**Rearing and 60Co radiation do not affect attractiveness but alter volatile profiles**

**released by *Anastrepha obliqua* calling males**

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**Supporting information**

**Supp. table S1.** Mean (±SE) relative amount (%) of volatile compounds collected from *A*. *obliqua* males using dynamic headspace technique with Super Q.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | RT | KRI | ARI | Compound | Irradiated | Fertile | Wild | Significance |
| 1 | 5.53 | 927 | 924 | α-Pinene1,2 | 0b | 34.05 ± 9.19a | 0b | F2, 27 = 11.45, *P* < 0.001 |
| 4 | 6.82 | 1028 | 1026 | (*E,Z*)-3,6-Octadien-1-ol1 | 23.31 ± 2.96a | 18.75 ± 3.26a | 16.26 ± 1.25a | F2, 27 = 1.47, *P* = 0.24 |
| 6 | 7.64 | 1095 | 1094 | 2-Ethyl-1-hexanol1,2 | 2.11 ± 0.49b | 1.82 ± 0.26b | 5.72 ± 0.80a | F2, 27 = 12.31, *P* < 0.001 |
| 8 | 8.36 | 1162 | 1160 | (*E,Z*)-3,6-Nonadien-1-ol/(*Z*)-3-nonen-1-ol1 | 13.66 ± 2.61a | 13.89 ± 3.10a | 15.11 ± 1.92a | F2, 27 = 0.07, *P* = 0.93 |
| 10 | 9.79 | 1300 | 1300 | *n*-Tetradecane1,2 | 2.92 ± 0.60b | 1.77 ± 0.38b | 5.35 ± 0.30a | F2, 27 = 12.39, *P* < 0.001 |
| 11 | 10.6 | 1422 | 1421 | *cis*-Muurola-3,5-diene1 | 18.6 ± 3.34a | 5.71 ± 1.10b | 12.43 ± 1.54a | F2, 27 = 7.14, *P* < 0.01 |
| 15 | 11.29 | 1496 | 1496 | ϒ-Elemene1 | 7.67 ± 0.92a | 6.79 ± 1.21a | 8.44 ± 0.95a | F2, 27 = 0.50, *P* = 0.61 |
| 16 | 11.41 | 1510 | 1510 | (*Z,E*)-α-Farnesene1 | 2.23 ± 0.29b | 2.71 ± 0.61b | 5.08 ± 0.47a | F2, 27 = 8.28, *P* = 0.01 |
| 17 | 11.51 | 1523 | 1522 | (*E,E*)-α-Farnesene1,2 | 8.42 ± 2.25a | 6.64 ± 2.28a | 6.79 ± 1.11a | F2, 27 = 0.21, *P* = 0.81 |
| 21 | 11.94 | 1575 | 1575 | *trans*-Calamenene1 | 7.08 ± 0.97a | 3.15 ± 0.69b | 6.32 ± 1.19a | F2, 27 = 3.97, *P* < 0.05 |
| 24 | 12.39 | 1632 | 1631 | Unknow 3: {204 [M]+, 107 (100); 135 (75); 93 (50); 41 (25)} | 2.88 ± 0.38a | 1.70 ± 0.32b | 3.55 ± 0.50a | F2, 27 = 4.29, *P* < 0.05 |
| 25 | 12.55 | 1652 | 1652 | Farnesene epoxide1 | 10.93 ± 1.86a | 3.03 ± 0.46b | 14.93 ± 1.10a | F2, 27 = 7.16, *P* < 0.001 |

RT, retention time; KRI, Kovats retention index; ARI, arithmetic retention index

1Identification based on the NIST library (mass spectra and retention indices); 2Identification with synthetic standards.

Different letters in the relative amounts indicate significant differences among them, according to one-way ANOVA, followed by Tukey’s test (α = 0.05).

