

# Red wines from consecrated wine-growing area: aromas evolution under indigenous and commercial yeasts

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**Table S1.** Total polyphenolic content (TPC), total anthocyanins (TA) and antioxidant activity (DPPH and TEAC)  
in wine samples obtained by using commercial and indigenous cultured yeasts

Determination	Yeast	Wine				
		Pinot noir	Feteasca neagra	Burgund mare	Syrah	Novac
TPC (mg GAE/L)	ESFC	1723.7±10.2	1803.4±10.8	1528.7±7.9	2121.1±15.8	1699.5±8.6
	VS	1529.7±8.5	1777.5±9.7	1621.6±8.1	2027.4±12.3	1623.8±8.3
	SCR297	1799.7±10.8	1822.1±11.1	1569.2±7.2	2201.9±17.4	1705.3±7.9
	SCR462	1803.7±10.9	1873.4±12.3	1598.8±7.2	2028.3±12.4	1709.5±7.9
TA (mg equivalent Oenin/L)	ESFC	84.7±1.3	86.3±1.4	69.1±1.2	111.2±1.8	101.4±1.5
	VS	77.3±1.1	72.7±1.3	64.7±1.1	129.7±1.9	81.7±1.3
	SCR297	91.5±1.6	95.3±1.5	56.9±0.9	134.9±2.1	93.2±1.4
	SCR462	89.2±1.4	89.9±1.2	64.5±1.1	108.2±1.5	99.5±1.4
DPPH radical scavenging activity (%)	ESFC	77.7±0.04	65.2±0.02	69.4±0.02	73.3±0.02	77.8±0.02
	VS	92.3±0.03	87.3±0.03	70.5±0.02	69.7±0.02	72.5±0.02
	SCR297	82.3±0.02	93.1±0.04	88.1±0.03	82.1±0.03	71.6±0.02
	SCR462	96.8±0.03	88.5±0.03	93.4±0.04	67.8±0.02	70.7±0.02
TEAC (mmol equivalent Trolox/L)	ESFC	7.72±0.01	6.52±0.01	6.78±0.01	6.99±0.01	7.88±0.01
	VS	9.31±0.03	8.69±0.02	6.83±0.01	7.56±0.02	7.34±0.01
	SCR297	8.34±0.02	9.04±0.03	7.49±0.02	8.27±0.03	7.56±0.01
	SCR462	9.73±0.03	8.67±0.02	9.54±0.03	6.34±0.01	7.77±0.01

All determinations were made in triplicates, the results being their average (n=3).

