Supplementary Material

# Supplementary Table

Supplementary Table 1. Organic volatile compounds of *S. cerevisiae* identified by SPME-GC-MS on a DB-WAX column.

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| --- | --- | --- | --- | --- | --- |
| **Compounds** | **CAS** | **RT** | **RIcalc** | **RIpub** | **References** |
| ethyl acetate | 141-78-6 | 4.881 | 879.77 | 880 | 1 |
| unknown-1 | unknown-1 | 4.496 | 901.72 |  |  |
| 3-methylbutanal | 590-86-3 | 5.24 | 921.14 | 921 | 2 |
| unknown-2 | unknown-2 | 5.428 | 936.84 |  |  |
| ethanol | 64-17-5 | 5.555 | 947.45 | 947 | 3 |
| butane-2,3-dione | 431-03-8 | 5.858 | 972.77 | 971 | 4 |
| propan-1-ol | 71-23-8 | 6.735 | 1041.65 | 1942 | 5 |
| 2-methylpropan-1-ol | 78-83-1 | 7.611 | 1106.61 | 1107 | 6 |
| 3-methylbutyl acetate | 123-92-2 | 7.95 | 1128.14 | 1128 | 7 |
| butan-1-ol | 71-36-3 | 8.35 | 1153.56 | 1152 | 8 |
| pentyl acetate | 628-63-7 | 8.651 | 1172.68 | 1172 | 9 |
| 3-methylbutan-1-ol | 123-51-3 | 9.245 | 1211.24 | 1211 | 10 |
| hexan-2-ol | 626-93-7 | 9.305 | 1215.35 | 1216 | 11 |
| ethyl hexanoate | 123-66-0 | 9.561 | 1232.9 | 1233 | 12 |
| unknown-3 | unknown-3 | 10.086 | 1268.88 |  |  |
| 3-hydroxybutan-2-one | 513-86-0 | 10.333 | 1285.81 | 1285 | 1 |
| unknown-4 | unknown-4 | 10.547 | 1300.48 |  |  |
| 3-methylpentan-1-ol | 589-35-5 | 10.732 | 1313.72 | 1313 | 13 |
| 1-hydroxypropan-2-one | 116-09-6 | 10.762 | 1315.87 | 1317 | 14 |
| ethyl 2-hydroxypropanoate | 97-64-3 | 11.232 | 1349.46 | 1349 | 15 |
| unknown-5 | unknown-5 | 11.376 | 1359.76 |  |  |
| ethyl heptanoate | 106-30-9 | 11.431 | 1363.76 | 1342 | 15 |
| unknown-6 | unknown-6 | 11.432 | 1363.76 |  |  |
| ethyl (*E*)-hex-2-enoate | 27829-72-7 | 11.495 | 1368.26 | 1367 | 16 |
| unknown-7 | unknown-7 | 12.312 | 1428.07 |  |  |
| ethyl octanoate | 106-32-1 | 12.472 | 1440.11 | 1441 | 1 |
| heptan-1-ol | 111-70-06 | 12.518 | 1443.57 | 1444 | 17 |
| acetic acid | 64-19-17 | 12.63 | 1451.99 | 1452 | 18 |
| 2-ethylhexan-1-ol | 104-76-7 | 13.098 | 1487.21 | 1488 | 8 |
| 2-ethyl-3,5,6-trimethylpyrazine | 17398-16-2 | 13.163 | 1492.1 | 1491 | 15 |
| 1,1-diethoxynonane | 54815-13-3 | 13.247 | 1498.42 | 1498 | 15 |
| furan-2-ylmethyl acetate | 623-17-6 | 13.581 | 1518.5 | 1518 | 19 |
| benzaldehyde | 100-52-7 | 13.7 | 1525.53 | 1525 | 13 |
| ethyl nonanoate | 123-29-5 | 13.839 | 1533.75 | 1533 | 15 |
| butane-2,3-diol | 513-85-9 | 13.899 | 1537.29 | 1539 | 20 |
| propanoic acid | 79-09-4 | 14.274 | 1559.46 | 1561 | 15 |
| octan-1-ol | 111-87-5 | 14.505 | 1573.11 | 1573 | 21 |
| 2-methylpropanoic acid | 79-31-2 | 14.528 | 1574.47 | 1575 | 22 |
| ethyl decanoate | 110-38-3 | 15.265 | 1639.56 | 1638 | 8 |
| phenyl acetate | 122-79-2 | 15.291 | 1661.54 | 1660 | 23 |
| nonan-1-ol | 143-08-8 | 15.336 | 1665.47 | 1665 | 24 |
| (*E*)-non-2-en-1-ol | 31502-14-4 | 16.002 | 1723.69 | 1722 | 25 |
| ethyl 2-phenylacetate | 101-97-3 | 16.582 | 1774.39 | 1775 | 15 |
| 1-phenylethanol | 98-85-1 | 17.108 | 1819.08 | 1820 | 26 |
| 4-methylpentanoic acid | 646-07-1 | 17.176 | 1824.65 | 1824 | 15 |
| hexanoic acid | 142-62-1 | 17.919 | 1885.5 | 1884.5 | 27 |
| 2-phenylethanol | 60-12-8 | 18.352 | 1922.7 | 1922 | 10 |
| heptanoic acid | 111-14-8 | 18.923 | 1973.32 | 1971 | 28 |
| octanoic acid | 124-07-2 | 19.923 | 2061.97 | 2061 | 29 |
| oxecan-2-one | 6008-27-1 | 20.048 | 2064.18 | 2063 | 30 |
| nonanoic acid | 112-05-0 | 21.085 | 2164.98 | 2164 | 27 |
| CAS = Cas number of compounds, RT = Retention time, RIcalc = Retention index calculated, RIpub = Retention index reported in the literature. | | | | | |