**Supp. table S2.** Mean (±SE) relative amount (%) of volatile compounds collected from *A*. *obliqua* males using the dynamic headspace technique with Tenax.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | RT | KRI | LRI | Compound | Irradiated | Fertile | Wild | Significance |
| 1 | 5.53 | 927 | 924 | α-Pinene1,2 | 0b | 7.67 ± 2.99a | 0b | F2, 27 = 6.07, *P* < 0.001 |
| 4 | 6.825 | 1028 | 1026 | (*E,Z*)-3,6-Octadien-1-ol1 | 23.16 ± 3.62a | 22.08 ± 4.85a | 34.57 ± 2.27a | F2, 27 = 3.17, *P* = 0.06 |
| 6 | 7.643 | 1095 | 1094 | 2-Ethyl-1-hexanol 1, 2 | 1.97 ± 0.35b | 3.32 ± 0.58a | 5.34 ± 0.74a | F2, 27 = 7.85, *P* < 0.01 |
| 8 | 8.362 | 1162 | 1160 | (*E,Z*)-3,6-Nonadien-1-ol/(*Z*)-3-nonen-1-ol1 | 27.81 ± 5.21a | 20.35 ± 2.26a | 6.46 ± 1.19b | F2, 27 = 9.39, *P* < 0.001 |
| 10 | 9.79 | 1300 | 1300 | *n*-Tetradecane1,2 | 2.78 ± 0.45b | 2.00 ± 0.26b | 5.62 ± 1.20a | F2, 27 = 5.53, *P* < 0.01 |
| 11 | 10.65 | 1422 | 1421 | *cis*-Muurola-3,5-diene1 | 7.32 ± 1.34a | 5.10 ± 0.73a | 10.95 ± 2.10a | F2, 27 = 3.31, *P* = 0.05 |
| 15 | 11.30 | 1496 | 1496 | ϒ-Elemene1 | 6.60 ± 1.19a | 9.43 ± 1.76a | 9.21 ± 1.23a | F2, 27 = 1.13, *P* = 0.33 |
| 16 | 11.42 | 1510 | 1510 | (*Z,E*)-α-Farnesene1 | 3.58 ± 1.04a | 4.30 ± 1.53a | 5.27 ± 0.45a | F2, 27 = 0.57, *P* = 0.57 |
| 17 | 11.52 | 1523 | 1522 | (*E,E*)-α-Farnesene1,2 | 9.69 ± 2.98a | 10.91 ± 2.24a | 4.97 ± 1.83a | F2, 27 = 1.52, *P* = 0.24 |
| 21 | 11.95 | 1575 | 1575 | *trans*-Calamenene1 | 5.05 ± 1.02a | 4.82 ± 0.74a | 3.38 ± 0.31a | F2, 27 = 1.32, *P* = 0.28 |
| 24 | 12.40 | 1632 | 1631 | Unknow 3: {204 [M]+, 107 (100); 135 (75); 93 (50); 41 (25)} | 2.63 ± 0.47b | 2.92 ± 0.54b | 5.00 ± 0.74a | F2, 27 = 4.25, *P* < 0.05 |
| 25 | 12.55 | 1652 | 1652 | Farnesene epoxide1 | 9.41 ± 1.64a | 7.09 ± 1.11a | 9.20 ± 1.54a | F2, 27 = 0.67, *P* = 0.52 |

RT, retention time; KRI, Kovats retention index; ARI, arithmetic retention index

1Identification based no NIST library (mass spectra and retention indices); 2Identification with synthetic standards.

Different letters in the relative amounts indicate significant differences among them, according to one-way ANOVA, followed by Tukey’s test (α = 0.05).

