 4.5 <sup> b</sup>	21 ± 1.2 <sup> d</sup>	ND	41 ± 8.8 <sup> c</sup>	ND	ND	106 ± 8.5 <sup> a</sup>
Furaneol	ND	ND	ND	ND	ND	ND	75 ± 8.3 <sup> a</sup>	ND	22 ± 4.7 <sup> b</sup>	ND	ND	ND	ND	ND
1-Hydroxy-2-propanone	ND	15 ± 1.8 <sup> b</sup>	8 ± 1.0 <sup> c</sup>	26 ± 2.0 <sup> a</sup>	ND	ND	20 ± 6.0 <sup> b</sup>	ND	ND	ND	ND	ND	ND	19 ± 0.7 <sup> b</sup>
6,10-Dimethyl-5,9-undecadien-2-one	ND	4 ± 1.0 <sup> d</sup>	6 ± 1.0 <sup> c</sup>	8 ± 1.0 <sup> b</sup>	2 ± 0.4 <sup> d</sup>	7 ± 0.0 <sup> c</sup>	7 ± 3.7 <sup> bc</sup>	12 ± 1.7 <sup> b</sup>	5 ± 0.8 <sup> c</sup>	4 ± 0.4 <sup> cd</sup>	36 ± 1.3 <sup> a</sup>	ND	ND	7 ± 1.0 <sup> bc</sup>
Alcohols														
1-Octen-3-ol	8 ± 0.6	ND	ND	ND	ND	ND	ND	ND	ND	6 ± 0.3	ND	ND	ND	ND
Benzylalcohol	4 ± 0.4 <sup> d</sup>	3 ± 1.0 <sup> d</sup>	ND	ND	ND	ND	11 ± 1.2 <sup> c</sup>	10 ± 3.5 <sup> c</sup>	21 ± 1.2 <sup> b</sup>	ND	13 ± 1.3 <sup> c</sup>	ND	ND	65 ± 2.5 <sup> a</sup>
2-Ethylhexanol	2 ± 0.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tridecanol	1 ± 0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
3-Butyn-1-ol	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	11 ± 1.32 <sup> b</sup>	24 ± 3.0 <sup> a</sup>
5-Methyl-2-furanmethanol	ND	50 ± 1.1 <sup> b</sup>	9 ± 1.3 <sup> c</sup>	45 ± 3.6 <sup> b</sup>	ND	ND	11 ± 2.5 <sup> c</sup>	ND	12 ± 0.1 <sup> c</sup>	ND	9 ± 1.2 <sup> c</sup>	ND	ND	112 ± 1.1 <sup> a</sup>
Furfuryl alcohol	ND	6 ± 1.7 <sup> b</sup>	3 ± 1.1 <sup> c</sup>	9 ± 1.6 <sup> a</sup>	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-containing compounds														
Trimethylamine	206 ± 15.4 <sup> a</sup>	ND	ND	ND	ND	2 ± 0.4 <sup> d</sup>	65 ± 1.3 <sup> b</sup>	4 ± 0.4 <sup> d</sup>	ND	ND	25 ± 2.4 <sup> c</sup>	ND	ND	ND
2-Acetyl-1-pyrroline	8 ± 0.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Tab. S2. continued

Compound	Dried shrimp	SAA + MSU					SSU + MAA			TL	MAA + MSU	TL + MAA	TL + MSU	TL + MAA + MSU
		Phe + MSU	Leu + MSU	Ile + MSU	Lys + MSU	Arg + MSU	GLU + MAA	ARA + MAA	GAL + MAA					
	[μg·kg <sup>-1</sup> ]													
2-Acetylpyridine	4 ± 0.3 <sup>b</sup>	28 ± 5.2 <sup>a</sup>	ND	5 ± 0.4 <sup>b</sup>	2 ± 0.3 <sup>c</sup>	4 ± 0.2 <sup>b</sup>	ND	ND	ND	ND	ND	ND	ND	6 ± 3.2 <sup>b</sup>
2-Acetylpyrrole	3 ± 0.4 <sup>b</sup>	ND	4 ± 0.4 <sup>a</sup>	2 ± 0.1 <sup>b</sup>	ND	1 ± 0.4 <sup>c</sup>	ND	ND	ND	ND	ND	ND	ND	ND
2-Phenylpyridine	ND	6 ± 0.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	4 ± 0.8
5-Methyl-2-phenylpyrimidine	ND	ND	ND	ND	ND	ND	12 ± 3.0 <sup>c</sup>	55 ± 6.7 <sup>a</sup>	26 ± 2.9 <sup>b</sup>	ND	ND	ND	ND	ND
Acetamide	ND	2 ± 0.0 <sup>d</sup>	ND	1 ± 0.1 <sup>d</sup>	3 ± 0.1 <sup>d</sup>	31 ± 5.3 <sup>b</sup>	21 ± 3.5 <sup>bc</sup>	18 ± 3.3 <sup>c</sup>	49 ± 1.1 <sup>a</sup>	ND	26 ± 1.6 <sup>b</sup>	ND	ND	45 ± 1.7 <sup>a</sup>