Table S2. Volatile compounds in Pinot noir wine

Volatile compounds (µg/L)	Code	Aroma	Yeast							
			ESFC	±SD	VS	±SD	SCR297	±SD	SCR462	±SD
tyrosol	V1	fusel	896.32	34.12	732.66	30.17	866.14	28.14	913.61	31.22
4-vinylguaiacol	V2	spicy, vanillin	1770.54	46.06	1450.12	36.08	5627.34	93.36	4336.57	81.64
<b>Total volatile phenols</b>			<b>2666.86</b>	<b>80.18</b>	<b>2182.78</b>	<b>76.23</b>	<b>6493.48</b>	<b>74.20</b>	<b>5250.18</b>	<b>77.28</b>
1-hexanol	A1	floral	1126.13	55.12	914.76	44.73	1223.12	59.81	1345.63	65.80
2,3-butandiol	A2	fruit, sweet	929.32	27.01	857.91	17.91	1019.08	21.21	999.97	24.09
2-nonanol	A3	fatty	54.24	7.11	37.93	7.01	44.65	4.43	65.15	6.37
2-pentanol	A4	balsamic, fruity	208.77	13.12	195.68	14.1	213.42	10.93	256.71	11.35
2-phenyl ethanol	A5	spice, honey, rose	6721.34	65.56	6667.77	63.33	7000.01	49.34	6899.35	55.18
3-methylthio-1-propanol	A6	meaty	101.21	21.08	97.88	17.16	121.14	18.02	106.82	18.07
benzyl alcohol	A7	fruit, rose, cherry	65.77	3.01	78.81	3.11	56.34	3.97	61.27	2.89
e-3-hexenol	A8	floral, green	10.11	1.02	9.27	1.01	7.21	1.00	8.23	1.00
isopentyl alcohol	A9	fusel, alcohol	5679.25	87.91	4578.18	87.91	5897.27	87.91	5079.22	87.91
beta-linalool	A10	flowery, lavender	98.22	15.76	45.63	8.18	68.61	9.73	77.35	9.72
n-amyl alcohol	A11	sweet	367.73	15.67	413.12	11.27	432.18	13.75	433.01	13.13
n-propanol	A12	rubbing alcohol	297.88	12.39	278.07	10.44	234.39	10.35	251.94	11.27
terpineol	A13	pine	7.27	0.99	6.78	0.91	7.88	0.89	7.98	0.56
trans-geraniol	A14	sweet, rose	0.75	0.01	0.97	0.01	0.99	0.01	0.81	0.01
<b>Total alcohols</b>			<b>15667.99</b>	<b>325.76</b>	<b>14182.76</b>	<b>286.20</b>	<b>16326.29</b>	<b>281.96</b>	<b>15593.44</b>	<b>286.66</b>
3-nonenic acid, ethyl ester	E1	cucumber	67.12	6.03	62.34	5.09	68.91	4.33	77.34	4.96
ethyl cinnamate	E2	cinnamon, camphor	125.67	17.81	132.61	15.39	149.23	15.11	154.55	16.05
phenyl acetate	E3	honey, rose, floral	456.78	23.54	567.22	20.16	896.73	21.33	504.23	20.04
ethyl lactate	E4	sharp tart fruity	32.33	2.34	45.27	2.39	29.14	2.55	31.27	2.78
diethyl succinate	E5	fruity, quince	435.55	37.81	567.88	32.55	566.92	27.49	1203.12	30.01
ethyl hexanoate	E6	cheeses, banana	314.34	27.90	297.12	28.00	322.34	25.22	213.39	25.44
ethyl butyrate	E7	coconut	123.45	8.99	137.88	8.13	167.42	7.29	151.09	8.02
ethyl decanoate	E8	fruity, pungent	209.88	10.11	198.70	11.01	156.77	10.19	177.63	9.15
<b>Total esters</b>			<b>1765.12</b>	<b>134.42</b>	<b>2009.02</b>	<b>122.72</b>	<b>2357.46</b>	<b>113.51</b>	<b>2512.62</b>	<b>116.45</b>
butandioic acid	F1	rank	nd		nd		1.02	0.01	nd	
butyric acid	F2	cheese	5.67	0.26	5.32	0.15	6.71	0.12	5.63	0.21
caprylic acid	F3	orange	567.44	45.62	489.45	44.65	555.55	49.32	501.97	40.18
decanoic acid	F4	floral	207.83	17.81	299.12	12.88	289.91	13.17	301.34	14.52
hexanoic acid	F5	cheese, baked potato, oil	1234.51	77.89	908.99	72.12	1103.43	56.99	893.62	57.24
isovaleric acid	F6	cheese	607.88	43.14	784.23	35.16	518.97	43.19	555.51	41.11
octanoic acid	F7	floral	1578.92	63.23	1709.99	68.22	1893.16	65.78	1712.31	66.29
<b>Total fatty acids</b>			<b>4202.25</b>	<b>247.95</b>	<b>4197.10</b>	<b>233.18</b>	<b>4368.75</b>	<b>228.58</b>	<b>3970.38</b>	<b>219.55</b>
<b>Total volatiles</b>			<b>24302.22</b>	<b>788.31</b>	<b>22571.66</b>	<b>718.33</b>	<b>29545.98</b>	<b>698.25</b>	<b>27326.62</b>	<b>699.94</b>

