

**Table S1.** The contents of catechins in different tea cultivars under shade treatments (mg/g dry weight) <sup>a</sup>

| Shade duration | Treatment | GC <sup>b</sup> | EGC <sup>b</sup> | C <sup>b</sup> | EC <sup>b</sup> | EGCG <sup>b</sup> | GCG <sup>b</sup> | ECG <sup>b</sup> | CG <sup>b</sup> | TC            |
|----------------|-----------|-----------------|------------------|----------------|-----------------|-------------------|------------------|------------------|-----------------|---------------|
| Longjing 43    |           |                 |                  |                |                 |                   |                  |                  |                 |               |
| No.1           | CK        | 3.26±0.10a      | 29.51±0.67a      | 6.82±0.14a     | 17.15±0.53a     | 78.37±1.04b       | 1.06±0.03d       | 28.64±0.43a      | 0.50±0.01a      | 165.31±2.45b  |
|                | BN70%     | 2.02±0.02c      | 25.38±0.80bc     | 4.99±0.49b     | 14.66±0.16b     | 93.93±0.53a       | 1.40±0.01b       | 29.52±0.40a      | 0.43±0.02b      | 172.32±0.54a  |
|                | BN95%     | 2.52±0.03b      | 20.23±1.03d      | 5.19±0.25b     | 11.58±0.19d     | 81.03±1.93b       | 1.17±0.04c       | 26.10±1.08b      | 0.31±0.01c      | 148.12±4.02c  |
|                | BN        | 2.52±0.09b      | 26.61±0.06b      | 5.15±0.32b     | 13.74±0.20c     | 94.69±0.56a       | 1.68±0.04a       | 24.97±0.20b      | 0.31±0.02c      | 169.66±0.56ab |
|                | YN        | 1.85±0.09c      | 24.20±1.31c      | 5.02±0.53b     | 14.02±0.13bc    | 92.89±0.64a       | 1.37±0.02b       | 29.62±0.32a      | 0.29±0.02c      | 169.27±1.34ab |
|                | RN        | 1.98±0.01c      | 24.42±0.13bc     | 5.43±0.05b     | 14.42±0.17bc    | 95.01±0.52a       | 1.35±0.01b       | 29.55±0.37a      | 0.29±0.01c      | 172.45±0.80a  |
| No.2           | CK        | 3.47±0.01a      | 30.46±1.67a      | 6.55±0.33a     | 17.52±0.44a     | 78.03±0.11c       | 1.11±0.02d       | 28.94±0.16ab     | 0.49±0.00a      | 166.57±2.04c  |
|                | BN70%     | 2.22±0.13c      | 27.90±0.03a      | 5.58±0.13b     | 15.41±0.03b     | 95.27±0.42a       | 1.61±0.02a       | 28.61±0.13abc    | 0.51±0.01a      | 177.10±0.60ab |
|                | BN95%     | 1.93±0.01d      | 24.72±0.21b      | 5.40±0.25ab    | 12.80±0.49c     | 90.49±0.45b       | 1.46±0.03b       | 27.42±0.15d      | 0.32±0.00c      | 164.54±1.16c  |
|                | BN        | 2.18±0.04c      | 28.77±0.82a      | 5.88±0.39b     | 15.31±0.15b     | 94.81±0.85a       | 1.39±0.02c       | 28.16±0.34c      | 0.33±0.01c      | 176.84±0.83ab |
|                | YN        | 2.14±0.08c      | 29.38±0.24a      | 5.86±0.09b     | 15.71±0.08b     | 91.56±1.06b       | 1.44±0.02bc      | 28.39±0.28bc     | 0.33±0.00c      | 174.81±1.76b  |
|                | RN        | 2.47±0.04b      | 29.37±1.79a      | 5.80±0.15b     | 16.00±0.31b     | 95.10±0.56a       | 1.43±0.02bc      | 29.03±0.23a      | 0.36±0.01b      | 179.57±2.08a  |
| No.3           | CK        | 2.29±0.06a      | 24.77±0.79a      | 3.85±0.23ab    | 10.40±0.09a     | 89.67±1.38bc      | 0.97±0.05a       | 27.06±0.57a      | 0.50±0.03a      | 159.52±2.57b  |
|                | BN70%     | 1.45±0.09bc     | 20.00±0.29c      | 2.87±0.15c     | 7.72±0.02c      | 89.75±1.50bc      | 0.75±0.01d       | 23.21±0.24b      | 0.43±0.01ab     | 146.17±2.06c  |
|                | BN95%     | 1.27±0.03cd     | 18.23±0.91d      | 2.94±0.19c     | 6.97±0.06c      | 92.29±0.64b       | 0.88±0.02b       | 23.11±0.13b      | 0.42±0.00bc     | 146.11±0.12c  |
|                | BN        | 1.13±0.04d      | 16.92±0.17d      | 3.43±0.03b     | 6.40±0.08f      | 88.52±0.30c       | 0.89±0.01b       | 21.88±0.18c      | 0.35±0.03c      | 139.52±0.65d  |
|                | YN        | 1.35±0.08bc     | 22.62±0.47b      | 3.61±0.21b     | 7.36±0.05d      | 91.11±1.71bc      | 0.78±0.03cd      | 22.48±0.45bc     | 0.38±0.04bc     | 149.68±2.29c  |
|                | RN        | 1.50±0.10b      | 24.49±0.06a      | 4.08±0.10a     | 8.54±0.02b      | 98.39±0.54a       | 0.84±0.01bc      | 26.33±0.28a      | 0.37±0.03bc     | 164.53±0.70a  |
| No.4           | CK        | 1.80±0.04a      | 21.71±0.16c      | 3.41±0.25c     | 2.23±0.05d      | 80.76±0.06d       | 0.84±0.01d       | 23.40±0.05a      | 0.51±0.01b      | 134.65±0.12c  |
|                | BN70%     | 1.33±0.03cd     | 21.09±1.65c      | 3.66±0.27bc    | 8.25±0.55b      | 91.61±0.97b       | 0.85±0.03d       | 20.78±0.13c      | 0.40±0.02c      | 147.97±3.16b  |
|                | BN95%     | 1.22±0.04d      | 14.62±0.11d      | 3.49±0.19c     | 6.11±0.48c      | 85.87±0.56c       | 1.00±0.02c       | 19.60±0.15d      | 0.36±0.03c      | 132.26±0.48c  |