Formamide	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3 ± 0.4	ND	ND	5 ± 0.3
Indole	ND	ND	ND	ND	ND	ND	ND	ND	ND	4 ± 0.2	ND	ND	ND	3 ± 0.4
N,N-Diethyl-2-propyn-1-amine	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2 ± 0.8
Acids														
(E)-3-Decenoic acid	6 ± 0.4 <sup>c</sup>	ND	ND	ND	ND	ND	ND	ND	ND	15 ± 1.3 <sup>b</sup>	ND	ND	ND	44 ± 6.2 <sup>a</sup>
3-Methylbutanoic acid	9 ± 1.7 <sup>d</sup>	ND	51 ± 2.2 <sup>b</sup>	55 ± 0.7 <sup>b</sup>	ND	ND	ND	ND	ND	ND	18 ± 1.4 <sup>c</sup>	17 ± 3.0 <sup>c</sup>	ND	162 ± 11.5 <sup>a</sup>
Acetic acid	11 ± 0.4 <sup>h</sup>	197 ± 7.4 <sup>c</sup>	23 ± 4.3 <sup>g</sup>	25 ± 1.3 <sup>g</sup>	11 ± 5.0 <sup>h</sup>	14 ± 1.5 <sup>gh</sup>	250 ± 10.5 <sup>b</sup>	145 ± 3.7 <sup>d</sup>	128 ± 0.2 <sup>de</sup>	25 ± 2.1 <sup>g</sup>	101 ± 9.9 <sup>e</sup>	46 ± 0.3 <sup>f</sup>	40 ± 2.1 <sup>f</sup>	319 ± 14.8 <sup>a</sup>
Benzoic acid	1 ± 0.2 <sup>d</sup>	48 ± 3.9 <sup>a</sup>	ND	ND	ND	ND	18 ± 0.6 <sup>b</sup>	13 ± 3.1 <sup>bc</sup>	18 ± 1.8 <sup>b</sup>	ND	7 ± 0.5 <sup>c</sup>	5 ± 0.7 <sup>c</sup>	ND	13 ± 3.2 <sup>bc</sup>
Octanoic acid	2 ± 0.1 <sup>c</sup>	ND	ND	ND	ND	ND	ND	ND	ND	5 ± 0.9 <sup>b</sup>	3 ± 1.6 <sup>bc</sup>	ND	ND	13 ± 3.8 <sup>a</sup>
Decanoic acid	3 ± 0.3 <sup>c</sup>	ND	ND	ND	ND	ND	ND	ND	ND	7 ± 0.9 <sup>b</sup>	ND	ND	11 ± 1.0 <sup>b</sup>	35 ± 1.2 <sup>a</sup>
Diethylacetic acid	4 ± 0.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexadecanoic acid	6 ± 0.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pentadecanoic acid	1 ± 0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetradecanoic acid	1 ± 0.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trans-2-decenoic acid	6 ± 0.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
3-Methylpentanoic acid	ND	ND	ND	17 ± 0.6 <sup>b</sup>	ND	ND	17 ± 0.4 <sup>b</sup>	3 ± 0.0 <sup>c</sup>	ND	ND	24 ± 1.6 <sup>b</sup>	ND	ND	81 ± 16.6 <sup>a</sup>
4-Methylpentanoic acid	ND	ND	4 ± 0.9	ND	ND	ND	4 ± 0.4	ND	ND	ND	ND	ND	ND	ND
9-Decenoic acid	ND	ND	ND	ND	ND	ND	ND	ND	ND	12 ± 0.4 <sup>b</sup>	ND	ND	55 ± 3.6 <sup>a</sup>	4 ± 1.1 <sup>c</sup>
Benzeneacetic acid	ND	556 ± 63.9 <sup>a</sup>	ND	ND	ND	ND	37 ± 0.0 <sup>b</sup>	33 ± 3.6 <sup>b</sup>	23 ± 3.1 <sup>c</sup>	ND	19 ± 1.6 <sup>c</sup>	4 ± 0.1 <sup>d</sup>	ND	47 ± 2.1 <sup>b</sup>
Palmitic acid	ND	ND	ND	ND	ND	ND	ND	ND	ND	32 ± 1.7 <sup>b</sup>	ND	ND	111 ± 6.9 <sup>a</sup>	105 ± 11.9 <sup>a</sup>
Hydrocarbons														
Dodecane	23 ± 11.8 <sup>d</sup>	ND	ND	ND	ND	ND	ND	ND	ND	220 ± 2.8 <sup>a</sup>	ND	134 ± 14.6 <sup>b</sup>	150 ± 12.2 <sup>b</sup>	70 ± 0.1 <sup>c</sup>
Heptadecane	1 ± 0.2 <sup>d</sup>	ND	ND	ND	ND	ND	ND	ND	ND	19 ± 1.0 <sup>c</sup>	ND	33 ± 1.4 <sup>ab</sup>	43 ± 2.6 <sup>a</sup>	29 ± 2.3 <sup>b</sup>
Tetradecane	1 ± 0.3 <sup>c</sup>	ND	ND	ND	ND	ND	ND	ND	ND	49 ± 1.2 <sup>a</sup>	ND	59 ± 0.4 <sup>a</sup>	31 ± 1.4 <sup>b</sup>	26 ± 0.5 <sup>b</sup>
