Table S1. Biscuits volatile aroma compounds

Volatile compounds	BCS	BJS	BJP	BGS	BGP	Odour perception
Alcohols						
1-hexanol	n.d.	0.80 ± 0.02^{a}	1.30 ± 0.02^{b}	2.10 ± 0.02^{c}	2.70 ± 0.03^{d}	Green, sweet, herbaceous, fermented note, fruity, apple-skin and oily
Phenol	1.03 ± 0.02	n.d.	n.d.	n.d.	n.d.	Phenol
Total	1.03 ± 0.02^{b}	0.80 ± 002^{a}	1.30 ± 0.02^{bc}	2.10 ± 0.02^{d}	2.70 ± 0.03^{e}	
Esters						
Butyl acetate	n.d.	12.66 ± 0.04^{d}	12.01 ± 0.03^{c}	11.09 ±0.05^{b}	10.23 ± 0.03a	Sweet, ripe banana, ethereal
Hexyl acetate	5.23 ± 0.04^{a}	14.80 ± 0.04^{e}	10.89 ± 0.07^{b}	13.90 ± 0.05^{d}	11.02 ± 0.07^{c}	Fresh, fruity, apple, pear and banana note
2-methylbutyl acetate	0.34 ± 0.03^{a}	3.44 ± 0.22^{b}	3.67 ± 0.21^{b}	4.09 ± 0.04^{c}	5.03 ± 0.03^{d}	Sweet, fruity, ripe banana, pear, apple
Total	5.57 ± 0.07	30.90 ± 0.30	26.57 ± 0.31	29.08 ± 0.15	26.28 ± 0.13	
Aldehydes						
Benzaldehyde	2.90 ± 0.05^{a}	9.99 ± 0.11^{e}	8.05 ± 0.23^{d}	5.03 ± 0.11^{c}	4.08 ± 0.22^{b}	Almond, fruity, powdery, nutty
Hexanal	53.21 ± 0.20^{e}	7.05 ± 0.10^{a}	11.55 ± 0.21^{b}	12.03 ± 0.13^{c}	13.53 ± 0.15^{d}	Intense green, aldehydic odor, off flavor
Nonanal	7.12 ± 0.03^{c}	3.04 ± 0.02^{a}	3.55 ± 0.04^{ab}	7.25 ± 0.05^{c}	8.01 ± 0.06^{d}	Green, floral, sweet orange, rose, waxy
Phenylacetaldehyde	n.d.	6.01 ± 0.05^{a}	6.11 ± 0.09^{a}	6.42 ± 0.04^{a}	6.75 ± 0.05^{ab}	Fatty, fruity, cake crust, bready
Methional	n.d.	1.55 ± 0.03^{a}	2.01 ± 0.21^{b}	3.55 ± 0.07^{c}	5.55 ± 0.08^{d}	Potato, damp
3-methyl-butanal	1.67 ± 0.05^{ab}	4.22 ± 0.03^{e}	3.77 ± 0.22^{d}	2.01 ± 0.11^{c}	1.09 ± 0.13^{a}	Dried fruits, nutty, cocoa, chocolate, fatty
2-methyl-butanal	1.99 ± 0.02^{a}	4.33 ± 0.03^{d}	3.87 ± 0.02^{c}	5.03 ± 0.03^{d}	2.66 ± 0.05^{b}	Malty, cacao, chocolate, coffee, caramellike, nutty, rummy, malty
2-methyl-propanal	0.76 ± 0.03^{a}	1.65 ± 0.02^{b}	2.55 ± 0.04c	1.89 ± 0.05^{b}	3.67± 0.03^{d}	Wine, solvent, malty, fruity
Total	67.57 ± 0.38^{e}	37.84 ± 0.39^{a}	41.46 ± 1.02^{b}	43.21 ± 0.59^{c}	45.34 ± 0.77^{d}	
Ketones						
2-heptanone	0.88 ± 0.13^{a}	13.99 ± 0.22^{e}	13.27 ± 0.37^{d}	11.77 ± 0.03^{c}	10.57 ± 0.33^{b}	Cheese, fruity, ketonic, green banana, with a creamy nuance
Acetophenone	4.30 ± 0.03^{a}	8.75 ± 0.05^{e}	7.77 ± 0.06^{d}	6.11 ± 0.03^{c}	5.21 ± 0.02^{b}	Floral, almond, nutty, must, spicy
Total	5.18 ± 0.16^{a}	22.74 ± 0.27^{e}	21.04 ± 0.43^{d}	17.88 ± 0.06^{c}	15.78 ± 0.35^{b}	
Terpens and terpenoids						

ß -myrcene	0.79 ± 0.02[a]	n.d.	1.39 ± 0.03[b]	n.d.	3.78 ± 0.05[c]	Herbaceous, woody, spice, balsamic
D-limonene	0.69 ± 0.03[b]	2.99 ± 0.04[d]	2.55 ± 0.02[c]	0.30 ± 0.01[a]	0.20 ± 0.02[a]	Citrus, fresh, sweet
Total	1.48 ± 0.05[b]	2.99 ± 0.04[c]	3.94 ± 0.05[d]	0.30 ± 0.01[a]	3.96 ± 0.07[d]	
Acids						
Benzoic acid	15.03 ± 0.22[e]	0.30 ± 0.02[a]	1.64 ±0.03[b]	3.20 ± 0.04[c]	3.67 ± 0.03[d]	Fade balsamic
Total	15.03 ± 0.22[e]	0.30 ± 0.02[a]	1.64 ±0.03[b]	3.20 ± 0.04[c]	3.67 ± 0.03[d]	
Others						
Ethyl 2,4-dioxohexanoate	2.10 ± 0.05[a]	4.50 ±0.03	4.05 ± 0.06[b]	4.23 ± 0.07[b]	2.25 ± 0.05[a]	Apple peel, fruit
Dimethyl disulfide	1.96 ± 0.07	n.d.	n.d.	n.d.	n.d.	Vegetal, sulfurous, cabbage, malt
Total	4.06 ± 0.12[b]	4.50 ±0.03[b]	4.05 ± 0.06[b]	4.23 ± 0.07[b]	2.25 ± 0.05[a]	

Table S2. Used reagents list

Used reagent	Determination	Company, city, country)
Methanol	Fatty acids	Sigma Aldrich (Steinheim, Germany)
Chloroform	Fatty acids	Sigma Aldrich (Steinheim, Germany)
Potassium chloride	Fatty acids	Sigma Aldrich (Steinheim, Germany)
Sodium sulphate	Fatty acids	Sigma Aldrich (Steinheim, Germany)
Trichloroacetic acid	Amino-acids	Sigma Aldrich (Steinheim, Germany)
15N-glycine 99 atom %	Amino-acids	Sigma Aldrich (Steinheim, Germany)