|                | BN        | 1.56±0.06b      | 25.71±1.94b      | 4.86±0.36a     | 10.02±0.11a     | 99.33±3.79a       | 3.01±0.06a       | 20.31±0.22c      | 0.76±0.01a      | 163.99±1.76a  |
|                | YN        | 1.29±0.06d      | 28.87±0.21a      | 3.54±0.26bc    | 10.04±0.21a     | 99.47±0.92a       | 1.16±0.03b       | 22.73±0.37b      | 0.39±0.02c      | 167.50±1.04a  |
|                | RN        | 1.45±0.07bc     | 27.28±0.32ab     | 4.18±0.08ab    | 9.97±0.10a      | 99.76±0.85a       | 1.05±0.01c       | 22.58±0.27b      | 0.37±0.01c      | 166.64±1.10a  |

|               |       |             |              |             |               |               |             |              |             |               |
|---------------|-------|-------------|--------------|-------------|---------------|---------------|-------------|--------------|-------------|---------------|
| No.5          | CK    | 1.95±0.04b  | 23.71±0.35e  | 4.38±0.19a  | 11.26±0.04a   | 72.09±0.34d   | 0.96±0.02d  | 23.72±0.18a  | 0.46±0.02a  | 138.53±0.96e  |
|               | BN70% | 2.06±0.02b  | 31.79±0.27b  | 3.53±0.39b  | 10.32±0.11b   | 90.81±0.63b   | 0.97±0.03cd | 21.17±0.13c  | 0.26±0.01b  | 160.91±1.22c  |
|               | BN95% | 1.59±0.04d  | 17.50±0.08f  | 2.32±0.15c  | 6.14±0.08d    | 78.39±0.50c   | 1.04±0.04c  | 16.92±0.14d  | 0.20±0.00c  | 124.10±0.79f  |
|               | BN    | 2.27±0.05a  | 25.07±0.47d  | 3.90±0.30ab | 9.31±0.13c    | 89.27±1.30b   | 1.31±0.01a  | 21.13±0.34c  | 0.21±0.00c  | 152.48±2.29d  |
|               | YN    | 1.82±0.02c  | 29.96±0.05c  | 3.55±0.20b  | 10.54±0.08b   | 95.19±0.27a   | 1.29±0.01a  | 24.03±0.07a  | 0.21±0.00c  | 166.59±0.52b  |
|               | RN    | 2.21±0.09a  | 33.55±0.12a  | 3.73±0.05ab | 11.07±0.02a   | 96.08±0.36a   | 1.17±0.02b  | 22.62±0.20b  | 0.26±0.01b  | 170.68±0.61a  |
| Zhongming 192 |       |             |              |             |               |               |             |              |             |               |
| No.1          | CK    | 6.07±0.35a  | 59.74±0.65bc | 2.81±0.82a  | 18.83±0.16ab  | 94.32±1.06c   | 1.24±0.06a  | 19.53±0.33a  | 0.54±0.03a  | 203.08±1.77b  |
|               | BN70% | 5.83±0.29a  | 62.14±1.73ab | 2.81±0.33a  | 19.32±0.43a   | 96.35±2.47bc  | 1.27±0.04a  | 19.62±0.48a  | 0.49±0.01bc | 207.82±5.18ab |
|               | BN95% | 5.70±0.23a  | 56.45±0.74d  | 2.38±0.24a  | 16.98±0.48d   | 92.96±0.69c   | 1.22±0.05a  | 18.30±0.16b  | 0.49±0.01bc | 194.47±1.98c  |
|               | BN    | 5.74±0.23a  | 57.96±0.87cd | 2.88±0.33a  | 17.87±0.34c   | 98.49±1.36ab  | 1.37±0.04a  | 19.39±0.25a  | 0.47±0.01c  | 204.18±3.29ab |
|               | YN    | 5.30±0.20a  | 61.63±0.48ab | 2.31±0.13a  | 18.45±0.20abc | 101.48±1.07a  | 1.21±0.06a  | 19.62±0.24a  | 0.48±0.02bc | 210.48±1.66ab |
|               | RN    | 5.36±0.36a  | 63.07±1.00a  | 2.55±0.09a  | 18.11±0.14bc  | 101.76±0.90a  | 1.26±0.10a  | 18.85±0.16ab | 0.52±0.01ab | 211.46±1.80a  |
| No.2          | CK    | 4.93±0.37a  | 51.01±1.22cd | 3.49±0.26a  | 18.42±0.33a   | 110.99±2.62bc | 1.59±0.05b  | 22.54±0.64b  | 0.55±0.02b  | 213.52±4.38a  |
|               | BN70% | 5.10±0.19a  | 56.01±1.10a  | 2.47±0.12b  | 16.32±0.43cd  | 98.69±1.24d   | 1.26±0.08d  | 18.99±0.28cd | 0.42±0.02e  | 199.26±2.61b  |
|               | BN95% | 5.08±0.49a  | 55.27±0.70ab | 2.32±0.23b  | 15.70±0.19d   | 101.22±1.44d  | 1.28±0.03cd | 18.20±0.28d  | 0.44±0.01de | 199.52±3.10b  |
|               | BN    | 4.53±0.30ab | 56.58±0.81a  | 2.50±0.50b  | 16.34±0.23cd  | 107.07±0.50c  | 1.36±0.05cd | 19.71±0.12c  | 0.47±0.01cd | 208.57±1.29ab |
|               | YN    | 4.88±0.12a  | 49.67±1.73d  | 2.73±0.10ab | 17.55±0.59ab  | 113.62±3.21ab | 1.80±0.06a  | 24.13±0.74a  | 0.68±0.03a  | 215.07±6.47a  |
|               | RN    | 3.90±0.19b  | 52.84±0.91bc | 2.50±0.38b  | 17.00±0.29bc  | 117.41±1.49a  | 1.42±0.03c  | 21.85±0.30b  | 0.51±0.01bc | 217.43±3.01a  |
| No.3          | CK    | 4.03±0.18a  | 48.74±0.55a  | 2.96±1.04a  | 19.53±0.18a   | 126.71±0.72c  | 1.59±0.02b  | 24.08±0.47ab | 0.43±0.02c  | 228.07±2.47ab |
|               | BN70% | 2.92±0.17bc | 40.54±0.40d  | 2.68±0.27a  | 16.50±0.18cd  | 132.66±1.11b  | 1.73±0.02a  | 24.22±0.06ab | 0.63±0.01b  | 221.87±1.30bc |
|               | BN95% | 2.57±0.07d  | 39.84±0.93d  | 2.50±0.24a  | 15.53±0.17e   | 131.93±3.27b  | 1.61±0.05b  | 23.17±0.59b  | 0.62±0.03b  | 217.76±5.24c  |
|               | BN    | 2.82±0.10cd | 43.38±0.34c  | 2.46±0.15a  | 16.30±0.05d   | 138.66±2.12a  | 1.55±0.02bc | 24.56±0.34a  | 0.69±0.01a  | 230.44±2.93a  |
|               | YN    | 3.26±0.10b  | 46.45±0.21b  | 2.68±0.19a  | 18.40±0.13b   | 136.67±0.71ab | 1.57±0.02b  | 24.59±0.14a  | 0.61±0.01b  | 234.23±0.86a  |
|               | RN    | 2.88±0.08cd | 47.30±1.16ab | 2.22±0.35a  | 17.00±0.34c   | 138.19±1.63a  | 1.49±0.03c  | 23.59±0.63ab | 0.69±0.00a  | 233.37±3.72a  |