Table S3. Volatile compounds in Feteasca neagra wine

Volatile compounds (µg/L)	Code	Aroma	Yeast							
			ESFC	±SD	VS	±SD	SCR297	±SD	SCR462	±SD
tyrosol	V1	fusel	860.59	30.11	840.23	31.48	755.18	29.50	813.78	31.81
4-vinylguaiacol	V2	spicy, vanillin	1775.01	50.18	1549.21	58.14	5589.44	49.15	4124.69	51.38
<b>Total volatile phenols</b>			<b>2635.60</b>	<b>80.29</b>	<b>2389.44</b>	<b>89.62</b>	<b>6344.62</b>	<b>78.65</b>	<b>4938.47</b>	<b>83.19</b>
1-hexanol	A1	floral	1084.29	59.77	955.50	45.02	1439.34	50.01	1533.14	50.84
2,3-butandiol	A2	fruit, sweet	879.49	20.12	900.11	29.92	1160.01	32.23	955.57	19.01
2-nonanol	A3	fatty	57.58	5.19	31.06	5.99	37.84	5.00	65.55	6.35
2-pentanol	A4	balsamic, fruity	222.66	13.03	170.54	12.09	257.07	10.03	280.59	8.53
2-phenyl ethanol	A5	spice, honey, rose	6799.06	61.25	6800.05	73.54	7089.69	53.58	6665.60	30.59
3-methylthio-1-propanol	A6	meaty	119.47	28.74	85.65	18.80	128.61	20.02	119.39	18.10
benzyl alcohol	A7	fruit, rose, cherry	60.11	3.19	79.52	4.12	65.91	4.12	55.75	3.16
e-3-hexenol	A8	floral, green	20.12	1.15	7.55	1.12	8.32	1.26	5.78	0.89
isopentyl alcohol	A9	fusel, alcohol	5487.87	82.49	5020.11	70.89	5777.58	80.54	4999.18	79.81
beta-linalool	A10	flowery, lavender	101.01	17.05	39.87	7.85	62.44	8.36	81.97	8.57
n-amyl alcohol	A11	sweet	370.06	18.80	458.01	10.40	429.25	12.61	420.91	15.04
n-propanol	A12	rubbing alcohol	301.02	15.01	288.27	13.55	254.50	12.84	270.03	15.58
terpineol	A13	pine	9.01	1.01	4.99	1.02	7.02	0.98	9.05	0.23
trans-geraniol	A14	sweet, rose	0.59	0.09	0.29	0.10	0.86	0.03	0.79	0.03
<b>Total alcohols</b>			<b>15512.34</b>	<b>327.16</b>	<b>14841.52</b>	<b>294.41</b>	<b>16718.44</b>	<b>291.61</b>	<b>15463.30</b>	<b>256.73</b>