# Supplementary Figures

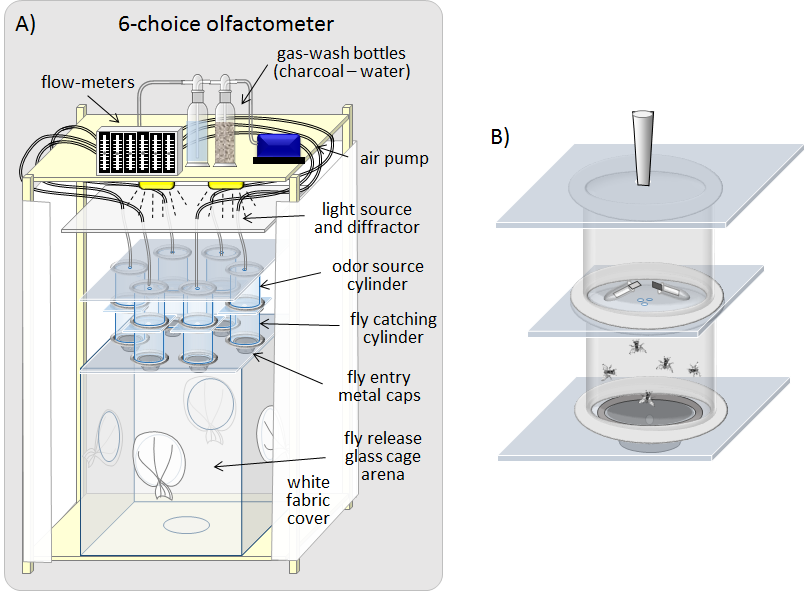
# Diagram Description automatically generated with low confidence

**Supplementary Figure 1**. Representative GC-EAD trace showing antennal response of female *B. dorsalis* to 1-day old yeast volatiles.