| No.4          | CK    | 3.87±0.13a  | 55.58±3.88a  | 2.36±0.11a  | 17.14±0.29a   | 115.49±1.89d  | 1.43±0.03b  | 20.82±0.35c  | 0.63±0.02b  | 217.31±6.05b  |
|               | BN70% | 2.14±0.04c  | 36.57±0.64c  | 2.04±0.12ab | 10.54±0.28c   | 125.08±2.22c  | 4.88±0.11a  | 21.12±0.47bc | 0.69±0.02a  | 202.67±2.83c  |
|               | BN95% | 3.04±0.06b  | 46.48±0.28b  | 1.79±0.10bc | 14.14±0.44b   | 126.89±0.84c  | 1.47±0.00b  | 19.80±0.10d  | 0.56±0.01c  | 214.17±1.67b  |

|           |       |             |              |              |              |               |             |              |             |               |
|-----------|-------|-------------|--------------|--------------|--------------|---------------|-------------|--------------|-------------|---------------|
| No.5      | BN    | 3.62±0.16a  | 55.04±1.09a  | 1.45±0.03c   | 16.78±0.53a  | 129.39±2.17bc | 1.48±0.07b  | 21.14±0.34bc | 0.57±0.01c  | 229.47±4.10a  |
|           | YN    | 3.90±0.16a  | 57.33±0.39a  | 1.56±0.24c   | 17.21±0.22a  | 134.54±1.41a  | 1.35±0.02b  | 22.20±0.27a  | 0.57±0.00c  | 238.66±2.14a  |
|           | RN    | 3.59±0.20a  | 55.98±0.53a  | 1.59±0.08c   | 17.30±0.58a  | 132.00±1.59ab | 1.39±0.07b  | 21.84±0.27ab | 0.56±0.01c  | 234.24±2.73a  |
|           | CK    | 4.90±0.05a  | 56.76±1.76ab | 1.70±0.10a   | 16.84±0.14a  | 99.05±2.26d   | 1.25±0.03a  | 19.30±0.54b  | 0.55±0.04a  | 200.36±4.60cd |
|           | BN70% | 3.99±0.13bc | 58.22±0.28ab | 1.38±0.12ab  | 14.66±0.06bc | 111.67±0.49b  | 1.13±0.06a  | 19.71±0.24b  | 0.47±0.02b  | 211.21±0.53ab |
|           | BN95% | 3.20±0.19d  | 52.78±0.71c  | 0.91±0.18c   | 13.12±0.48d  | 105.26±0.52c  | 1.14±0.02a  | 17.30±0.40c  | 0.49±0.03ab | 194.20±2.05d  |
| Wanghai 1 | BN    | 3.79±0.11c  | 55.81±0.67b  | 1.34±0.27ab  | 14.90±0.09b  | 117.00±1.23a  | 1.27±0.02a  | 20.61±0.23a  | 0.49±0.02ab | 215.20±2.44a  |
|           | YN    | 3.99±0.26bc | 58.49±0.30a  | 1.06±0.09bc  | 14.13±0.15c  | 107.57±0.85c  | 1.15±0.05a  | 17.40±0.11c  | 0.38±0.02c  | 204.18±1.26bc |
|           | RN    | 4.37±0.15b  | 58.88±0.68a  | 0.83±0.08c   | 15.37±0.38b  | 106.63±2.24c  | 1.27±0.10a  | 15.73±0.14d  | 0.36±0.01c  | 203.44±2.71c  |
|           | CK    | 3.64±0.13a  | 38.91±0.98b  | 3.76±0.42a   | 18.96±0.33b  | 95.69±3.51ab  | 1.55±0.02a  | 30.79±1.14a  | 0.78±0.19a  | 194.07±5.19a  |
|           | BN70% | 3.67±0.23a  | 45.28±2.04a  | 3.39±0.22abc | 21.43±1.39a  | 95.01±3.24ab  | 1.23±0.05b  | 25.80±0.71c  | 0.52±0.01b  | 196.33±7.19a  |
|           | BN95% | 2.61±0.06c  | 32.87±1.02c  | 3.16±0.06abc | 15.15±0.18c  | 84.43±4.84b   | 1.05±0.03d  | 23.88±0.40d  | 0.46±0.01b  | 163.62±3.97b  |
| No.2      | BN    | 3.04±0.25bc | 40.92±0.20b  | 3.03±0.20bc  | 19.33±0.35b  | 95.46±0.80ab  | 1.12±0.03cd | 25.65±0.49c  | 0.51±0.01b  | 189.07±1.05a  |
|           | YN    | 3.11±0.10b  | 42.01±0.48b  | 2.74±0.23c   | 21.06±0.10a  | 98.23±0.49a   | 1.15±0.00bc | 27.61±0.16b  | 0.45±0.02b  | 196.36±1.12a  |
|           | RN    | 3.31±0.12ab | 40.47±1.16b  | 3.43±0.19ab  | 19.87±0.36ab | 94.96±7.47ab  | 1.23±0.02b  | 27.10±0.26bc | 0.42±0.04b  | 190.78±7.10a  |
|           | CK    | 3.49±0.11a  | 34.58±0.56c  | 3.84±0.02ab  | 19.01±0.76b  | 91.91±1.40cd  | 1.53±0.02a  | 29.16±0.43b  | 0.68±0.02a  | 184.19±3.24d  |
|           | BN70% | 3.60±0.05a  | 41.32±0.69b  | 4.27±0.29a   | 21.61±0.09a  | 99.49±1.64b   | 1.39±0.02b  | 28.38±0.49b  | 0.55±0.01bc | 200.61±2.50bc |
|           | BN95% | 2.65±0.04d  | 32.58±0.71c  | 3.20±0.30b   | 15.58±0.44c  | 88.40±1.66d   | 0.98±0.01d  | 25.49±0.64c  | 0.52±0.01c  | 169.39±3.67e  |
| No.3      | BN    | 3.21±0.04b  | 43.66±0.88a  | 3.52±0.09b   | 21.64±0.73a  | 106.80±2.20a  | 1.38±0.02b  | 31.70±0.65a  | 0.54±0.02bc | 212.45±4.31a  |
|           | YN    | 2.97±0.10c  | 39.79±0.99b  | 2.92±0.21c   | 19.31±0.83b  | 97.14±4.03bc  | 1.19±0.05c  | 27.46±0.98b  | 0.57±0.02b  | 191.36±6.75cd |
|           | RN    | 2.97±0.08c  | 39.04±1.05b  | 3.30±0.45b   | 20.44±0.76ab | 108.97±0.46a  | 1.33±0.05b  | 32.42±0.64a  | 0.55±0.01bc | 209.03±2.81ab |
|           | CK    | 2.33±0.09a  | 35.67±0.61b  | 2.36±0.06ab  | 17.20±0.26e  | 79.24±1.32d   | 1.19±0.06d  | 22.05±0.28c  | 0.72±0.03a  | 160.74±2.46c  |
|           | BN70% | 2.17±0.06a  | 36.98±0.35b  | 2.45±0.21a   | 19.19±0.30c  | 86.54±1.27b   | 1.26±0.01cd | 23.03±0.36b  | 0.63±0.02b  | 172.26±2.43b  |
|           | BN95% | 1.75±0.15b  | 30.71±0.47c  | 2.04±0.08b   | 14.74±0.32f  | 82.31±1.46cd  | 1.32±0.04bc | 20.39±0.35d  | 0.48±0.01d  | 153.73±2.75d  |
|           | BN    | 2.11±0.11a  | 35.95±0.46b  | 2.22±0.03ab  | 18.08±0.20d  | 85.12±1.05bc  | 1.31±0.04bc | 21.98±0.25c  | 0.60±0.02b  | 167.37±2.04b  |
|           | YN    | 2.13±0.03a  | 40.73±0.70a  | 2.29±0.20ab  | 20.88±0.15a  | 94.47±1.34a   | 1.41±0.02ab | 25.42±0.36a  | 0.51±0.01cd | 187.85±2.55a  |