3-nonenoic acid, ethyl ester	E1	cucumber	70.22	8.13	59.19	3.87	71.48	5.83	72.14	4.89
ethyl cinnamate	E2	cinnamon, camphor	130.04	14.89	123.58	16.19	156.62	17.23	155.44	19.58
phenyl acetate	E3	honey, rose, floral	440.84	19.59	562.88	17.37	900.52	25.98	514.27	15.99
ethyl lactate	E4	sharp tart fruity	33.44	1.89	60.12	1.27	30.54	1.56	33.65	2.62
diethyl succinate	E5	fruity, quince	470.36	41.85	577.72	28.70	600.02	21.70	1305.38	31.54
ethyl hexanoate	E6	cheeses, banana	311.12	32.50	301.81	27.67	359.11	29.13	232.64	20.23
ethyl butyrate	E7	coconut	139.04	10.11	140.25	5.89	171.48	6.30	147.17	7.45
ethyl decanoate	E8	fruity, pungent	210.10	11.09	200.24	15.62	145.23	19.01	169.98	7.61
<b>Total esters</b>			<b>1805.16</b>	<b>140.05</b>	<b>2025.79</b>	<b>116.58</b>	<b>2435.00</b>	<b>126.74</b>	<b>2630.67</b>	<b>109.91</b>
butandioic acid	F1	rank	nd		nd		1.12	0.02	nd	
butyric acid	F2	cheese	6.54	0.31	5.69	0.12	6.82	0.09	5.71	0.23
caprylic acid	F3	orange	570.39	50.61	476.19	45.90	570.19	51.88	505.07	37.76
decanoic acid	F4	floral	210.01	18.11	288.50	11.01	299.23	15.14	311.55	12.19
hexanoic acid	F5	cheese, baked potato, oil	1358.12	80.24	911.20	71.59	1112.68	59.37	870.94	61.12
isovaleric acid	F6	cheese	617.51	41.58	790.51	36.17	515.58	43.51	551.82	43.54
octanoic acid	F7	floral	1660.50	67.71	1799.10	70.07	1753.29	65.66	1659.69	70.58
<b>Total fatty acids</b>		fusel	<b>4423.07</b>	<b>258.56</b>	<b>4271.19</b>	<b>234.86</b>	<b>4258.91</b>	<b>235.65</b>	<b>3904.78</b>	<b>225.42</b>
<b>Total volatiles</b>			<b>24376.17</b>	<b>806.06</b>	<b>23527.94</b>	<b>735.47</b>	<b>29756.97</b>	<b>732.65</b>	<b>26937.22</b>	<b>675.25</b>

