Olfactory Impact of Higher Alcohols on Red Wine Fruity Ester Aroma Expression in Model Solution

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Associated contents.

Table S1: Composition of samples presented for olfactory threshold determination in various matrices.

Compound tested	Test concentrations (mg/L)	Matrix
3MB	1.95 / 3.9 / 7.8 / 15.6 / 31.25 / 62.5 / 125 / 250 / 500 / 1000	Dilute Alcohol Solution Alone/ FR in Dilute Alcohol Solution
B	3.9 / 7.8 / 15.6 / 31.25 / 62.5 / 125 / 250 / 500 / 1000 / 2000	Dilute Alcohol Solution Alone/ FR in Dilute Alcohol Solution

FR: Fruity Reconstitution; 3MB, 3-methylbutan-1-ol; B, butan-1-ol.

Table S2: Composition of samples presented for fruity reconstitution "olfactory threshold" determination in various matrices.

FR diluted in 50 mL matrix (mL)	Matrix
0.1 / 0.2 / 0.4 / 0.8 / 1.6 / 3.1 / 6.3 / 12.5 / 25 / 50	Dilute Alcohol Solution
0.1 / 0.2 / 0.4 / 0.8 / 1.6 / 3.1 / 6.3 / 12.5 / 25 / 50	Dilute Alcohol Solution + 290 mg/L 3 MB
0.1 / 0.2 / 0.4 / 0.8 / 1.6 / 3.1 / 6.3 / 12.5 / 25 / 50	Dilute Alcohol Solution + 2 mg/L B
0.1 / 0.2 / 0.4 / 0.8 / 1.6 / 3.1 / 6.3 / 12.5 / 25 / 50	Dilute Alcohol Solution + 60 mg/L 2 MB + 200 mg/L 3 MB + 50 mg/L 2 MP + 15 mg/L P + 1.3 mg/L B
0.1 / 0.2 / 0.4 / 0.8 / 1.6 / 3.1 / 6.3 / 12.5 / 25 / 50	Dilute Alcohol Solution + 85 mg/L 2 MB + 290 mg/L 3 MB + 80 mg/L 2 MP + 20 mg/L P + 2 mg/L B
0.1 / 0.2 / 0.4 / 0.8 / 1.6 / 3.1 / 6.3 / 12.5 / 25 / 50	Dilute Alcohol Solution + 100 mg/L 2 MB + 350 mg/L 3 MB + 115 mg/L 2 MP + 40 mg/L P + 2.7 mg/L B

FR, Fruity Reconstitution; 2MB, 2-methylbutan-1-ol; 3MB, 3-methylbutan-1-ol; 2MP, 2-methylpropan-1-ol; P, propan-1-ol; B, butan-1-ol.

Table S3: Aromatic reconstitution compared by sensory profiles.

Matrix	Samples Compared		
Dilute Alcohol Solution	FR	290 mg/L 3 MB	FR + 290 mg/L 3 MB
Dilute Alcohol Solution	FR	2 mg/L B	FR + 2 mg/L de B
Dilute Alcohol Solution	FR	HA at medium concentrations	FR + HA at medium concentrations
Dilute Alcohol Solution	FR	HA at low concentrations	FR + HA at low concentrations
Dilute Alcohol Solution	FR	HA at high concentrations	FR + HA at high concentrations
DRW	FR	HA at medium concentrations	FR + HA at medium concentrations
DRW	FR	HA at low concentrations	FR + HA at low concentrations
DRW	FR	HA at high concentrations	FR + HA at high concentrations

HA at low concentrations: 60 mg/L 2 MB + 200 mg/L 3 MB + 50 mg/L 2 MP + 15 mg/L P + 1.3 mg/L B.
HA at medium concentrations: 85 mg/L 2 MB + 290 mg/L 3 MB + 80 mg/L 2 MP + 20 mg/L P + 2 mg/L B.
HA at high concentrations: 100 mg/L 2 MB + 350 mg/L 3 MB + 115 mg/L 2 MP + 40 mg/L P + 2.7 mg/L B.
DRW, Dearomatized red wine; FR, Fruity Reconstitution; HA, Higher Alcohols; 2MB, 2-methylbutan-1-ol; 3MB, 3-methylbutan-1-ol; 2MP, 2-methylpropan-1-ol; P, propan-1-ol; B, butan-1-ol.