|           | RN    | 2.29±0.10a  | 40.63±0.38a  | 2.16±0.03ab  | 19.98±0.17b  | 95.28±0.30a   | 1.46±0.06a  | 23.80±0.07b  | 0.53±0.01c  | 186.13±0.58a  |

|            |       |             |              |             |              |               |              |               |             |                |
|------------|-------|-------------|--------------|-------------|--------------|---------------|--------------|---------------|-------------|----------------|
| No.4       | CK    | 2.88±0.03a  | 41.97±4.86bc | 2.66±0.05a  | 18.55±0.15a  | 80.58±0.53a   | 1.19±0.03a   | 23.01±0.15a   | 0.63±0.01a  | 171.47±5.37a   |
|            | BN70% | 1.93±0.05b  | 47.82±1.31a  | 1.96±0.14b  | 16.31±0.64c  | 72.63±2.59b   | 1.04±0.02a   | 17.68±0.68b   | 0.60±0.02a  | 159.96±5.14bc  |
|            | BN95% | 1.42±0.07c  | 32.70±0.32d  | 1.34±0.06c  | 10.11±0.15d  | 68.06±0.82c   | 1.16±0.02a   | 15.83±0.18c   | 0.45±0.01c  | 131.07±1.43d   |
|            | BN    | 1.74±0.17b  | 36.74±0.84cd | 1.87±0.11b  | 15.33±0.35c  | 76.34±1.86ab  | 1.02±0.22a   | 18.25±0.51b   | 0.51±0.02b  | 151.78±1.10c   |
|            | YN    | 1.76±0.05b  | 42.61±0.10ab | 1.89±0.16b  | 17.55±0.36b  | 79.22±2.84a   | 1.03±0.22a   | 18.67±0.15b   | 0.45±0.00c  | 163.17±3.84ab  |
|            | RN    | 1.81±0.09b  | 43.47±0.29ab | 1.86±0.17b  | 18.19±0.27ab | 79.04±0.43a   | 1.08±0.06a   | 18.51±0.12b   | 0.48±0.00bc | 164.43±0.89ab  |
| No.5       | CK    | 3.39±0.08a  | 42.74±2.54b  | 2.13±0.09a  | 19.98±1.00a  | 72.48±4.52ab  | 0.93±0.02a   | 22.56±1.23a   | 0.71±0.10a  | 164.92±9.41a   |
|            | BN70% | 2.45±0.21b  | 43.94±0.99c  | 1.26±0.14bc | 15.15±0.07b  | 64.83±0.75cd  | 0.81±0.03a   | 14.66±0.29c   | 0.44±0.04b  | 143.54±1.55b   |
|            | BN95% | 1.18±0.17c  | 23.65±0.64b  | 0.73±0.09d  | 7.60±0.20c   | 59.53±1.64d   | 0.70±0.02ba  | 12.39±0.37d   | 0.35±0.05b  | 106.13±2.96c   |
|            | BN    | 2.43±0.22b  | 44.34±0.44b  | 1.48±0.05b  | 15.82±0.21b  | 70.19±0.51bc  | 0.84±0.00a   | 17.20±0.24b   | 0.46±0.01b  | 152.76±1.15ab  |
|            | YN    | 2.18±0.06b  | 48.73±0.15a  | 1.08±0.08cd | 15.61±0.09b  | 62.46±4.18d   | 0.54±0.24b   | 15.01±0.10c   | 0.33±0.02b  | 145.92±4.17b   |
|            | RN    | 2.48±0.16b  | 47.72±0.49a  | 1.36±0.28bc | 16.35±0.26b  | 77.62±0.81a   | 0.95±0.02a   | 16.67±0.24b   | 0.44±0.01b  | 163.59±1.47a   |
| Jingning 1 |       |             |              |             |              |               |              |               |             |                |
| No.1       | CK    | 3.28±0.68a  | 33.17±1.03ab | 3.45±0.03a  | 13.86±0.10a  | 137.80±0.97a  | 1.47±0.05a   | 36.80±0.46a   | 1.26±0.05a  | 231.10±2.05a   |
|            | BN70% | 2.95±0.08a  | 31.73±0.39bc | 2.48±0.25b  | 13.03±0.12b  | 136.21±0.92a  | 1.43±0.01ab  | 33.32±0.22b   | 1.01±0.01b  | 222.16±1.58ab  |
|            | BN95% | 3.15±0.11a  | 33.80±0.84a  | 2.69±0.03b  | 12.31±0.38c  | 134.00±3.59a  | 1.26±0.02cd  | 31.49±0.89c   | 0.96±0.02bc | 219.67±5.85bc  |
|            | BN    | 3.07±0.09a  | 25.27±0.24d  | 2.59±0.28b  | 11.49±0.29d  | 133.58±2.18a  | 1.32±0.03bcd | 32.90±0.60bc  | 0.89±0.04c  | 211.12±2.67c   |
|            | YN    | 3.21±0.28a  | 30.46±0.30c  | 2.41±0.27b  | 12.18±0.22c  | 138.76±3.21a  | 1.38±0.05abc | 33.41±0.82b   | 0.94±0.04bc | 222.76±3.85ab  |
|            | RN    | 2.95±0.31a  | 26.02±0.18d  | 2.17±0.13b  | 10.85±0.13e  | 138.39±1.22a  | 1.24±0.09d   | 34.41±0.43b   | 1.01±0.02b  | 217.03±1.40bc  |
| No.2       | CK    | 3.35±0.16ab | 26.08±0.31ab | 2.20±0.22ab | 13.02±0.19a  | 138.13±2.28d  | 1.35±0.03a   | 37.95±0.62a   | 1.37±0.05b  | 223.47±3.18bc  |
|            | BN70% | 3.13±0.07ab | 27.05±0.25a  | 2.32±0.05a  | 12.78±0.07a  | 144.60±1.27b  | 0.48±0.05bc  | 36.52±0.28ab  | 1.25±0.03b  | 228.12±1.81ab  |
|            | BN95% | 3.69±0.86a  | 22.60±0.25c  | 2.17±0.02ab | 10.62±0.07c  | 139.71±0.69cd | 1.13±0.60ab  | 33.32±0.15d   | 1.95±0.03a  | 215.19±0.40d   |
|            | BN    | 2.63±0.25b  | 25.54±0.41b  | 2.15±0.23ab | 11.59±0.19b  | 143.37±1.38bc | 0.40±0.03c   | 33.67±0.42cd  | 1.26±0.01b  | 220.60±2.42cd  |
|            | YN    | 2.98±0.07ab | 26.98±0.63a  | 1.77±0.19b  | 12.50±0.41a  | 149.90±2.12a  | 0.42±0.01c   | 35.82±0.33abc | 1.33±0.04b  | 231.69±3.28a   |
|            | RN    | 2.66±0.01b  | 26.23±0.36ab | 2.04±0.24ab | 11.44±0.53bc | 148.11±2.09ab | 0.43±0.01c   | 34.39±1.86bcd | 1.22±0.23b  | 226.51±0.44abc |
| No.3       | CK    | 2.53±0.09a  | 25.01±0.16c  | 2.39±0.07ab | 12.03±0.03a  | 138.98±1.14a  | 1.13±0.00a   | 30.59±0.17a   | 1.03±0.01a  | 213.69±1.45a   |
|            | BN70% | 2.32±0.16ab | 23.88±0.15d  | 2.37±0.21ab | 11.03±0.09c  | 134.50±1.73bc | 1.00±0.01b   | 27.02±0.29b   | 0.98±0.02b  | 203.09±2.18c   |