**Supp. table S3.** Mean (±SE) relative amount (%) of volatile compounds collected from *A*. *obliqua* males using SPME devices fitted with 65 µm polydimethylsiloxane/divinylbenzene fibers.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | RT | KRI | ARI | Compound | Irradiated | Fertile | Wild | Significance |
| 1 | 5.53 | 927 | 925 | α-Pinene1,2 | 0b | 1.40 ± 0.45a | 0b | F2, 11 = 11.97, *P* < 0.001 |
| 2 | 6.38 | 991 | 991 | Phenol1,2 | 1.34 ± 0.31b | 2.24 ± 0.32a | 0.50 ± 0.13c | F2, 11 = 14.94, *P* < 0.001 |
| 4 | 6.82 | 1028 | 1026 | (*E,Z*)-3,6-Octadien-1-ol1 | 3.46 ± 0.50a | 4.01 ± 0.45a | 0b | F2, 11 = 48.42, *P* < 0.001 |
| 5 | 7.38 | 1074 | 1073 | 1-Undecene1 | 1.43 ± 0.13a | 0.33 ± 0.08b | 0c | F2, 11 = 97.98, *P* < 0.001 |
| 6 | 7.64 | 1095 | 1094 | 2-Ethyl-1-hexanol1, 2 | 0.96 ± 0.07a | 0.50 ± 0.07b | 1.16 ± 0.26a | F2, 11 = 3.50, *P* < 0.05 |
| 8 | 8.36 | 1162 | 1160 | (*E,Z*)-3,6-Nonadien-1-ol/(*Z*)-3-nonen-1-ol1 | 76.84 ± 4.75a | 63.90 ± 5.45a | 38.35 ± 5.59b | F2, 11 = 13.98, *P* < 0.001 |
| 9 | 8.64 | 1188 | 1187 | Menthol1, 2 | 0b | 5.28 ± 1.77a | 0b | F2, 11 = 11.1, *P* < 0.001 |
| 10 | 9.79 | 1300 | 1300 | *n*-Tetradecane1,2 | 0.59 ± 0.11a | 1.13 ± 0.39a | 0b | F2, 11 = 7.88, *P* < 0.001 |
| 12 | 10.74 | 1433 | 1432 | ß-Elemene1 | 0.60 ± 0.05a | 0.53 ± 0.05a | 0.49 ± 0.06a | F2, 11 = 1.1, *P* = 0.35 |
| 13 | 11.09 | 1474 | 1473 | Caryophyllene1,2 | 1.62 ± 0.14a | 1.31 ± 0.09a | 1.43 ± 0.10a | F2, 11 = 2.0, *P* = 0.15 |
| 14 | 11.13 | 1478 | 1477 | Bergamotene1 | 0.17 ± 0.04b | 0.23 ± 0.07b | 1.31 ± 0.22a | F2, 11 = 17.1, *P* < 0.001 |
| 15 | 11.29 | 1496 | 1496 | ϒ-Elemene1 | 0.21 ± 0.03b | 0.25 ± 0.04b | 0.43 ± 0.04a | F2, 11 = 12.38, *P* < 0.001 |
| 16 | 11.41 | 1510 | 1510 | (*Z,E*)-α-Farnesene1 | 4.93 ± 1.89b | 7.07 ± 2.18b | 26.34 ± 4.20a | F2, 11 = 13.97, *P* < 0.001 |
| 17 | 11.51 | 1523 | 1522 | (*E,E*)-α-Farnesene1,2 | 1.94 ± 0.66b | 2.87 ± 0.86b | 10.58 ± 1.19a | F2, 11 = 24.46, *P* < 0.001 |
| 18 | 11.63 | 1538 | 1537 | α-Guaiene1 | 0.29 ± 0.06b | 0.36 ± 0.11b | 0.72 ± 0.13a | F2, 11 = 4.33, *P* < 0.05 |
| 19 | 11.71 | 1547 | 1547 | ϒ-Amorphene1 | 0.09 ± 0.02b | 0.12 ± 0.04b | 0.27 ± 0.05a | F2, 11 = 6.69, *P* < 0.001 |
| 20 | 11.88 | 1568 | 1567 | Unknow 1: {204 [M]+, 161 (100); 119 (90); 105 (90); 91 (75); 81 (70); 69 (70)} | 0.11 ± 0.03a | 0.13 ± 0.03a | 0.20 ± 0.03a | F2, 11 = 2.86, *P* = 0.07 |
| 21 | 12.00 | 1582 | 1582 | Unknow 2: {204 [M]+, 107 (100); 135 (65); 93 (70); 41 (75)} | 0.06 ± 0.02a | 0.09 ± 0.02a | 0.09 ± 0.02a | F2, 11 = 0.75, *P* = 0.48 |
| 23 | 12.14 | 1599 | 1599 | ß-Elemenone1 | 4.74 ± 1.73b | 7.55 ± 2.12b | 16.72 ± 1.57a | F2, 11 = 13.51, *P* < 0.001 |
| 24 | 12.39 | 1632 | 1631 | Unknow 3: {204 [M]+, 107 (100); 135 (75); 93 (50); 41 (25)} | 0.13 ± 0.09a | 0.05 ± 0.01a | 0.14 ± 0.03a | F2, 11 = 1.12, *P* = 0.34 |
| 25 | 12.55 | 1652 | 1652 | Farnesene epoxide1 | 0.48 ± 0.21b | 0.67 ± 0.20b | 1.27 ± 0.24a | F2, 11 = 3.75, *P* < 0.05 |

RT, retention time; KRI, Kovats retention index; ARI, arithmetic retention index

1Identification based no NIST library (mass spectra and retention indices); 2Identification with synthetic standards.

Different letters in the relative amounts indicate significant differences among them, according to one-way ANOVA, followed by Tukey’s test (α = 0.05).

