

Cognitive associations of colours and flavours - and their dependence on peoples' wine, fruit and vegetable consumption

Martina Fink¹, Tom Horvath¹, Andreas Baierl¹, Eva Derndorfer^{2*}

¹University of Vienna, Austria, ²Independent sensory consultant, Austria (*presenting author)

Correspondence to: eva.derndorfer@chello.at

INTRODUCTION

Studies have demonstrated the impact of colour on the sensory perception of products. Furthermore, researchers have sought to find associations between colours and numerous characteristics (amongst them sensory attributes or food-related terms like indulgence or gluttony) by means of questionnaires.

In wine business, colour plays an important role in sensory description of the product and in label design. Therefore, we investigated associations between (wine) colours and sensory attributes.

MATERIALS & METHODS

An online questionnaire which contained 4 differently coloured areas was answered by 123 students from different universities. Green and red were chosen to resemble the colour of white and red wine.



RGB colour codes: F8F6C3 (yellow), 8CCB5E (green), 800000 (red), 99FFFF (blue)

Respondents were first asked which taste/flavour they associated with each colour in an open question. Then they had to rank each colour for 19 sensory attributes – most of them commonly used to describe wines, but not all for distraction. In the third part of the questionnaire, respondents were asked to name a food or drink which they associated with each colour. We captured student's wine, fruit and vegetable intake to ascertain if associations relate to consumption patterns.

RESULTS

Most common **open associations** with yellow were sweet, creamy and mild. Green was thought to be sour, fresh and fruity, whereas red was associated with hot, bitter, sweet, fruity and winey. Blue was perceived artificial, fresh, sweet and neutral.

In the **ranking task**, respondents related red with winey, spicy, burnt, earthy and woody. Green was not as highly associated with specific terms, the lowest mean ranks were given to winey, putrid and fruity. Yellow was frequently related to sweet, fat, milk and yeast. Blue had the lowest rank with metallic and artificial. Mean ranks in table below.

	yellow	green	red	blue
1	sweet (31*)	sour (27)	spicy-hot (21)	artificial (20)
2	creamy (13)	fresh (22)	bitter (12)	fresh (18)
3	mild (11)	fruity (11)	sweet (12)	sweet (15)
4	milky (7)	apple (8)	fruity (10)	neutral (13)
5	vanilla (7)	vegetable (7)	winey (10)	watery (8)
6	sour (6)	bitter (6)	tart (6)	salty (8)
7	-	sweet (5)	cherry (6)	-
8	-	-	spicy (5)	-

(*) Numbers in brackets represent numbers of respondents with the given associations

Food and drink associations with colours were:

- Yellow: dairy products (30*), vanilla (18), fruits (13)
- Green: vegetables (32), apple (30), other fruits (22), Salad (18)
- Red: wine (33), meat (17), berries (10), cherries (10), chocolate (8), chili (8)
- Blue: water (31), ice-cream (28)

	yellow	green	red	blue
sweet	1,9	2,71	2,49	2,9
sour	2,63	2,18	2,77	2,41
bitter	2,6	2,19	2,62	2,59
salty	2,27	2,42	2,83	2,48
winey	2,68	2,12	1,64	3,55
metallic	2,98	2,76	2,41	1,85
fat	1,54	2,78	2,5	3,18
flowery	2,28	2,31	2,55	2,85
putrid	2,47	2,12	2,37	3,04
fruity	2,55	2,14	2,33	2,98
spicy	2,89	2,24	1,93	2,94
burnt	2,8	2,27	1,82	3,11
woody	2,13	2,27	2,01	3,59
earthy	2,35	2,22	1,78	3,65
artificial	3,25	2,43	2,63	1,69
milky	1,14	2,98	3,05	2,83
yeasty	1,34	2,58	2,87	3,21
nutty	2	2,3	2,07	3,63

We found respondent's consumption patterns of wine, fruit and vegetables to influence their colour-flavour associations.