|            | BN95% | 2.03±0.31b  | 20.96±0.11d  | 2.13±0.12b  | 9.42±0.07e   | 132.88±1.51c  | 0.86±0.00d   | 25.31±0.21d   | 0.84±0.01d  | 194.42±1.49d   |

|              |       |              |              |             |              |                |             |              |             |               |
|--------------|-------|--------------|--------------|-------------|--------------|----------------|-------------|--------------|-------------|---------------|
| No.4         | BN    | 2.16±0.19ab  | 24.72±0.08c  | 2.59±0.11ab | 10.44±0.09d  | 126.98±0.86d   | 0.96±0.00c  | 23.90±0.25e  | 0.90±0.01c  | 192.63±1.33d  |
|              | YN    | 2.30±0.12ab  | 26.37±0.03b  | 2.64±0.23ab | 11.63±0.08b  | 136.91±0.93ab  | 1.00±0.03b  | 26.02±0.31c  | 0.88±0.01cd | 207.75±1.55bc |
|              | RN    | 2.40±0.05ab  | 27.96±0.43a  | 2.69±0.31a  | 11.64±0.19b  | 136.49±1.75abc | 1.02±0.02b  | 25.74±0.27cd | 1.01±0.02ab | 208.96±2.67ab |
|              | CK    | 2.34±0.02bc  | 32.55±0.18a  | 3.07±0.13a  | 12.08±0.21b  | 128.82±1.00bc  | 0.91±0.02e  | 25.73±0.14b  | 0.91±0.02a  | 206.41±0.99a  |
|              | BN70% | 2.65±0.21ab  | 33.40±0.30a  | 2.52±0.23b  | 11.08±0.13c  | 136.53±0.39ab  | 0.96±0.01d  | 24.51±0.17c  | 0.84±0.01b  | 212.49±0.86a  |
|              | BN95% | 1.95±0.49cd  | 26.00±0.08b  | 2.08±0.14bc | 9.00±0.31d   | 130.82±0.45bc  | 1.01±0.01c  | 22.80±0.08d  | 0.63±0.00d  | 194.30±0.49b  |
| No.5         | BN    | 3.23±0.00a   | 32.75±3.52a  | 1.94±0.03c  | 16.29±0.09a  | 133.37±0.97ab  | 1.12±0.00a  | 22.95±0.20d  | 0.59±0.01e  | 212.24±2.79a  |
|              | YN    | 2.23±0.08bcd | 32.61±0.16a  | 2.26±0.29bc | 11.08±0.03c  | 140.81±1.54a   | 1.07±0.01b  | 24.51±0.35c  | 0.68±0.01c  | 215.24±2.35a  |
|              | RN    | 1.70±0.01d   | 23.21±0.12b  | 2.14±0.04bc | 11.30±0.11c  | 123.15±7.57c   | 0.57±0.01f  | 27.32±0.20a  | 0.35±0.01f  | 189.73±7.63b  |
|              | CK    | 2.58±0.11bc  | 33.63±1.44a  | 3.22±0.14a  | 13.33±0.01a  | 123.67±1.64d   | 0.83±0.01d  | 28.23±0.47b  | 0.80±0.01ab | 206.30±3.59bc |
|              | BN70% | 3.15±0.19a   | 29.95±0.28b  | 2.72±0.12b  | 11.79±0.15b  | 133.39±1.01b   | 1.21±0.02b  | 27.33±0.19c  | 0.68±0.00bc | 210.22±1.65b  |
|              | BN95% | 2.34±0.24c   | 29.67±0.23b  | 1.98±0.20cd | 9.90±0.12d   | 129.56±0.83c   | 1.13±0.01c  | 27.01±0.26c  | 0.94±0.19a  | 202.53±1.56c  |
| Zhonghuang 2 | BN    | 1.70±0.18d   | 30.11±0.29b  | 1.60±0.08d  | 8.02±0.18f   | 120.29±1.52d   | 1.23±0.03b  | 22.26±0.33d  | 0.56±0.02c  | 185.76±2.43e  |
|              | YN    | 1.90±0.11d   | 34.63±0.26a  | 1.81±0.21d  | 8.84±0.05e   | 122.07±0.53d   | 1.28±0.01a  | 22.14±0.10d  | 0.56±0.03c  | 193.23±0.96d  |
|              | RN    | 2.89±0.06ab  | 30.43±0.28b  | 2.38±0.26bc | 10.93±0.28c  | 138.63±1.48a   | 1.23±0.01b  | 30.29±0.33a  | 0.91±0.02a  | 217.68±1.81a  |
| No.1         | CK    | 2.45±0.03a   | 5.51±0.05cd  | 2.89±0.04a  | 15.82±0.27a  | 104.56±3.09b   | 1.08±0.02ab | 23.88±0.64a  | 0.49±0.06a  | 156.67±3.45b  |
|              | BN70% | 2.48±0.39a   | 6.05±0.17b   | 2.49±0.13b  | 13.91±0.74b  | 114.54±0.86a   | 1.03±0.07bc | 23.24±1.80ab | 0.45±0.03ab | 164.19±3.40ab |
|              | BN95% | 2.09±0.29a   | 5.34±0.09d   | 2.34±0.17b  | 12.72±0.13d  | 102.56±0.34b   | 1.00±0.02bc | 21.08±0.08b  | 0.42±0.01ab | 147.55±0.48c  |
| No.2         | BN    | 2.58±0.50a   | 5.69±0.06c   | 2.65±0.15ab | 13.75±0.16bc | 107.24±3.54b   | 0.99±0.01c  | 23.05±0.67ab | 0.37±0.02b  | 156.31±5.02b  |
|              | YN    | 2.70±0.15a   | 6.23±0.13b   | 2.60±0.03ab | 14.37±0.14b  | 114.70±0.89a   | 1.01±0.02bc | 23.94±0.31a  | 0.41±0.01b  | 165.97±1.28a  |
|              | RN    | 2.39±0.29a   | 6.87±0.05a   | 1.64±0.10c  | 12.95±0.13cd | 114.36±1.70a   | 1.12±0.02a  | 22.91±0.29ab | 0.50±0.02a  | 162.74±2.10ab |
|              | CK    | 2.99±0.13a   | 33.15±0.21ab | 2.06±0.13a  | 13.77±0.17a  | 105.82±0.51c   | 1.08±0.00b  | 24.59±0.10b  | 0.50±0.01ab | 183.97±0.83b  |
|              | BN70% | 2.39±0.29a   | 33.76±0.31a  | 2.21±0.18a  | 14.17±0.44a  | 121.08±2.09a   | 1.15±0.00a  | 26.04±0.60a  | 0.54±0.01a  | 201.35±2.16a  |
|              | BN95% | 2.63±0.25a   | 25.52±0.16e  | 2.01±0.21a  | 12.24±0.21b  | 115.56±0.79ab  | 1.05±0.01b  | 23.74±0.18bc | 0.46±0.01c  | 183.21±1.13b  |
|              | BN    | 2.55±0.22a   | 28.23±0.52d  | 2.32±0.09a  | 13.61±0.13a  | 112.52±1.57b   | 1.08±0.02b  | 23.05±0.35c  | 0.46±0.01bc | 183.83±2.53b  |
|              | YN    | 2.54±0.52a   | 31.20±1.30c  | 2.29±0.29a  | 14.44±0.54a  | 116.66±4.48ab  | 0.50±0.02d  | 24.06±0.94bc | 0.49±0.03bc | 192.18±8.06ab |
|              | RN    | 2.52±0.35a   | 31.90±0.37bc | 1.99±0.13a  | 14.39±0.21a  | 117.33±0.92ab  | 0.54±0.02c  | 23.75±0.08bc | 0.48±0.00bc | 192.91±1.45ab |