**Supp. table S4.** Mean (±SE) relative amount (%) of volatile compounds collected from *A*. *obliqua* males using SPME devices fitted with 75 μm Carboxen/Polydimethylsiloxane fibers.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | RT | KRI | ARI | Compound | Irradiated (%) | Fertile (%) | Wild (%) | Significance |
| 1 | 5.53 | 927 | 925 | α-pinene1,2 | 0b | 1.57 ± 0.31a | 0b | F2, 11 = 25.11, *P* < 0.001 |
| 2 | 6.38 | 991 | 991 | Phenol1, 2 | 2.52 ± 0.88a | 2.61 ± 0.17a | 0b | F2, 11 = 8.26, *P* < 0.01 |
| 4 | 6.82 | 1028 | 1026 | (*E,Z*)-3,6-Octadien-1-ol1 | 16.66 ± 2.78a | 4.12 ± 0.21b | 0c | F2, 11 = 29.17, *P* < 0.001 |
| 5 | 7.38 | 1074 | 1073 | 1-Undecene1 | 0b | 0.52 ± 0.22a | 0b | F2, 11 = 5.79, *P* < 0.05 |
| 6 | 7.64 | 1095 | 1094 | 2-Ethyl-1-hexanol1, 2 | 0b | 0.85 ± 0.15a | 0b | F2, 11 = 30.82, *P* < 0.001 |
| 8 | 8.36 | 1162 | 1160 | (*E,Z*)-3,6-Nonadien-1-ol/(*Z*)-3-nonen-1-ol 1 | 52.30 ± 6.55a | 72.04 ± 14.06a | 54.89 ± 7.24a | F2, 11 = 3.09, *P* = 0.08 |
| 9 | 8.64 | 1188 | 1187 | Menthol1, 2 | 0a | 4.75 ± 4.61a | 0a | F2, 11 = 11.1, *P* < 0.001 |
| 10 | 9.79 | 1300 | 1300 | *n*-Tetradecane1, 2 | 10.56 ± 1.83a | 4.31 ± 0.31b | 1.02 ± 0.24c | F2, 11 = 20.16, *P* < 0.001 |
| 12 | 10.74 | 1433 | 1432 | ß-Elemene1 | 1.97 ± 0.08a | 0.70 ± 0.08b | 1.60 ± 0.12a | F2, 11 = 46.33, *P* < 0.001 |
| 13 | 11.09 | 1474 | 1473 | Caryophyllene1, 2 | 4.92 ± 1.16a | 1.67 ± 0.19b | 3.75 ± 0.27a | F2, 11 = 5.55, *P* < 0.05 |
| 14 | 11.13 | 1478 | 1477 | Bergamotene1 | 0.46 ± 0.10a | 0.18 ± 0.03a | 0.93 ± 0.39a | F2, 11 = 2.61, *P* = 0.11 |
| 15 | 11.29 | 1496 | 1496 | ϒ-Elemene1 | 2.13 ± 1.36a | 0.33 ± 0.04a | 0.74 ± 0.12a | F2, 11 = 1.44, *P* = 0.28 |
| 16 | 11.41 | 1510 | 1510 | (*Z,E*)-α-farnesene1 | 2.74 ± 0.77b | 2.37 ± 0.49b | 18.58 ± 3.29a | F2, 11 = 22.08, *P* < 0.001 |
| 17 | 11.51 | 1523 | 1522 | (*E,E*)-α-farnesene1, 2 | 0.94 ± 0.25b | 0.65 ± 0.14b | 6.08 ± 1.82a | F2, 11 = 8.20, *P* < 0.01 |
| 18 | 11.63 | 1538 | 1537 | α-Guaiene1 | 0.45 ± 0.15a | 0.14 ± 0.01a | 0b | F2, 11 = 6.92, *P* < 0.05 |
| 19 | 11.71 | 1547 | 1547 | ϒ-Amorphene1 | 0.21 ± 0.04a | 0.14 ± 0.04a | 0b | F2, 11 = 12.86, *P* < 0.001 |
| 20 | 11.88 | 1568 | 1567 | Unknow 1: {204 [M]+, 161 (100); 119 (90); 105 (90); 91 (75); 81 (70); 69 (70)} | 0.28 ± 0.07a | 0.18 ± 0.02a | 0b | F2, 11 = 11.65, *P* < 0.01 |
| 21 | 12.00 | 1582 | 1582 | Unknow 2: {204 [M]+, 107 (100); 135 (65); 93 (70); 41 (75)} | 0.12 ± 0.01a | 0.18 ± 0.03a | 0b | F2, 11 = 24.24, *P* < 0.001 |
| 23 | 12.14 | 1599 | 1599 | ß-Elemenone1 | 2.92 ± 0.75b | 2.10 ± 0.41b | 12.41 ± 1.83a | F2, 11 = 24.1, *P* < 0.001 |
| 24 | 12.39 | 1632 | 1631 | Unknow 3: {204 [M]+, 107 (100); 135 (75); 93 (50); 41 (25)} | 0.08 ± 0.03a | 0.08 ± 0.02a | 0b | F2, 11 = 5.38, *P* < 0.05 |
| 25 | 12.55 | 1652 | 1652 | Farnesene epoxide1 | 0.73 ± 0.17a | 0.47 ± 0.08b | 0c | F2, 11 = 11.65, *P* < 0.01 |

RT, retention time; KRI, Kovats retention index; ARI, arithmetic retention index

1Identification based on the NIST library (mass spectra and retention indices); 2Identification with synthetic standards.