Table S4: Determination of the detection probability (p) of fruity reconstitution in dilute alcohol solution supplemented with butan-1-ol (2 mg/l) in the "positive" sample: experimental data and values calculated according to feller's additive model.

p(butan-1-ol) alone	**p(FR) alone**	**p(butan-1-ol + FR) experimental**	**p(FR) calculated according to Feller's additive model**
Before mixture		**After mixture**	
Calculated and fixed	= ((3* proportion of correct responses) - 1) / 2		= p(FR) + p(butan-1-ol) − p(FR) p(butan-1-ol)
0.0040261	-0.1	-0.083	-0.095
0.0040261	0.1	-0.083	0.103
0.0040261	0.4	0.083	0.4027
0.0040261	0.7	0.75	0.701
0.0040261	1	0.833	1
0.0040261	1	0.916	1
0.0040261	1	1	1
0.0040261	1	1	1
0.0040261	1	1	1
0.0040261	1	1	1

FR, Fruity reconstitution.

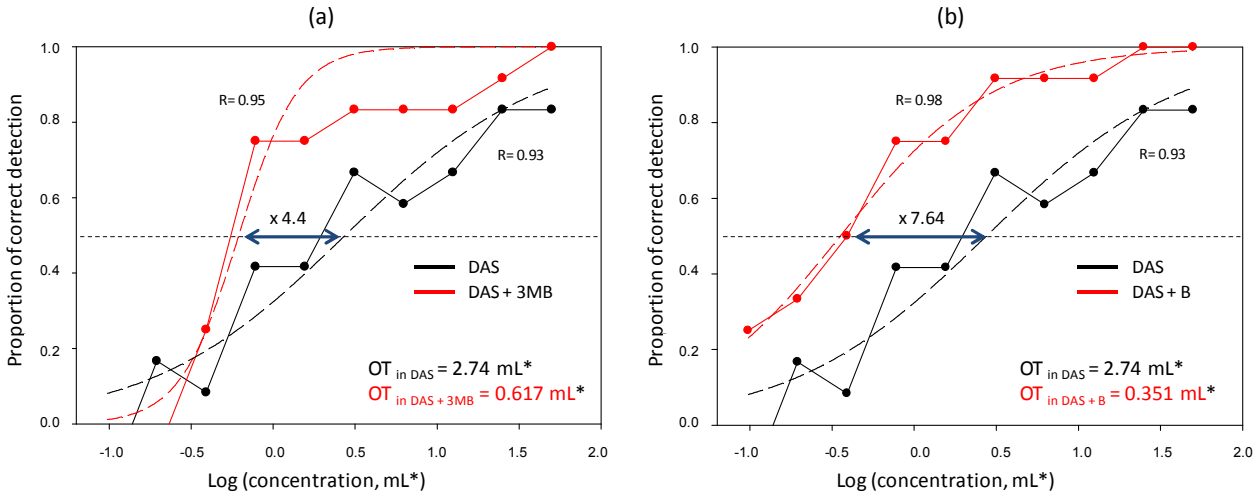

Figure S1: Detection probability of a fruity reconstitution: effect of (a) 3-methylbutan-1-ol (3MB) and (b) butan-1-ol (B) addition on the detection probability of a fruity reconstitution. *expressed in mL total fruity reconstitution (FR) diluted in 50 mL matrix. DAS, Dilute Alcohol Solution. The curves are drawn according to a sigmoid function.

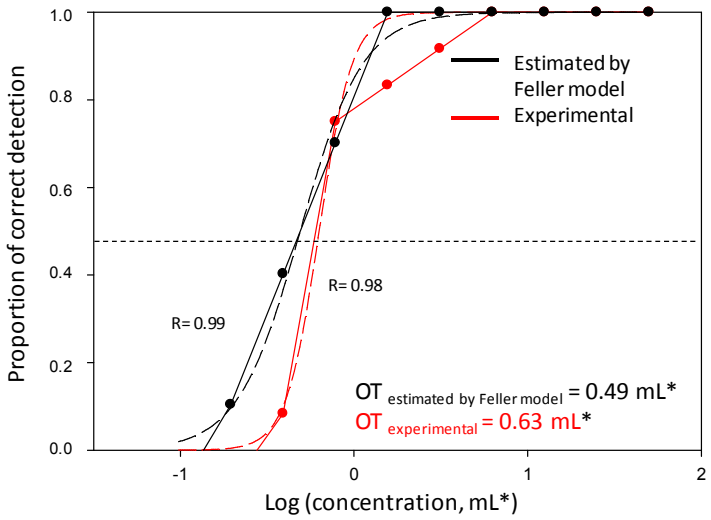

Figure S2: Detection probability of fruity reconstitution determined experimentally and calculated according to feller's additive model. *expressed in mL total fruity reconstitution (FR) diluted in 50 mL matrix.