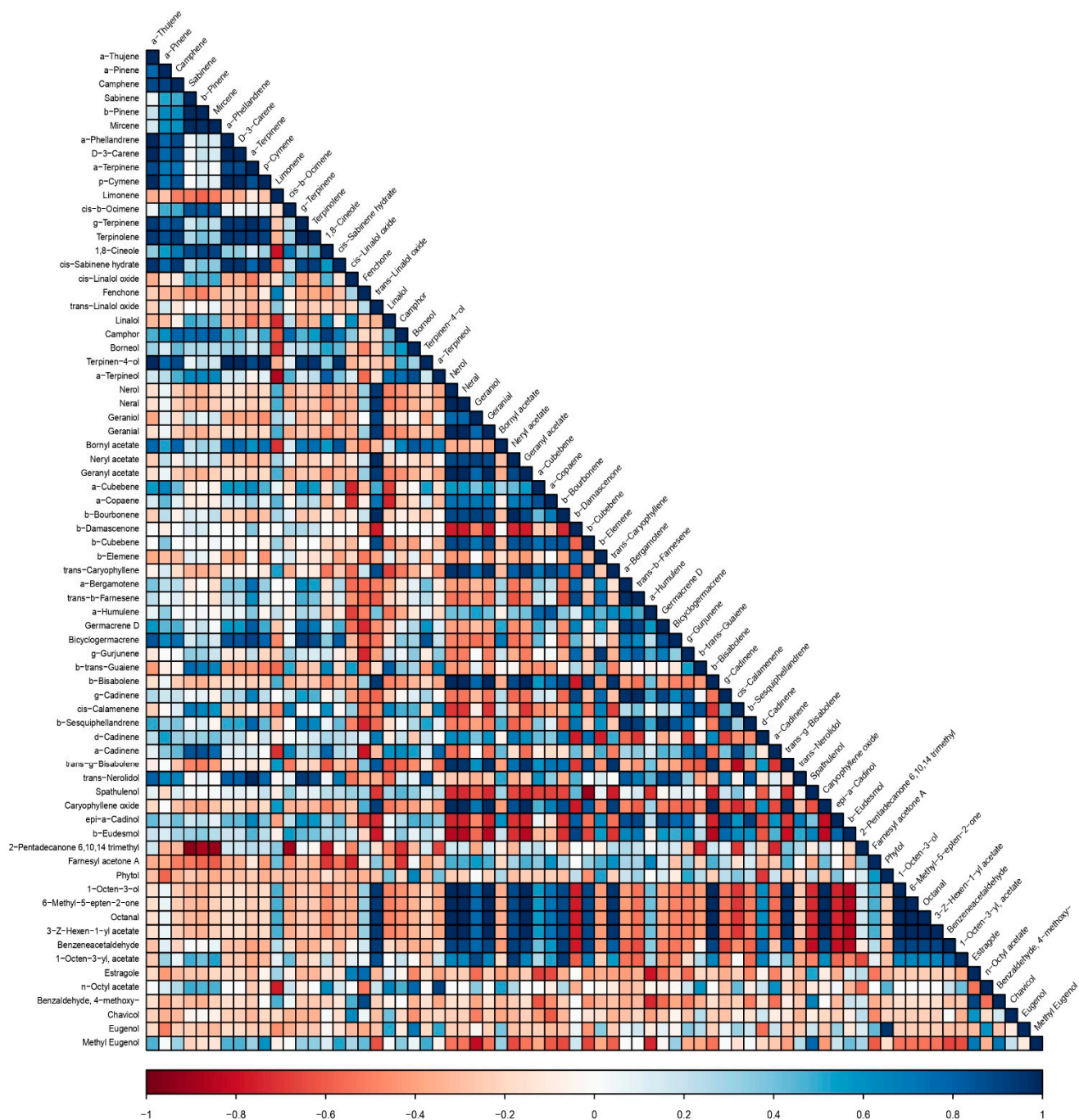