|      |       |             |               |             |              |               |            |              |             |               |
|------|-------|-------------|---------------|-------------|--------------|---------------|------------|--------------|-------------|---------------|
| No.3 | CK    | 1.34±0.10a  | 26.04±0.25a   | 1.89±0.20a  | 11.03±0.41d  | 94.67±0.62c   | 1.72±0.02c | 18.32±0.14d  | 0.48±0.01b  | 155.49±0.93e  |
|      | BN70% | 1.23±0.05a  | 24.21±0.40b   | 1.68±0.17ab | 12.80±0.31ab | 115.12±1.60a  | 2.33±0.05a | 22.11±0.31a  | 0.51±0.01b  | 179.99±2.74d  |
|      | BN95% | 1.23±0.05a  | 21.22±0.19b   | 1.87±0.01a  | 12.11±0.11c  | 107.05±1.09b  | 2.00±0.04b | 18.99±0.19c  | 0.48±0.01a  | 164.96±1.22a  |
|      | BN    | 1.27±0.02a  | 24.15±0.33c   | 1.45±0.16b  | 12.56±0.14bc | 113.20±1.29a  | 1.97±0.03b | 20.00±0.19b  | 0.49±0.01b  | 175.09±2.07ab |
|      | YN    | 1.23±0.06a  | 26.79±0.44a   | 1.49±0.05b  | 13.22±0.26ab | 105.19±1.60b  | 1.47±0.04d | 18.34±0.31d  | 0.46±0.01c  | 168.20±2.48cd |
|      | RN    | 1.18±0.05a  | 26.21±0.23a   | 1.57±0.06ab | 13.37±0.12a  | 108.35±0.86b  | 1.80±0.04c | 18.55±0.10cd | 0.50±0.01ab | 171.54±1.35bc |
| No.4 | CK    | 1.64±0.02a  | 31.91±0.17c   | 1.60±0.09a  | 11.06±0.13ab | 101.18±1.12d  | 2.34±0.03a | 19.45±0.23c  | 0.27±0.01a  | 169.46±1.63c  |
|      | BN70% | 1.54±0.13ab | 33.73±0.89b   | 1.19±0.02b  | 11.48±1.15a  | 108.44±2.05bc | 2.35±0.07a | 20.59±0.35b  | 0.17±0.01b  | 179.49±3.58ab |
|      | BN95% | 1.14±0.06d  | 28.57±0.86d   | 1.22±0.06b  | 9.49±0.50b   | 105.30±0.90c  | 1.85±0.02d | 19.22±0.16c  | 0.16±0.01b  | 166.94±1.84c  |
|      | BN    | 1.32±0.06cd | 31.91±0.59c   | 1.34±0.09b  | 11.55±0.43a  | 109.71±1.00b  | 2.04±0.02c | 20.24±0.23b  | 0.18±0.03b  | 178.28±1.64b  |
|      | YN    | 1.30±0.04cd | 32.25±0.46bc  | 1.29±0.09b  | 11.12±0.24a  | 115.88±2.04a  | 2.17±0.05b | 22.03±0.42a  | 0.17±0.02b  | 186.21±3.12a  |
|      | RN    | 1.40±0.10bc | 41.28±0.52a   | 1.17±0.02b  | 11.93±0.43a  | 105.95±1.32bc | 1.65±0.02e | 17.16±0.23d  | 0.18±0.01b  | 180.72±2.29ab |
| No.5 | CK    | 3.09±0.05a  | 32.88±0.92cd  | 1.64±0.22a  | 11.85±0.05c  | 107.48±1.29a  | 2.04±0.02a | 24.91±0.31a  | 0.43±0.00a  | 184.32±0.51a  |
|      | BN70% | 2.09±0.18b  | 39.72±0.51a   | 1.31±0.19a  | 12.97±0.20a  | 89.19±1.92c   | 1.30±0.05d | 21.98±0.46b  | 0.36±0.03ab | 168.92±2.92b  |
|      | BN95% | 2.33±0.13b  | 32.40±2.08d   | 1.27±0.14a  | 11.02±0.05d  | 79.98±0.52d   | 1.03±0.03e | 18.35±0.22d  | 0.32±0.05ab | 146.70±1.90d  |
|      | BN    | 2.61±0.19ab | 35.55±1.45bcd | 1.39±0.10a  | 12.24±0.34bc | 108.09±3.56a  | 1.88±0.08b | 25.88±0.80a  | 0.36±0.01ab | 188.01±4.15a  |
|      | YN    | 2.49±0.30b  | 36.62±2.14abc | 1.40±0.02a  | 12.14±0.07bc | 82.93±1.00d   | 1.03±0.01e | 18.70±0.27d  | 0.25±0.02b  | 155.55±3.17c  |
|      | RN    | 2.27±0.25b  | 38.77±1.00ab  | 1.45±0.05a  | 12.47±0.04b  | 96.22±0.89b   | 1.52±0.03c | 20.69±0.25c  | 0.36±0.12ab | 173.75±0.87b  |

<sup>a</sup> Abbreviation: EC: (–)-epicatechin; EGC: (–)-epigallocatechin; ECG: (–)-epicatechin gallate; EGCG: (–)-epigallocatechin gallate; GC: (+)-gallocatechin; C: (+)-catechin; TC: Total catechins; BN70%: samples under black net 70% shade treatment; BN95%: samples under black net 95% shade treatment; BN: samples under blue net shade treatment; YN: samples under yellow net shade treatment; RN: samples under red net shade treatment. For the same tea cultivars with the same serial number, data with different alphabetic letters (a, b, c, d, e, f) in the same column were significantly different at  $P<0.05$ . Significant difference analysis was carried out by the SAS System for Windows version 8.1 (SAS Institute Inc., Cary, NC, USA) using Tukey test. Data expressed as mean±SD represent n = 3 replicates.

<sup>b</sup> Quantified by the corresponding authentic standards.

Table S2 The contents of flavonol glycosides in different tea cultivars under shade treatments ( $\mu\text{g/g}$  dry weight) <sup>a</sup>

| Time        | Treatment | M-gal-rha-glu <sup>b</sup> | M-gal <sup>b</sup> | M-glu <sup>b</sup> | Q-gal-rha-glu <sup>b</sup> | Q-glu-rha-glu <sup>b</sup> | Q-glu-rha-rha <sup>b</sup> | Q-glu-rha <sup>b</sup> | Q-gal <sup>b</sup> | Q-glu <sup>b</sup> | K-glu-rha-glu <sup>b</sup> | K-gal <sup>b</sup> | K-glu-rha <sup>b</sup> | K-glu <sup>b</sup> | TFG       |
|-------------|-----------|----------------------------|--------------------|--------------------|----------------------------|----------------------------|----------------------------|------------------------|--------------------|--------------------|----------------------------|--------------------|------------------------|--------------------|-----------|