Table S4. Volatile compounds in Burgund mare wine

Volatile compounds (µg/L)	Code	Aroma	Yeast							
			ESFC	±SD	VS	±SD	SCR297	±SD	SCR462	±SD
tyrosol	V1	fusel	880.59	36.50	699.87	32.59	878.67	30.52	897.78	29.59
4-vinylguaiacol	V2	spicy, vanillin	1800.12	49.10	1500.43	43.91	5484.21	49.59	4401.02	43.25
<b>Total volatile phenols</b>			<b>2680.71</b>	<b>85.60</b>	<b>2200.30</b>	<b>76.50</b>	<b>6362.88</b>	<b>80.11</b>	<b>5298.80</b>	<b>72.84</b>
1-hexanol	A1	floral	1112.91	60.39	920.34	50.15	1332.55	49.22	1421.59	47.82
2,3-butandiol	A2	fruit, sweet	959.16	32.72	898.86	20.11	1020.91	36.11	970.99	25.97
2-nonanol	A3	fatty	50.20	9.08	41.06	6.21	47.69	4.55	60.59	6.49
2-pentanol	A4	balsamic, fruity	211.12	17.02	200.03	17.09	199.46	9.97	252.69	15.32
2-phenyl ethanol	A5	spice, honey, rose	6771.22	63.65	6785.20	60.05	6998.01	50.55	6999.06	54.49
3-methylthio-1-propanol	A6	meaty	111.21	20.99	96.76	19.28	125.87	20.23	116.01	18.12
benzyl alcohol	A7	fruit, rose, cherry	70.81	3.11	79.08	2.88	60.94	4.01	64.57	3.59
e-3-hexenol	A8	floral, green	12.58	1.12	7.56	1.11	7.89	0.90	7.64	1.50
isopentyl alcohol	A9	fusel, alcohol	5578.51	90.90	4678.59	84.59	5901.59	90.05	5180.12	89.26
beta-linalool	A10	flowery, lavender	95.01	18.51	44.45	8.92	70.56	9.59	75.55	11.12
n-amyl alcohol	A11	sweet	370.70	20.66	401.15	11.55	433.79	17.33	402.52	10.18
n-propanol	A12	rubbing alcohol	302.58	10.34	270.51	9.82	240.56	10.68	272.91	10.55
terpineol	A13	pine	7.30	0.58	7.02	0.89	8.13	0.71	7.88	0.73
trans-geraniol	A14	sweet, rose	0.69	0.01	0.89	0.01	0.88	0.03	0.79	0.02
<b>Total alcohols</b>			<b>15654.00</b>	<b>349.08</b>	<b>14431.50</b>	<b>292.66</b>	<b>16448.83</b>	<b>303.93</b>	<b>15832.91</b>	<b>295.16</b>
3-nonenoic acid, ethyl ester	E1	cucumber	71.15	5.78	59.44	5.57	71.23	3.99	81.58	4.69
ethyl cinnamate	E2	cinnamon, camphor	132.55	20.01	128.88	15.72	152.63	13.86	155.11	19.21
phenyl acetate	E3	honey, rose, floral	463.38	20.94	570.49	21.57	901.27	19.20	512.43	22.24
ethyl lactate	E4	sharp tart fruity	30.58	1.81	50.67	1.76	32.31	2.42	28.78	3.12
diethyl succinate	E5	fruity, quince	455.91	41.02	571.20	30.77	570.53	31.74	1214.92	28.56
ethyl hexanoate	E6	cheeses, banana	317.11	29.99	301.10	30.21	316.22	31.62	202.30	21.87
ethyl butyrate	E7	coconut	131.28	9.00	140.01	5.87	170.25	8.11	148.58	8.35
ethyl decanoate	E8	fruity, pungent	215.55	13.01	201.07	13.49	163.07	19.01	180.67	11.17
<b>Total esters</b>			<b>1817.51</b>	<b>141.56</b>	<b>2022.86</b>	<b>124.96</b>	<b>2377.51</b>	<b>129.95</b>	<b>2524.37</b>	<b>119.21</b>
butandioic acid	F1	rank	nd		nd		1.13	0.05	nd	
butyric acid	F2	cheese	5.11	0.12	4.88	0.24	7.01	0.21	6.78	0.32
caprylic acid	F3	orange	571.97	42.84	500.26	47.28	572.31	46.57	522.34	43.97
decanoic acid	F4	floral	211.20	23.26	302.94	15.01	299.51	13.28	291.64	17.25
hexanoic acid	F5	cheese, baked potato, oil	1331.55	81.41	916.34	75.51	1155.63	59.49	900.10	61.22
isovaleric acid	F6	cheese	620.73	49.71	772.94	41.50	498.77	39.99	584.53	43.53
octanoic acid	F7	floral	1581.24	59.67	1684.67	70.76	1901.95	70.31	1889.39	68.71
<b>Total fatty acids</b>			<b>4321.80</b>	<b>257.01</b>	<b>4182.03</b>	<b>250.30</b>	<b>4436.31</b>	<b>229.90</b>	<b>4194.78</b>	<b>235.00</b>
<b>Total volatiles</b>			<b>24474.02</b>	<b>833.25</b>	<b>22836.69</b>	<b>744.42</b>	<b>29625.53</b>	<b>743.89</b>	<b>27850.86</b>	<b>722.21</b>