**Table S1.** Chemical composition of the volatile profiles of the seven genotypes of *Ocimum basilicum* L.

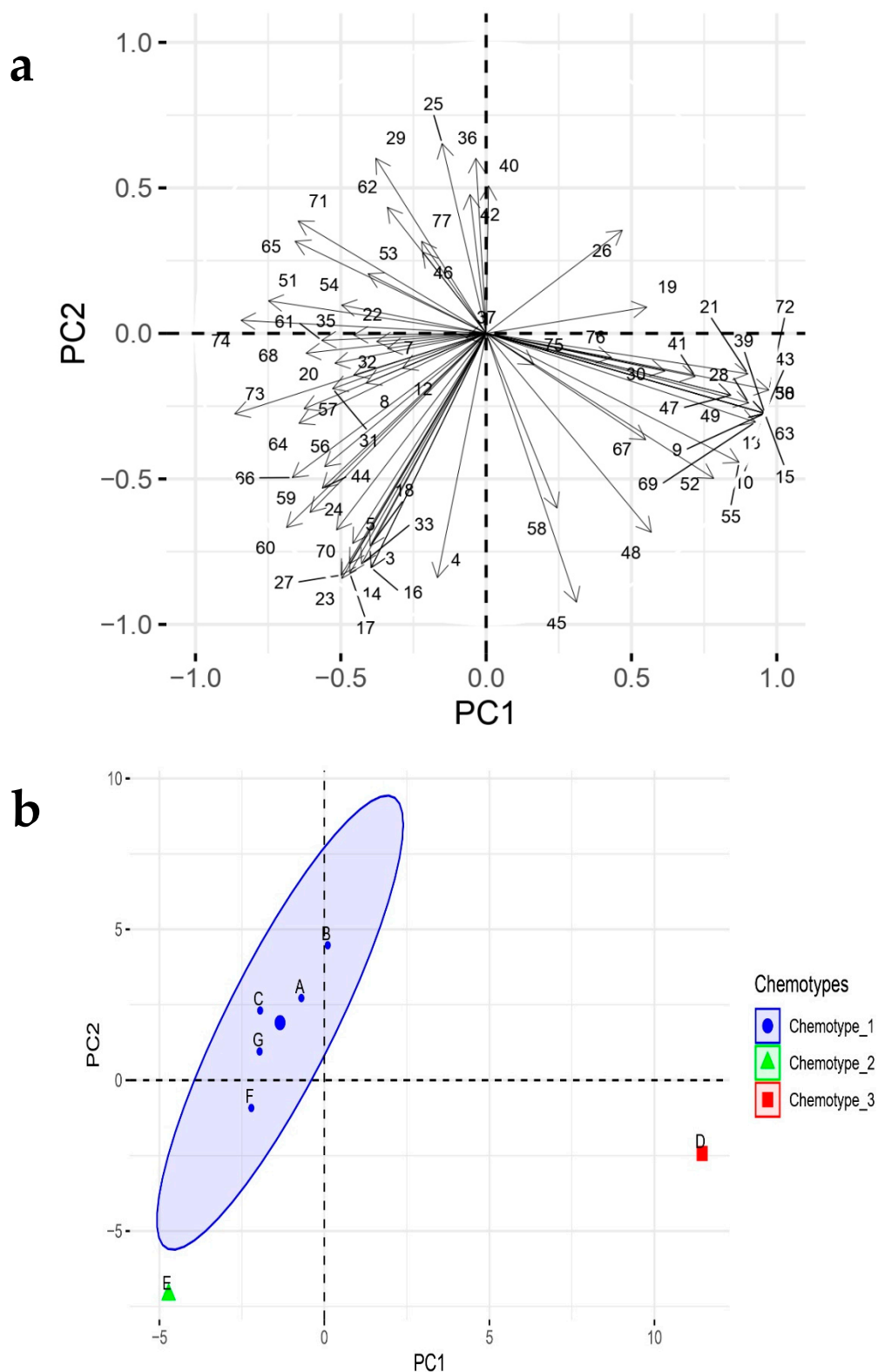
|                                |                                     | RIL <sup>b</sup> | RI <sup>c</sup> | A           | B           | C           | D           | E           | F           | G           |
|--------------------------------|-------------------------------------|------------------|-----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| #                              | Monoterpene hydrocarbons            |                  |                 | 1.2         | 0.6         | 0.1         | 0.7         | 4.1         | 1.4         | 4.1         |
| 3                              | $\alpha$ -Thujene                   | 931              | 927             | -           | -           | -           | -           | 0.3         | t           | t           |
| 4                              | $\alpha$ -Pinene                    | 939              | 935             | 0.2         | 0.1         | t           | 0.4         | 0.9         | 0.3         | 0.6         |
| 5                              | Camphene                            | 953              | 956             | -           | t           | -           | -           | 0.2         | t           | 0.1         |
| 7                              | Sabinene                            | 976              | 973             | 0.2         | t           | t           | -           | 0.2         | 0.1         | 0.7         |
| 8                              | $\beta$ -Pinene                     | 980              | 984             | 0.5         | 0.1         | 0.1         | 0.1         | 0.6         | 0.3         | 1.2         |
| 12                             | Mircene                             | 991              | 997             | 0.3         | 0.1         | t           | 0.1         | 0.4         | 0.1         | 1.0         |
| 14                             | $\alpha$ -Phellandrene              | 1005             | 1002            | -           | -           | -           | -           | 0.1         | -           | -           |
| 16                             | $\Delta$ -3-Carene                  | 1011             | 1012            | -           | -           | -           | -           | 0.1         | -           | t           |
| 17                             | $\alpha$ -Terpinene                 | 1018             | 1020            | -           | t           | -           | -           | 0.2         | 0.1         | t           |
| 18                             | <i>p</i> -Cymene                    | 1026             | 1030            | -           | 0.1         | -           | -           | 0.6         | t           | -           |
| 19                             | Limonene                            | 1031             | 1033            | -           | 0.1         | -           | 0.1         | -           | 0.1         | -           |
| 22                             | <i>cis</i> - $\beta$ -Ocimene       | 1050             | 1057            | t           | 0.1         | t           | -           | 0.1         | 0.1         | 0.3         |
| 23                             | $\gamma$ -Terpinene                 | 1062             | 1066            | -           | t           | t           | -           | 0.6         | 0.2         | 0.1         |
| 27                             | Terpinolene                         | 1088             | 1092            | -           | -           | t           | -           | 0.4         | 0.1         | 0.1         |