| Longjing 43 |           |                            |                    |                    |                            |                            |                            |                        |                    |                    |                            |                    |                        |                    |           |
| No.1        | CK        | 69±2a                      | 953±33a            | 479±9a             | 470±13a                    | 358±20a                    | 746±9a                     | 193±19a                | 385±5a             | 100±5a             | 302±8a                     | 324±22a            | 75±10a                 | 36±3a              | 4490±121a |
|             | BN70%     | 54±4b                      | 591±18b            | 214±7b             | 210±1b                     | 115±5b                     | 784±37a                    | 84±8b                  | 166±5b             | 35±3b              | 237±9b                     | 330±9a             | 48±2b                  | 34±1a              | 2902±50b  |
|             | BN95%     | 34±1d                      | 413±7e             | 137±5c             | 152±5c                     | 84±3c                      | 704±33a                    | 68±5bc                 | 116±3c             | 14±1c              | 152±9c                     | 269±12ab           | 42±7b                  | 20±1c              | 2205±8c   |
|             | BN        | 35±1d                      | 423±3de            | 137±2c             | 161±3c                     | 73±2c                      | 773±97a                    | 55±0c                  | 95±1d              | 7±1d               | 151±7c                     | 215±26b            | 39±2b                  | 20±1bc             | 2186±80c  |
|             | YN        | 38±1d                      | 474±1c             | 136±3c             | 129±4d                     | 69±1c                      | 668±56a                    | 64±10bc                | 120±3c             | 10±1cd             | 142±9c                     | 312±48a            | 53±5b                  | 24±1b              | 2240±105c |
|             | RN        | 46±2c                      | 467±12cd           | 139±9c             | 132±1d                     | 61±1c                      | 680±43a                    | 61±7bc                 | 119±4c             | 12±1cd             | 157±6c                     | 269±1ab            | 37±8b                  | 22±1bc             | 2201±49c  |
| No.2        | CK        | 68±1a                      | 1105±29a           | 551±6a             | 549±4a                     | 487±9a                     | 717±43b                    | 195±33a                | 490±8a             | 144±6a             | 314±4a                     | 296±40a            | 72±16a                 | 42±4a              | 5029±101a |
|             | BN70%     | 59±2b                      | 726±47b            | 260±4b             | 248±1b                     | 121±4b                     | 936±54a                    | 71±5b                  | 194±3b             | 46±5b              | 293±11a                    | 343±17a            | 66±7a                  | 36±3a              | 3398±127b |
|             | BN95%     | 40±2d                      | 453±5d             | 147±3d             | 168±8c                     | 63±1d                      | 886±41a                    | 53±14b                 | 127±7d             | 18±0cd             | 184±1c                     | 291±17a            | 56±9a                  | 26±0b              | 2513±69cd |
|             | BN        | 44±3d                      | 486±11d            | 153±3d             | 145±6d                     | 75±3c                      | 815±65ab                   | 45±10b                 | 113±1e             | 16±0d              | 168±9c                     | 271±19a            | 48±8a                  | 24±2b              | 2403±42d  |
|             | YN        | 34±0e                      | 452±5d             | 127±4e             | 139±3d                     | 74±2cd                     | 822±60ab                   | 42±1b                  | 111±3e             | 15±1d              | 172±2c                     | 300±28a            | 61±2a                  | 26±2b              | 2375±81d  |
|             | RN        | 51±1c                      | 580±11c            | 167±7c             | 166±4c                     | 70±2cd                     | 818±77ab                   | 52±4b                  | 144±2c             | 28±5c              | 207±12b                    | 298±29a            | 56±8a                  | 28±1b              | 2664±114c |
| No.3        | CK        | 61±2a                      | 1151±24a           | 474±10a            | 476±15a                    | 371±9a                     | 806±32ab                   | 135±6a                 | 394±10a            | 78±3a              | 308±13a                    | 294±26a            | 64±9a                  | 42±3a              | 4653±89a  |