Different letters in the relative amounts indicate significant differences among them, according to one-way ANOVA, followed by Tukey’s test (α = 0.05).

**Supp. table S5.** Mean (±SE) relative amount (%) of volatile compounds collected from *A*. *obliqua* males using SPME devices fitted with bare fused silica fibers.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | RT | KRI | ARI | Compound | Irradiated (%) | Fertile (%) | Wild (%) | Significance |
| 1 | 5.53 | 927 | 925 | α-pinene1,2 | 0b | 0.16 ± 0.08a | 0b | F2, 11 = 4.05, *P* < 0.05 |
| 2 | 6.38 | 991 | 991 | Phenol1,2 | 3.21 ± 0.86a | 2.29 ± 0.25a | 0b | F2, 11 =10.15, *P* < 0.01 |
| 4 | 6.82 | 1028 | 1026 | (*E,Z*)-3,6-Octadien-1-ol1 | 2.94 ± 0.68a | 0.45 ± 0.19b | 0c | F2, 11 = 14.89, *P* < 0.001 |
| 5 | 7.38 | 1074 | 1073 | 1-Undecene1 | 0.58 ± 0.15a | 0.20 ± 0.04b | 0c | F2, 11 = 10.98, *P* < 0.01 |
| 6 | 7.64 | 1095 | 1094 | 2-Ethyl-1-hexanol1, 2 | 0.17 ± 0.07a | 0.21 ± 0.01a | 0b | F2, 11 = 7.99, *P* < 0.05 |
| 8 | 8.36 | 1162 | 1160 | (*E,Z*)-3,6-Nonadien-1-ol/(*Z*)-3-nonen-1-ol1 | 64.73 ± 12.78a | 50.53 ± 5.02a | 74.90 ± 3.36a | F2, 11 = 2.25, *P* = 0.15 |
| 9 | 8.64 | 1188 | 1187 | Menthol1, 2 | 0a | 1.72 ± 1.72a | 0a | F2, 11 = 2.19, *P* = 0.64 |
| 10 | 9.79 | 1300 | 1300 | *n*-Tetradecane1, 2 | 0.54 ± 0.22a | 0.56 ± 0.21a | 1.29 ± 0.30a | F2, 11 = 2.92, *P* = 0.09 |
| 12 | 10.74 | 1433 | 1432 | ß-Elemene1 | 0.78 ± 0.20a | 0.44 ± 0.02a | 0.56 ± 0.04a | F2, 11 = 2.01, *P* = 0.18 |
| 13 | 11.09 | 1474 | 1473 | Caryophyllene1, 2 | 0.69 ± 0.18a | 0.89 ± 0.07a | 0.70 ± 0.09a | F2, 11 = 0.80, *P* = 0.47 |
| 14 | 11.13 | 1478 | 1477 | Bergamotene1 | 0.47 ± 0.23a | 0.61 ± 0.19a | 0.53 ± 0.10a | F2, 11 = 0.14, *P* = 0.87 |
| 15 | 11.29 | 1496 | 1496 | ϒ-Elemene1 | 0.49 ± 0.18a | 0.18 ± 0.01a | 0.19 ± 0.02a | F2, 11 = 2.9, *P* = 0.09 |
| 16 | 11.41 | 1510 | 1510 | (*Z,E*)-α-farnesene1 | 10.62 ± 5.60a | 16.99 ± 2.06a | 12.17 ± 2.31a | F2, 11 = 0.81, *P* = 0.47 |
| 17 | 11.51 | 1523 | 1522 | (*E,E*)-α-farnesene1, 2 | 3.21 ± 1.72a | 5.61 ± 0.59a | 3.41 ± 0.26a | F2, 11 = 1.58, *P* = 0.25 |
| 18 | 11.63 | 1538 | 1537 | α-Guaiene1 | 0.41 ± 0.16b | 0.83 ± 0.15a | 0c | F2, 11 = 10.87, *P* < 0.01 |
| 19 | 11.71 | 1547 | 1547 | ϒ-Amorphene1 | 0.12 ± 0.06a | 0.16 ± 0.05a | 0b | F2, 11 = 4.15, *P* < 0.05 |
| 20 | 11.88 | 1568 | 1567 | Unknow 1: {204 [M]+, 161 (100); 119 (90); 105 (90); 91 (75); 81 (70); 69 (70)} | 0.16 ± 0.14a | 0.09 ± 0.09a | 0a | F2, 11 = 3.04, *P* = 0.09 |
| 22 | 12.00 | 1582 | 1582 | Unknow 2: {204 [M]+, 107 (100); 135 (65); 93 (70); 41 (75)} | 0.11 ± 0.05a | 0.13 ± 0.01a | 0b | F2, 11 = 6.11, *P* < 0.05 |
| 23 | 12.14 | 1599 | 1599 | ß-Elemenone1 | 10.16 ± 5.24a | 17.12 ± 2.24a | 6.24 ± 5.07a | F2, 11 = 2.71, *P* = 0.11 |
| 24 | 12.39 | 1632 | 1631 | Unknow 3: {204 [M]+, 107 (100); 135 (75); 93 (50); 41 (25)} | 0.16 ± 0.15a | 0.11 ± 0.11a | 0a | F2, 11 = 3.24, *P* = 0.08 |
| 25 | 12.55 | 1652 | 1652 | Farnesene epoxide1 | 0.44 ± 0.18a | 0.70 ± 0.08a | 0b | F2, 11 = 9.75, *P* < 0.01 |