| <b>Oxygenated Monoterpenes</b> |                                     |                  |                 | <b>37.8</b> | <b>18.4</b> | <b>38.8</b> | <b>57.4</b> | <b>28.9</b> | <b>2.7</b>  | <b>49.9</b> |
| 20                             | 1,8-Cineole                         | 1033             | 1036            | 5.0         | 2.2         | 3.3         | t           | 7.2         | 0.2         | 11.2        |
| 24                             | <i>cis</i> -Sabinene hydrate        | 1068             | 1070            | 0.1         | 0.1         | 0.1         | -           | 0.7         | t           | 0.2         |
| 25                             | <i>cis</i> -Linalol oxide           | 1074             | 1078            | 0.1         | 0.1         | t           | t           | t           | t           | 0.1         |
| 26                             | Fenchone                            | 1087             | 1090            | -           | 0.2         | -           | 0.1         | -           | -           | -           |
| 28                             | <i>trans</i> -Linalol oxide         | 1088             | 1094            | -           | -           | -           | 0.3         | t           | -           | 0.1         |
| 29                             | Linalol                             | 1098             | 1101            | 31.4        | 15.0        | 30.8        | 0.7         | 6.7         | 2.1         | 33.5        |
| 31                             | Camphor                             | 1143             | 1148            | 0.2         | 0.4         | 0.3         | -           | 0.8         | t           | 1.0         |
| 32                             | Borneol                             | 1165             | 1172            | t           | -           | 0.5         | -           | 0.3         | t           | 0.3         |
| 33                             | Terpinen-4-ol                       | 1177             | 1177            | 0.1         | 0.2         | 0.1         | -           | 4.4         | 0.2         | 0.2         |
| 34                             | <i>p</i> -Cymene-8-ol               | 1183             | 1186            | -           | -           | -           | -           | t           | -           | -           |
| 35                             | $\alpha$ -Terpineol                 | 1189             | 1194            | 0.6         | 0.1         | 1.5         | 0.1         | 1.0         | -           | 1.8         |
| 38                             | Nerol                               | 1228             | 1232            | -           | -           | T           | 0.8         | -           | t           | T           |
| 39                             | Neral                               | 1240             | 1247            | -           | t           | 0.1         | 23.7        | -           | -           | -           |
| 41                             | Geraniol                            | 1255             | 1261            | -           | -           | 0.1         | 0.3         | -           | 0.1         | 0.2         |
| 43                             | Geranial                            | 1270             | 1271            | -           | t           | 0.1         | 31.2        | -           | -           | -           |
| 44                             | Bornyl acetate                      | 1285             | 1288            | 0.2         | 0.1         | 1.8         | -           | 2.7         | 0.1         | 1.1         |
| 47                             | Neryl acetate                       | 1365             | 1371            | -           | -           | -           | 0.2         | -           | -           | 0.1         |