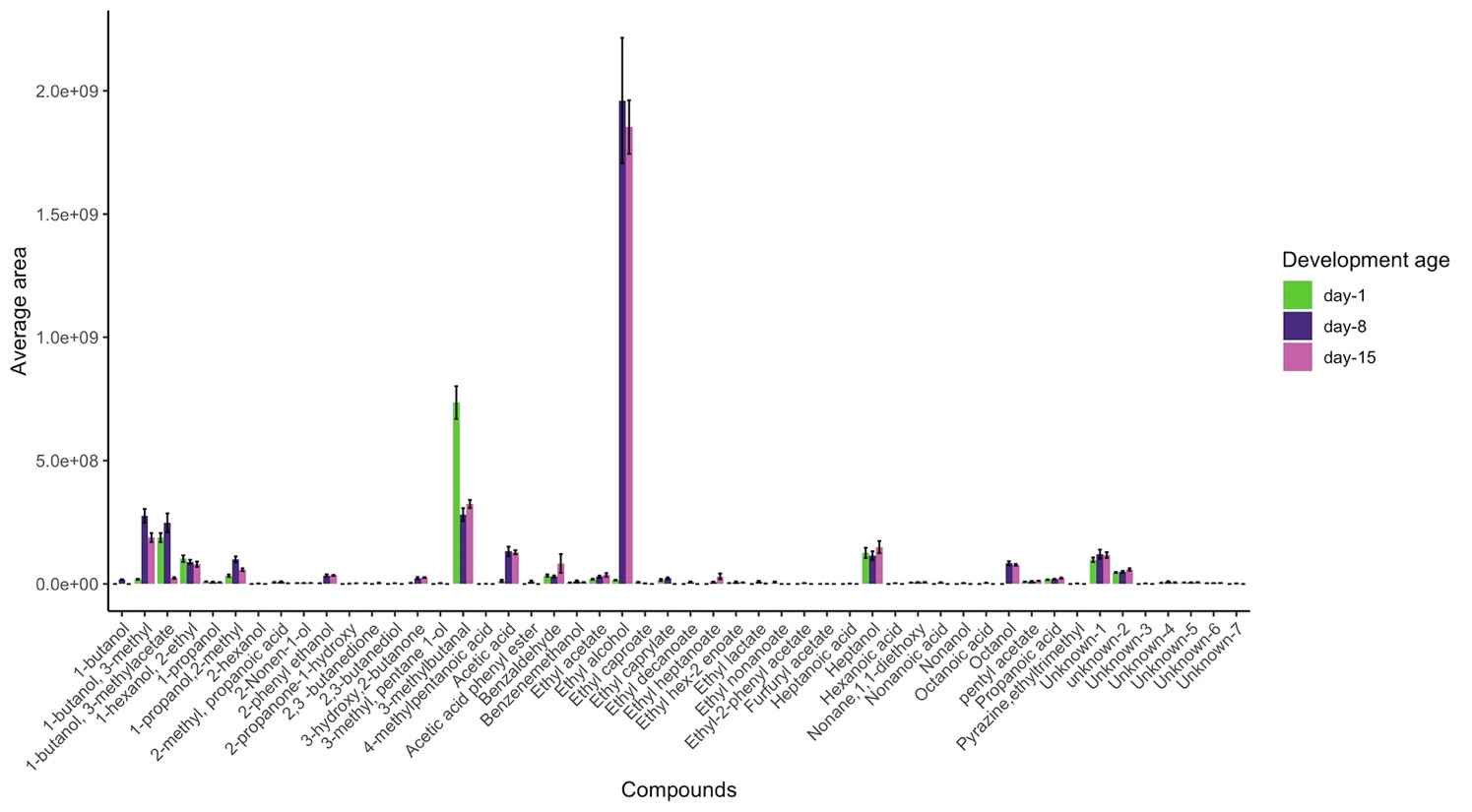
Chart, scatter chart

Description automatically generated

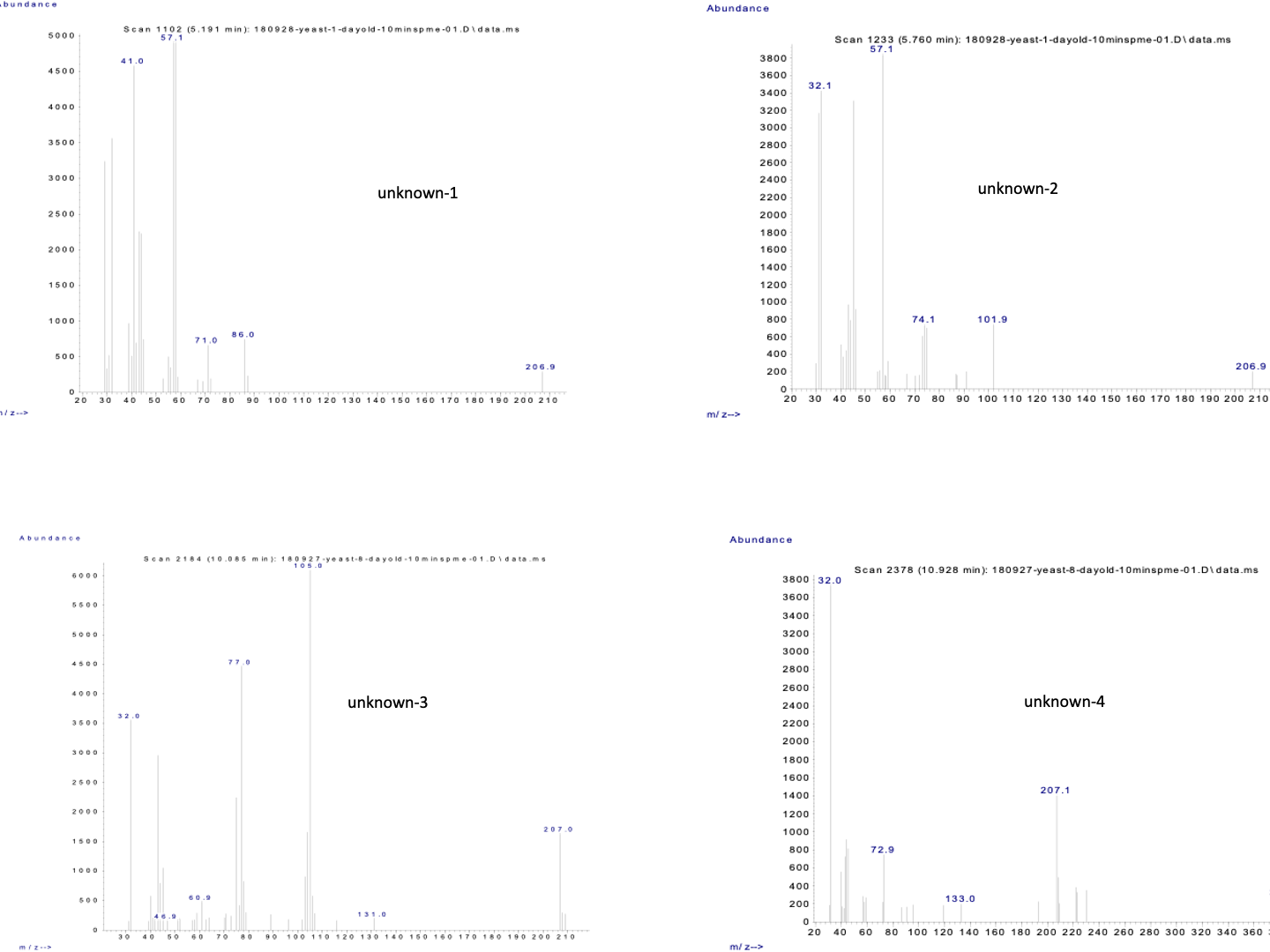
**Supplementary Figure 2.** Nonmetric multidimensional scaling (NMDS) analysis of volatile compounds emanated from the three developmental ages (1-day, 8-days, & 15-days) of the yeast *S. cerevisiae*. Stress value = 0.124.



**Supplementary Figure 3.** Schematic drawing of the six-choice olfactometer setup (A), with a close-up view of the odor source cylinder and the fly catching cylinder (B). The apparatus is made up of a 40 x 40 x 40 cm cubic glass cage with 6 circular holes on the top, and large circular holes on the lateral sides and bottom providing access for release and collecting flies. Charcoal filtered and humidified air passes through the odor source cylinders containing each of the six treatments.



**Supplementary Figure 4.** A bar plot with error bars showing the average peak area of organic volatile compounds emanated from 16 SPME injections of 1-day, 8-days and 15-days old yeast culture.



**Supplementary Figure 5.** Mass spectra of compounds for which a spectrum query in the MS library did not return reliable candidate compounds.

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