RT, retention time; KRI, Kovats retention index; ARI, arithmetic retention index

1Identification based on the NIST library (mass spectra and retention indices); 2Identification with synthetic standards.

Different letters in the relative amounts indicate significant differences among them, according to one-way ANOVA, followed by Tukey’s test (α = 0.05).

**Supp. table S6.** Mean (±SE) relative amount (%) of volatile compounds collected from *A*. *obliqua* males using SPME devices fitted with 50/30 µm divinylbenzene/carboxen/polydimethylsiloxane.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | RT | KRI | ARI | Compound | Irradiated (%) | Fertile (%) | Wild (%) | Significance |
| 1 | 5.53 | 927 | 925 | α-Pinene1,2 | 0b | 1.04 ± 0.27a | 0b | F2, 11 =14.59, *P* < 0.001 |
| 2 | 6.38 | 991 | 991 | Phenol1,2 | 0b | 1.04 ± 0.40a | 0b | F2, 11 = 6.77, *P* < 0.05 |
| 4 | 6.82 | 1028 | 1026 | (*E,Z*)-3,6-Octadien-1-ol1 | 2.76 ± 0.44a | 1.72 ± 0.57a | 0b | F2, 11 =11.34, *P* < 0.01 |
| 5 | 7.38 | 1074 | 1073 | 1-Undecene1 | 1.15 ± 0.36a | 0.43 ± 0.20a | 0b | F2, 11 =5.91, *P* < 0.05 |
| 6 | 7.64 | 1095 | 1094 | 2-Ethyl-1-hexanol1, 2 | 1.12 ± 0.45b | 0.39 ± 0.05b | 3.07 ± 0.49a | F2, 11 =12.68, *P* < 0.01 |
| 8 | 8.36 | 1162 | 1160 | (*E,Z*)-3,6-Nonadien-1-ol/(*Z*)-3-nonen-1-ol1 | 61.51 ± 9.96a | 54.22 ± 9.14a | 48.91 ± 8.05a | F2, 11 = 0.48, *P* = 0.63 |
| 9 | 8.64 | 1188 | 1187 | Menthol1, 2 | 0a | 5.58 ± 4.98a | 0a | F2, 11 = 1.23, *P* = 0.32 |
| 10 | 9.79 | 1300 | 1300 | *n*-Tetradecane1, 2 | 0.66 ± 0.18a | 1.36 ± 0.76a | 0.92 ± 0.26a | F2, 11 = 0.57, *P* = 0.58 |
| 12 | 10.74 | 1433 | 1432 | ß-Elemene1 | 0.78 ± 0.11b | 0.44 ± 0.05b | 1.31 ± 0.13a | F2, 11 = 18.41, *P* < 0.001 |
| 13 | 11.09 | 1474 | 1473 | Caryophyllene1, 2 | 2.78 ± 0.48a | 1.61 ± 0.31b | 3.11 ± 0.29a | F2, 11 = 4.55, *P* < 0.05 |
| 14 | 11.13 | 1478 | 1477 | Bergamotene1 | 0.40 ± 0.13a | 0.46 ± 0.18a | 0.62 ± 0.11a | F2, 11 = 0.61, *P* = 0.56 |
| 15 | 11.29 | 1496 | 1496 | ϒ-Elemene1 | 0.39 ± 0.04b | 0.23 ± 0.02c | 0.68 ± 0.04a | F2, 11 = 41.64, *P* < 0.001 |
| 16 | 11.41 | 1510 | 1510 | (*Z,E*)-α-farnesene1 | 11.84 ± 4.11a | 12.94 ± 3.47a | 21.36 ± 4.49a | F2, 11 = 1.64, *P* = 0.23 |
| 17 | 11.51 | 1523 | 1522 | (*E,E*)-α-farnesene1, 2 | 4.20 ± 1.47a | 4.57 ± 1.24a | 6.60 ± 1.67a | F2, 11 = 0.72, *P* = 0.48 |
| 18 | 11.63 | 1538 | 1537 | α-Guaiene1 | 0.51 ± 0.09a | 0.24 ± 0.08b | 0c | F2, 11 = 14.06, *P* < 0.001 |
| 19 | 11.71 | 1547 | 1547 | ϒ-Amorphene1 | 0.16 ± 0.05a | 0.09 ± 0.03a | 0b | F2, 11 = 5.04, *P* < 0.05 |
| 20 | 11.88 | 1568 | 1567 | Unknow 1: {204 [M]+, 161 (100); 119 (90); 105 (90); 91 (75); 81 (70); 69 (70)} | 0.23 ± 0.05a | 0.17 ± 0.05a | 0b | F2, 11 = 8.49, *P* < 0.001 |
| 22 | 12.00 | 1582 | 1582 | Unknow 2: {204 [M]+, 107 (100); 135 (65); 93 (70); 41 (75)} | 0.08 ± 0.02a | 0.15 ± 0.04a | 0b | F2, 11 = 7.47, *P* < 0.01 |
| 23 | 12.14 | 1599 | 1599 | ß-Elemenone1 | 10.72 ± 3.48a | 12.43 ± 3.10a | 13.43 ± 2.68a | F2, 11 = 0.19, *P* = 0.83 |
| 24 | 12.39 | 1632 | 1631 | Unknow 3: {204 [M]+, 107 (100); 135 (75); 93 (50); 41 (25)} | 0.04 ± 0.01a | 0.07 ± 0.01a | 0b | F2, 11 = 11.05, *P* < 0.01 |
| 25 | 12.55 | 1652 | 1652 | Farnesene epoxide1 | 0.66 ± 0.19a | 0.82 ± 0.17a | 0b | F2, 11 = 8.63, *P* < 0.01 |