Table S5. Volatile compounds in Syrah wine

Volatile compounds (µg/L)	Code	Aroma	Yeast							
			ESFC	±SD	VS	±SD	SCR297	±SD	SCR462	±SD
tyrosol	V1	fusel	806.67	27.18	598.06	27.55	453.98	22.11	619.66	33.12
4-vinilguaiaicol	V2	spicy, vanillin	1560.24	42.23	1251.19	45.26	1922.31	48.45	1735.51	42.19
<b>Total volatile phenols</b>			<b>2366.91</b>	<b>69.41</b>	<b>1849.25</b>	<b>72.81</b>	<b>2376.29</b>	<b>70.56</b>	<b>2355.17</b>	<b>75.31</b>
1-hexanol	A1	floral	1226.73	53.19	1015.71	33.92	1003.94	38.31	1247.53	46.18
2,3-butandiol	A2	fruit, sweet	913.36	24.03	952.51	15.31	716.78	20.19	884.91	25.11
2-nonanol	A3	fatty	53.29	6.13	49.22	7.00	48.67	4.48	39.24	3.35
2-pentanol	A4	balsamic, fruity	212.34	12.19	205.44	12.15	267.05	12.13	255.31	10.31
2-phenyl ethanol	A5	spice, honey, rose	7701.39	68.06	6997.72	68.31	7011.91	42.37	7219.45	56.22
3-methylthio-1-propanol	A6	meaty	81.29	31.16	99.27	18.76	104.04	12.28	99.92	13.79
benzyl alcohol	A7	fruit, rose, cherry	66.71	3.21	56.89	3.58	76.14	3.77	71.67	3.19
e-3-hexenol	A8	floral, green	15.12	1.01	12.29	1.0	14.67	1.05	13.93	1.02
isopentyl alcohol	A9	fusel, alcohol	6609.05	81.21	5572.27	83.39	6007.14	77.27	5945.29	80.31
beta-linalool	A10	flowery, lavender	99.29	14.56	79.33	8.88	88.69	8.43	82.75	8.71
n-amyl alcohol	A11	sweet	297.55	17.17	315.28	10.21	338.13	11.35	303.77	11.11
n-propanol	A12	rubbing alcohol	304.56	10.31	288.97	9.75	289.75	10.19	301.22	10.25
terpineol	A13	pine	7.25	0.95	7.79	0.94	8.08	0.81	8.12	0.55
trans-geraniol	A14	sweet, rose	0.69	0.01	0.77	0.01	0.66	0.01	0.59	0.01
<b>Total alcohols</b>			<b>1758.62</b>	<b>323.19</b>	<b>15653.46</b>	<b>273.21</b>	<b>15975.65</b>	<b>243.04</b>	<b>16473.70</b>	<b>270.11</b>
3-nonenoic acid, ethyl ester	E1	cucumber	62.19	6.01	53.23	5.01	45.25	3.39	42.19	4.05
ethyl cinnamate	E2	cinnamon, camphor	75.64	13.21	69.69	10.59	77.23	10.10	74.53	11.15
phenyl acetate	E3	honey, rose, floral	652.18	25.58	667.81	23.26	693.17	21.03	624.23	20.19
ethyl lactate	E4	sharp tart fruity	39.36	2.54	49.21	2.74	41.27	2.53	39.87	2.38
diethyl succinate	E5	fruity, quince	555.55	38.82	592.25	30.13	896.34	29.16	808.88	27.11
ethyl hexanoate	E6	cheeses, banana	334.39	21.91	397.15	28.12	402.19	28.36	415.31	25.14
ethyl butyrate	E7	coconut	83.49	5.09	97.12	6.31	68.49	7.09	45.72	5.06
ethyl decanoate	E8	fruity, pungent	219.23	9.19	238.14	12.17	192.34	10.09	158.65	9.95
<b>Total esters</b>			<b>2022.03</b>	<b>122.35</b>	<b>2164.60</b>	<b>118.33</b>	<b>2416.28</b>	<b>111.75</b>	<b>2209.38</b>	<b>105.03</b>
butandioic acid	F1	rank	nd		nd		nd		nd	
butyric acid	F2	cheese	7.61	0.16	7.38	0.19	6.77	0.11	7.28	0.22
caprylic acid	F3	orange	598.48	40.45	589.16	40.21	605.14	41.39	603.99	35.56
decanoic acid	F4	floral	221.22	15.88	301.76	14.89	288.54	12.19	276.41	13.59
hexanoic acid	F5	cheese, baked potato, oil	984.53	70.81	900.16	70.11	1101.33	60.29	1007.44	67.13
isovaleric acid	F6	cheese	812.81	46.34	799.53	39.76	719.94	40.19	775.51	49.15
octanoic acid	F7	floral	1277.95	60.93	1512.25	65.28	1561.28	65.71	1532.11	60.21
<b>Total fatty acids</b>			<b>3902.60</b>	<b>234.57</b>	<b>4110.24</b>	<b>230.44</b>	<b>4283.00</b>	<b>219.88</b>	<b>4202.74</b>	<b>225.86</b>
<b>Total volatiles</b>			<b>25880.16</b>	<b>749.52</b>	<b>23777.55</b>	<b>694.79</b>	<b>25051.22</b>	<b>645.23</b>	<b>25240.99</b>	<b>676.31</b>