| 50                             | Geranyl acetate                     | 1383             | 1388            | -           | -           | -           | 0.1         | -           | -           | T           |
| <b>Sesquiterpenes</b>          |                                     |                  |                 | <b>27.8</b> | <b>16.1</b> | <b>39.9</b> | <b>21.0</b> | <b>56.2</b> | <b>75.8</b> | <b>27.6</b> |
| 45                             | $\alpha$ -Cubebene                  | 1351             | 1350            | 0.1         | t           | 0.1         | 0.3         | 0.3         | 0.2         | 0.1         |
| 48                             | $\alpha$ -Copaene                   | 1376             | 1380            | 0.1         | 0.1         | 0.2         | 0.7         | 0.4         | 0.5         | 0.3         |
| 49                             | $\beta$ -Bourbonene                 | 1384             | 1385            | -           | t           | -           | 0.2         | t           | -           | 0.1         |
| 51                             | $\beta$ -Damascenone                | 1380             | 1386            | 0.1         | 0.1         | 0.1         | -           | 0.1         | 0.2         | 0.1         |
| 52                             | $\beta$ -Cubebene                   | 1390             | 1398            | 0.1         | t           | t           | 0.3         | 0.1         | 0.1         | 0.1         |
| 53                             | $\beta$ -Elemene                    | 1391             | 1399            | 0.7         | 0.2         | 1.3         | -           | 0.1         | 2.3         | 1.0         |
| 55                             | <i>trans</i> -Caryophyllene         | 1418             | 1422            | 0.3         | 0.2         | 0.4         | 3.0         | 0.7         | 1.0         | 0.3         |
| 56                             | $\alpha$ -Bergamotene               | 1436             | 1430            | 8.6         | 3.1         | 13.6        | 1.9         | 23.0        | 33.6        | 5.8         |
| 57                             | <i>trans</i> - $\beta$ -Farnesene   | 1454             | 1477            | 0.8         | 0.4         | 1.2         | -           | 1.4         | 2.5         | 0.6         |
| 58                             | $\alpha$ -Humulene                  | 1454             | 1460            | 0.7         | 0.2         | 0.7         | 1.2         | 0.9         | 1.4         | 0.8         |
| 59                             | Germacrene D                        | 1484             | 1475            | 2.5         | 0.2         | 3.0         | 0.9         | 5.6         | 5.7         | 2.2         |
| 60                             | Bicyclogermacrene                   | 1494             | 1488            | 1.0         | 0.2         | 0.7         | -           | 2.4         | 1.2         | 0.6         |
| 61                             | $\gamma$ -Gurjunene                 | 1475             | 1490            | 0.1         | -           | 0.2         | -           | 0.1         | 0.3         | 0.2         |
| 62                             | $\beta$ - <i>trans</i> -Guaiene     | 1500             | 1505            | 1.0         | 0.1         | 0.7         | -           | -           | 0.5         | 1.5         |
| 63                             | $\beta$ -Bisabolene                 | 1509             | 1511            | -           | t           | -           | 0.1         | -           | -           | -           |