RT, retention time; KRI, Kovats retention index; ARI, arithmetic retention index

1Identification based on the NIST library (mass spectra and retention indices); 2Identification with synthetic standards.

Different letters in the relative amounts indicate significant differences among them, according to one-way ANOVA, followed by Tukey’s test (α = 0.05).

**Supp. table S7.** Mean (±SE) relative amount (%) of volatile compounds collected from *A*. *obliqua* males using SPME devices fitted with 85 μm Carboxen/Polydimethylsiloxane fibers.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | RT | KRI | ARI | Compound | Irradiated (%) | Fertile (%) | Wild (%) | Significance |
| 2 | 6.38 | 991 | 991 | Phenol1,2 | 7.11 ± 2.83a | 2.64 ± 0.48b | 0c | F2, 11 = 4.72, *P* < 0.05 |
| 4 | 6.82 | 1028 | 1026 | (*E,Z*)-3,6-octadien-1-ol1 | 14.67 ± 2.92a | 2.90 ± 0.36b | 0c | F2, 11 = 20.85, *P* < 0.001 |
| 6 | 7.64 | 1095 | 1094 | 2-Ethyl-1-hexanol1, 2 | 3.46 ± 0.28a | 2.31 ± 0.57a | 0b | F2, 11 = 22.94, *P* < 0.001 |
| 8 | 8.36 | 1162 | 1160 | (*E,Z*)-3,6-Nonadien-1-ol/(*Z*)-3-nonen-1-ol1 | 46.96 ± 7.10b | 76.06 ± 5.40a | 73.89 ± 1.60a | F2, 11 = 9.62, *P* < 0.01 |
| 10 | 9.79 | 1300 | 1300 | *n*-Tetradecane1, 2 | 15.09 ± 2.59a | 2.13 ± 0.39b | 1.98 ± 0.53b | F2, 11 = 23.9, *P* < 0.001 |
| 12 | 10.74 | 1433 | 1432 | ß-Elemene1 | 3.31 ± 1.11a | 2.36 ± 0.83a | 2.78 ± 0.25a | F2, 11 = 0.34, *P* = 0.72 |
| 13 | 11.09 | 1474 | 1473 | Caryophyllene1, 2 | 0b | 0b | 7.44 ± 1.09a | F2, 11 = 46.55, *P* < 0.001 |
| 17 | 11.51 | 1523 | 1522 | (*E,E*)-α-farnesene1, 2 | 4.47 ± 2.56a | 4.56 ± 1.82a | 8.38 ± 1.43a | F2, 11 =1.25, *P* = 0.32 |
| 18 | 11.63 | 1538 | 1537 | α-Guaiene1 | 0b | 1.49 ± 0.62a | 0b | F2, 11 = 5.67, *P* < 0.05 |
| 23 | 12.14 | 1599 | 1599 | ß-Elemenone1 | 0b | 0b | 5.53 ± 0.27a | F2, 11 = 412.6, *P* < 0.001 |
| 24 | 12.39 | 1632 | 1631 | Unknow 3: {204 [M]+, 107 (100); 135 (75); 93 (50); 41 (25)} | 4.28 ± 2.30a | 4.74 ± 1.68a | 0b | F2, 11 = 4.53, *P* < 0.05 |
| 25 | 12.55 | 1652 | 1652 | Farnesene epoxide1 | 0.65 ± 0.31a | 0.82 ± 0.27a | 0a | F2, 11 = 3.27, *P* = 0.07 |