Table S6. Volatile compounds in Novac wine

Volatile compounds (µg/L)	Code	Aroma	Yeast							
			ESFC	±SD	VS	±SD	SCR297	±SD	SCR462	±SD
tyrosol	V1	fusel	1006.45	30.18	1032.31	30.22	1005.84	29.54	999.89	30.02
4-vinylguaiacol	V2	spicy, vanillin	3371.51	66.27	3414.19	45.28	2637.38	41.03	2331.15	36.33
<b>Total volatile phenols</b>			<b>4377.96</b>	<b>96.45</b>	<b>4446.50</b>	<b>75.50</b>	<b>3643.22</b>	<b>70.57</b>	<b>3331.04</b>	<b>66.35</b>
1-hexanol	A1	floral	1118.19	45.17	1115.72	41.69	1113.73	39.39	1333.21	40.31
2,3-butandiol	A2	fruit, sweet	822.39	25.11	897.94	17.51	889.55	20.25	870.45	20.19
2-nonanol	A3	fatty	74.29	8.13	67.66	7.31	89.60	9.13	85.82	9.31
2-pentanol	A4	balsamic, fruity	145.71	10.12	134.29	11.1	113.95	10.95	126.41	10.15
2-phenyl ethanol	A5	spice, honey, rose	3421.78	45.50	3467.32	34.31	4560.41	32.34	4891.44	39.11
3-methylthio-1-propanol	A6	meaty	131.72	22.03	127.89	17.96	99.15	12.12	116.45	19.17
benzyl alcohol	A7	fruit, rose, cherry	66.25	3.05	88.37	3.27	106.32	6.12	91.67	2.29
e-3-hexenol	A8	floral, green	10.19	1.01	10.29	1.01	11.12	1.02	11.23	1.02
isopentyl alcohol	A9	fusel, alcohol	6609.21	88.31	6573.11	89.21	6821.29	89.93	6071.72	77.76
beta-linalool	A10	flowery, lavender	58.27	10.71	49.68	8.11	58.65	9.03	57.48	8.75
n-amyl alcohol	A11	sweet	344.71	12.61	403.34	11.21	339.19	12.71	333.34	10.23
n-propanol	A12	rubbing alcohol	357.84	10.77	308.12	10.49	335.47	10.39	325.99	10.62
terpineol	A13	pine	4.25	0.59	5.36	0.63	5.81	0.57	6.08	0.51
trans-geraniol	A14	sweet, rose	nd		0.17	0.01	0.51	0.01	0.28	0.01
<b>Total alcohols</b>			<b>13164.80</b>	<b>283.11</b>	<b>13249.26</b>	<b>253.82</b>	<b>14544.75</b>	<b>253.96</b>	<b>14321.57</b>	<b>249.43</b>
3-nonenic acid, ethyl ester	E1	cucumber	21.15	2.45	25.35	3.13	16.27	3.33	19.39	2.92
ethyl cinnamate	E2	cinnamon, camphor	34.17	4.84	45.41	5.39	39.27	3.54	50.16	10.05
phenyl acetate	E3	honey, rose, floral	336.72	20.17	467.92	15.19	499.75	11.31	404.68	13.05
ethyl lactate	E4	sharp tart fruity	30.32	2.14	38.38	2.49	29.18	2.02	31.96	2.34
diethyl succinate	E5	fruity, quince	495.23	32.21	507.19	25.55	506.42	23.29	555.15	31.21
ethyl hexanoate	E6	cheeses, banana	319.64	25.31	299.11	28.21	345.35	26.32	313.77	25.97
ethyl butyrate	E7	coconut	126.49	9.91	131.28	7.15	147.44	7.29	141.66	8.16
ethyl decanoate	E8	fruity, pungent	201.15	9.31	178.71	13.04	186.22	10.34	179.83	9.45
<b>Total esters</b>			<b>1564.87</b>	<b>106.34</b>	<b>1693.35</b>	<b>100.15</b>	<b>1769.90</b>	<b>87.44</b>	<b>1696.60</b>	<b>103.15</b>
Butandioic acid	F1	rank	nd		nd		nd		nd	
butyric acid	F2	cheese	5.33	0.11	5.43	0.11	7.15	0.12	6.68	0.11
caprylic acid	F3	orange	607.42	45.12	689.49	41.65	695.27	49.12	621.57	35.12
decanoic acid	F4	floral	202.53	17.31	209.52	11.84	209.99	13.07	201.39	13.32
hexanoic acid	F5	cheese, baked potato, oil	939.78	70.19	909.99	70.11	1101.11	55.75	993.99	57.29
isovaleric acid	F6	cheese	589.81	41.00	604.20	35.34	618.22	40.22	605.59	40.12
octanoic acid	F7	floral	1672.91	60.43	1701.23	68.42	1795.24	61.39	1795.31	61.29
<b>Total fatty acids</b>			<b>4017.78</b>	<b>234.16</b>	<b>4119.86</b>	<b>227.47</b>	<b>4426.98</b>	<b>219.67</b>	<b>4224.53</b>	<b>207.25</b>
<b>Total volatiles</b>			<b>23125.41</b>	<b>720.06</b>	<b>23508.97</b>	<b>656.94</b>	<b>24384.85</b>	<b>631.61</b>	<b>23573.74</b>	<b>626.18</b>