Tridecane	8 ± 2.1 <sup>b</sup>	ND	ND	ND	ND	ND	ND	ND	ND	8 ± 3.0 <sup>b</sup>	ND	60 ± 2.3 <sup>a</sup>	ND	52 ± 5.7 <sup>a</sup>
Undecane	9 ± 3.46 <sup>d</sup>	ND	ND	ND	ND	ND	ND	ND	ND	1 231 ± 21.4 <sup>c</sup>	ND	2 852 ± 41.5 <sup>b</sup>	3 223 ± 78.7 <sup>b</sup>	2 980 ± 69.3 <sup>a</sup>
2,6,10,14-Tetramethylpentadecane	3 ± 0.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,6,11-Trimethyltridecane	2 ± 0.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Decane	5 ± 0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pentadecane	1 ± 0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dimethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	12 ± 3.3 <sup>b</sup>	ND	ND	ND	28 ± 2.4 <sup>a</sup>
1-Heptadecene	ND	ND	ND	ND	ND	ND	ND	ND	ND	12 ± 1.4 <sup>b</sup>	ND	52 ± 5.1 <sup>a</sup>	ND	14 ± 1.4 <sup>b</sup>
1-Tridecene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	33 ± 3.5	ND	29 ± 3.5
1-Undecene	ND	ND	ND	ND	ND	ND	ND	ND	ND	143 ± 7.7 <sup>a</sup>	ND	135 ± 2.7 <sup>a</sup>	135 ± 12.1 <sup>a</sup>	16 ± 0.42 <sup>b</sup>
2,3-Dimethylnonane	ND	ND	ND	ND	ND	ND	ND	ND	ND	50 ± 3.7 <sup>a</sup>	ND	55 ± 2.4 <sup>a</sup>	ND	24 ± 2.4 <sup>b</sup>
2,4-Dimethyldecane	ND	ND	ND	ND	ND	ND	ND	ND	ND	5 ± 0.6 <sup>b</sup>	ND	ND	ND	36 ± 6.9 <sup>a</sup>
2,6,11-Trimethyldodecane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	7 ± 0.7 <sup>b</sup>	ND	25 ± 2.3 <sup>a</sup>
4,6-Dimethyldodecane	ND	ND	ND	ND	ND	ND	ND	ND	ND	31 ± 2.5 <sup>b</sup>	ND	38 ± 0.5 <sup>a</sup>	26 ± 2.3 <sup>c</sup>	31 ± 3.5 <sup>b</sup>
4,7-Dimethylundecane	ND	ND	ND	ND	ND	ND	ND	ND	ND	39 ± 3.7 <sup>a</sup>	ND	ND	ND	19 ± 1.0 <sup>b</sup>
4-Methyldodecane	ND	ND	ND	ND	ND	ND	ND	ND	ND	13 ± 1.3 <sup>b</sup>	ND	ND	29 ± 2.4 <sup>a</sup>	11 ± 0.5 <sup>b</sup>
4-Methyloctane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	29 ± 1.1
5-(1-Methylpropyl)nonane	ND	ND	ND	ND	ND	ND	ND	ND	ND	61 ± 1.6 <sup>b</sup>	ND	69 ± 8.6 <sup>b</sup>	86 ± 4.7 <sup>a</sup>	23 ± 2.1 <sup>c</sup>
5-Methyl-5-propylnonane	ND	ND	ND	ND	ND	ND	ND	ND	ND	12 ± 1.7 <sup>a</sup>	ND	15 ± 1.7 <sup>a</sup>	ND	7 ± 2.1 <sup>b</sup>
9-Methyl-1-undecene	ND	ND	ND	ND	ND	ND	ND	ND	ND	18 ± 1.8	ND	ND	24 ± 2.3	ND
Styrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	15 ± 1.9 <sup>c</sup>	132 ± 8.7 <sup>a</sup>	ND	110 ± 10.4 <sup>b</sup>

Different lowercase letters in superscript indicate significant differences in the contents of the same volatile compound (*P* < 0.05). One-way analysis of variance (ANOVA) with Tukey’s post-hoc test was performed using SPSS 23 software (IBM, Armonk, New York, USA) to analyse significant differences (*P* < 0.05, two-tailed).

SAA – single amino acid, SSU – single sugar, MAA – mixed amino acid, MSU – mixed sugar, TL – total lipid, GLU – D-glucose, GAL – D-galactose, ARA – D-arabinose, ND – not determined.