RT, retention time; KRI, Kovats retention Index; ARI, arithmetic retention index

1Identification based on the NIST library (mass spectra and retention indices); 2Identification with synthetic standards.

Different letters in the relative amounts indicate significant differences among them, according to one-way ANOVA, followed by Tukey’s test (α = 0.05).

**Supp. table S8.** Mean (±SE) relative amount (%) of volatile compounds collected from *A*. *obliqua* males using SPME devices fitted with 85 µm polyacrylate fibers.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | RT | KRI | ARI | Compound | Irradiated (%) | Fertile (%) | Wild (%) | Significance |
| 2 | 6.38 | 991 | 991 | Phenol 1, 2 | 2.98 ± 0.59a | 2.67 ± 0.40a | 0b | F2, 11 = 16.54, *P* < 0.001 |
| 3 | 6.52 | 1001 | 1001 | Carbitol 1 | 6.35 ± 0.79a | 4.03 ± 0.94b | 0b | F2, 11 =19.33, *P* < 0.001 |
| 4 | 6.82 | 1028 | 1026 | (*E,Z*)-3,6-Octadien-1-ol 1 | 2.04 ± 0.10a | 0.98 ± 0.24b | 0c | F2, 11 =37.39, *P* < 0.001 |
| 7 | 7.97 | 1125 | 1124 | Phenylethyl alcohol | 2.49 ± 0.69a | 0.63 ± 0.43b | 0c | F2, 11 = 7.33, *P* < 0.01 |
| 8 | 8.36 | 1162 | 1160 | (*E,Z*)-3,6-Nonadien-1-ol/(*Z*)-3-nonen-1-ol 1 | 74.58 ± 4.45a | 76.33 ± 4.23a | 52.66 ±4.74b | F2, 11 = 8.42, *P* < 0.01 |
| 17 | 11.51 | 1523 | 1522 | (*E,E*)-α-farnesene 1, 2 | 3.46 ± 1.60b | 5.50 ± 1.88b | 23.24 ± 2.28a | F2, 11 = 29.03, *P* < 0.01 |
| 18 | 11.63 | 1538 | 1537 | α-Guaiene 1 | 1.56 ± 0.65b | 1.99 ± 0.58b | 8.56 ± 1.51a | F2, 11 = 20.36, *P* < 0.001 |
| 19 | 11.71 | 1547 | 1547 | ϒ-Amorphene 1 | 1.08 ± 0.14a | 0.76 ± 0.18a | 0b | F2, 11 = 16.55, *P* < 0.001 |
| 23 | 12.14 | 1599 | 1599 | ß-Elemenone 1 | 0b | 0b | 15.54 ± 1.56a | F2, 11 = 88.27, *P* < 0.001 |
| 24 | 12.39 | 1632 | 1631 | Unknow 3: {204 [M]+, 107 (100); 135 (75); 93 (50); 41 (25)} | 5.47 ± 2.20a | 7.11 ± 1.84a | 0b | F2, 11 = 5.37, *P* < 0.05 |

RT, retention time; KRI, Kovats retention index; ARI, arithmetic retention index

1Identification based on the NIST library (mass spectra and retention indices); 2Identification with synthetic standards.

Different letters in the relative amounts indicate significant differences among them, according to one-way ANOVA, followed by Tukey’s test (α = 0.05).