| 64                             | $\gamma$ -Cadinene                  | 1513             | 1512            | 2.8         | 2.1         | 4.4         | 0.3         | 6.1         | 10.1        | 3.4         |
| 65                             | <i>cis</i> -Calamenene              | 1521             | 1525            | 0.3         | 0.2         | 0.4         | -           | 0.2         | 0.4         | 0.6         |
| 66                             | $\beta$ -Sesquiphellandrene         | 1524             | 1526            | 0.5         | -           | 0.6         | -           | 1.0         | 1.1         | 0.3         |
| 67                             | $\delta$ -Cadinene                  | 1524             | 1528            | 0.2         | 0.1         | -           | 0.3         | 0.2         | -           | 0.2         |
| 68                             | $\alpha$ -Cadinene                  | 1538             | 1535            | 0.1         | t           | 0.1         | -           | 0.1         | 0.1         | 0.2         |
| 69                             | <i>trans</i> - $\gamma$ -Bisabolene | 1533             | 1538            | 0.5         | 0.5         | 0.3         | 2.2         | 0.5         | 0.5         | -           |
| 70                             | <i>trans</i> -Nerolidol             | 1564             | 1567            | 0.2         | 0.2         | 0.2         | 0.2         | 0.5         | 0.4         | 0.2         |
| 71                             | Spathulenol                         | 1576             | 1580            | 0.5         | 1.7         | 1.2         | -           | 1.0         | 0.8         | 1.0         |

|                                 |                                 |         |      |             |             |             |             |             |             |             |
|---------------------------------|---------------------------------|---------|------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 72                              | Caryophyllene oxide             | 1581    | 1585 | 0.1         | 1.5         | 0.1         | 8.6         | 0.1         | 0.1         | 0.1         |
| 73                              | epi- $\alpha$ -Cadinol          | 1640    | 1647 | 6.2         | 4.6         | 10.0        | 0.6         | 11.5        | 12.2        | 7.6         |
| 74                              | $\beta$ -Eudesmol               | 1649    | 1648 | 0.2         | 0.3         | 0.2         | t           | 0.3         | 0.4         | 0.3         |
| 75                              | 2-Pentadecanone trimethyl       | 6,10,14 | 1847 | 1852        | 0.1         | 0.1         | 0.1         | 0.1         | 0.1         | t           |
| 76                              | Farnesyl acetone A              | 1943    | 1950 | -           | t           | 0.1         | 0.1         | t           | 0.1         | t           |
| <b>Diterpenes</b>               |                                 |         |      | <b>0.3</b>  | <b>0.1</b>  | <b>2.3</b>  | <b>0.1</b>  | <b>-</b>    | <b>0.7</b>  | <b>0.3</b>  |
| 77                              | Phytol                          | 1949    | 1952 | 0.3         | 0.1         | 2.3         | 0.1         | -           | 0.7         | 0.3         |
| <b>Non terpenoid components</b> |                                 |         |      | <b>28.4</b> | <b>57.6</b> | <b>7.7</b>  | <b>3.6</b>  | <b>4.0</b>  | <b>2.1</b>  | <b>2.6</b>  |
| 1                               | 2- <i>E</i> -Hexenal            | 854     | 850  | t           | -           | T           | t           | t           | -           | t           |
| 2                               | 3- <i>Z</i> -Hexen-1-ol         | 857     | 855  | -           | -           | -           | t           | -           | -           | -           |
| 6                               | Benzaldehyde                    | 961     | 970  | -           | -           | -           | t           | t           | -           | -           |
| 9                               | 1-Octen-3-ol                    | 993     | 986  | -           | -           | t           | 0.2         | t           | -           | t           |
| 10                              | 6-Methyl-5-epiten-2-one         | 985     | 988  | -           | -           | -           | 1.7         | t           | -           | -           |
| 11                              | 3-Octanone                      | 986     | 991  | -           | -           | -           | t           | t           | -           | t           |
| 13                              | Octanal                         | 1001    | 999  | -           | -           | -           | 0.1         | -           | -           | -           |
| 15                              | 3- <i>Z</i> -Hexen-1-yl acetate | 1007    | 1009 | -           | -           | -           | 0.1         | -           | -           | -           |
| 21                              | Benzeneacetaldehyde             | 1043    | 1048 | 0.1         | t           | t           | 0.3         | t           | t           | 0.1         |
| 30                              | 1-Octen-3-yl, acetate           | 1110    | 1110 | -           | -           | -           | 0.1         | t           | -           | 0.1         |
| 36                              | Estragole                       | 1196    | 1200 | 26.2        | 56.9        | 0.1         | 0.7         | 3.0         | 1.2         | 1.3         |
| 37                              | <i>n</i> -Octyl acetate         | 1214    | 1212 | 0.1         | -           | 0.2         | 0.1         | 0.1         | t           | 0.2         |
| 40                              | Benzaldehyde, 4-methoxy-        | 1258    | 1256 | -           | 0.1         | -           | -           | -           | -           | -           |
| 42                              | Chavicol                        | 1253    | 1263 | 0.3         | 0.1         | -           | -           | -           | -           | -           |
| 46                              | Eugenol                         | 1356    | 1354 | 1.5         | t           | 7.2         | 0.3         | 0.5         | 0.8         | 0.8         |
| 54                              | Methyl Eugenol                  | 1401    | 1408 | 0.2         | 0.5         | 0.2         | -           | 0.4         | 0.1         | 0.1         |
| <b>Total</b>                    |                                 |         |      | <b>96.0</b> | <b>93.3</b> | <b>89.7</b> | <b>82.9</b> | <b>93.7</b> | <b>83.7</b> | <b>84.8</b> |

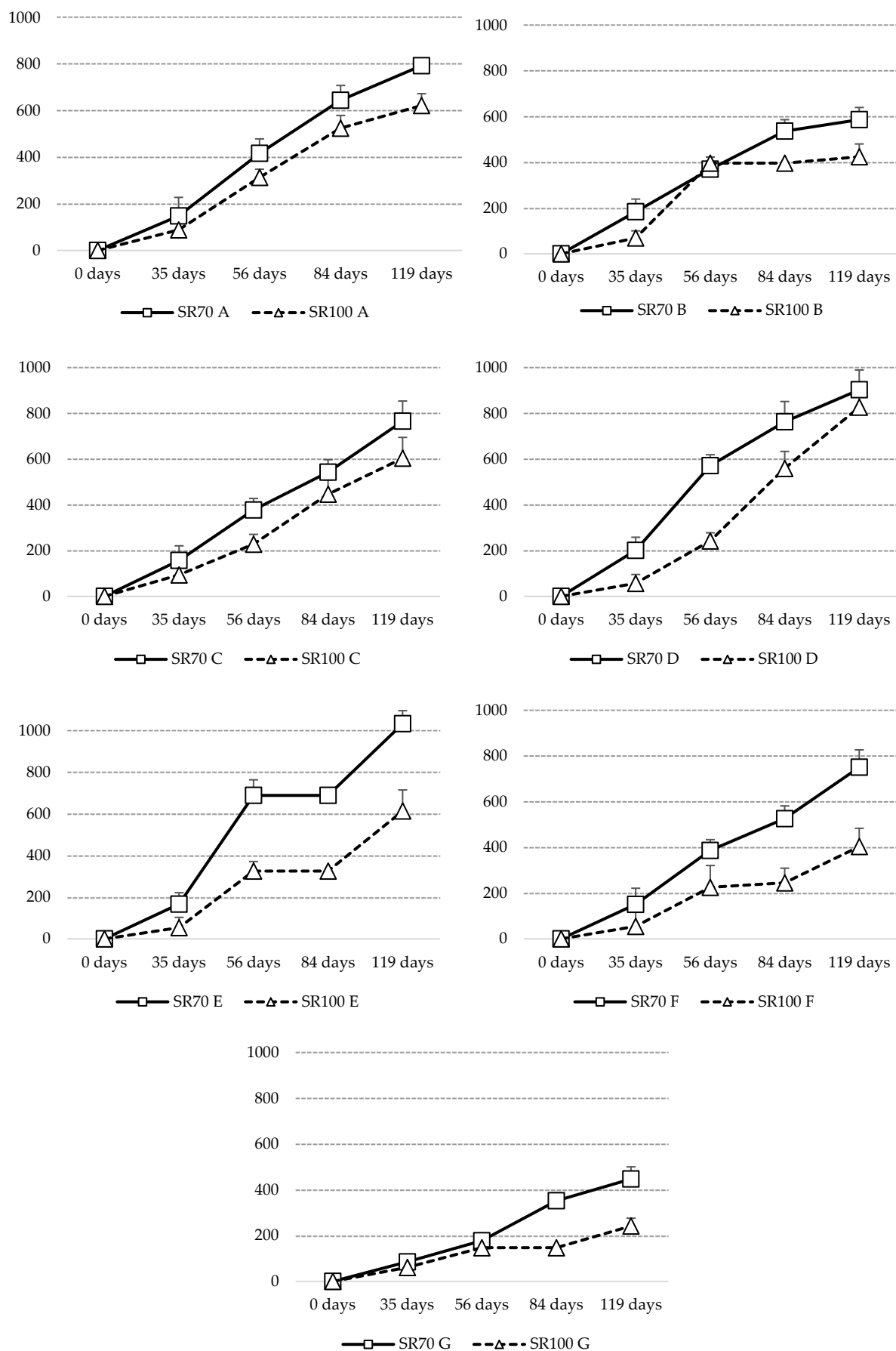
<sup>b</sup> Literature Retention Index (RIL) (Adams, 2007). <sup>c</sup> Retention index (RI) relative to standard mixture of *n*-alkanes on SPB-5 column. t indicates traces.



**Figure S1.** Pearson's correlation among the biochemical compounds examined in the seven *Ocimum basilicum* L. genotypes.



**Figure S2.** PCA plots related to the aromatic compounds analyzed for all the *Ocimum basilicum* L. genotypes. In (a), the three distinct chemotypes (1, 2 and 3) in according to the variables in Figure 6b. Precisely, variables depicted in (b) were named using the numeric code reported in Table S1.



**Figure S3.** Cumulative production of the seven basil genotypes (A, B, C, D, E, F, G) in relation to the different solar conditions tested (SR70 and SR100).