|             | BN70%     | 53±3b                      | 611±7b             | 201±8b             | 231±4b                     | 90±4bc                     | 892±12a                    | 64±5b                  | 145±6b             | 37±2b              | 275±12b                    | 254±25ab           | 32±7b                  | 24±2b              | 2908±44b  |
|             | BN95%     | 52±6b                      | 481±3d             | 146±5d             | 167±2c                     | 90±2bc                     | 799±50ab                   | 41±8cd                 | 105±5d             | 25±3d              | 207±9c                     | 186±31c            | 25±8b                  | 18±1c              | 2341±78d  |
|             | BN        | 40±1d                      | 412±5e             | 126±3e             | 130±3d                     | 77±1d                      | 748±42b                    | 32±3d                  | 81±3e              | 9±1e               | 185±2d                     | 147±13c            | 20±3b                  | 13±1d              | 2021±34e  |
|             | YN        | 42±2cd                     | 460±6d             | 133±4de            | 139±3d                     | 82±1cd                     | 785±61ab                   | 41±5cd                 | 94±3de             | 29±0cd             | 218±5cd                    | 202±13bc           | 20±0b                  | 16±2cd             | 2263±55d  |
|             | RN        | 49±1bc                     | 556±9c             | 166±6c             | 182±3c                     | 99±1b                      | 890±16a                    | 51±5bc                 | 124±2c             | 33±1bc             | 254±3b                     | 290±24a            | 25±5b                  | 24±1b              | 2743±13c  |
| No.4        | CK        | 76±7b                      | 1217±1a            | 748±1a             | 618±3a                     | 613±2a                     | 759±3b                     | 241±16a                | 528±8a             | 172±2a             | 294±6b                     | 250±21a            | 67±8a                  | 44±1b              | 5628±51a  |
|             | BN70%     | 57±0bc                     | 582±4b             | 285±7b             | 240±2b                     | 161±5c                     | 895±93a                    | 73±12bc                | 166±6b             | 55±2c              | 223±8c                     | 165±12bc           | 31±1c                  | 20±1c              | 2954±75b  |
|             | BN95%     | 33±2c                      | 373±6d             | 149±8e             | 152±3d                     | 104±0d                     | 717±28b                    | 33±3d                  | 106±5d             | 34±1d              | 166±3d                     | 127±17c            | 20±3d                  | 14±1e              | 2026±54d  |
|             | BN        | 121±18a                    | 277±1e             | 227±4c             | 41±0f                      | 249±3b                     | 258±11c                    | 88±21b                 | 102±6d             | 97±5b              | 493±16a                    | 216±46ab           | 43±3b                  | 68±2a              | 2278±95d  |
|             | YN        | 48±10c                     | 367±7d             | 129±9f             | 114±2e                     | 75±3e                      | 941±28a                    | 36±5d                  | 90±7d              | 27±2e              | 162±13d                    | 172±15bc           | 27±2cd                 | 15±1de             | 2205±50e  |
|             | RN        | 42±8c                      | 446±8c             | 167±5d             | 163±2c                     | 103±3d                     | 946±13a                    | 47±5cd                 | 131±5c             | 37±2d              | 174±8d                     | 197±16ab           | 25±2cd                 | 18±1cd             | 2495±19c  |

|               |       |        |         |          |         |          |            |          |         |        |          |           |          |         |            |
|---------------|-------|--------|---------|----------|---------|----------|------------|----------|---------|--------|----------|-----------|----------|---------|------------|
| No.5          | CK    | 41±0a  | 991±14a | 1016±10a | 749±6a  | 1066±5a  | 606±43ab   | 464±20a  | 566±6a  | 316±5a | 268±2a   | 159±16a   | 83±8a    | 44±2a   | 6370±48a   |
|               | BN70% | 24±1c  | 527±8b  | 331±5b   | 331±4b  | 258±7b   | 549±19ab   | 87±12bc  | 175±5b  | 66±2b  | 125±2b   | 78±4cd    | 20±7bc   | 15±0b   | 2586±54b   |
|               | BN95% | 16±0e  | 183±2f  | 138±6c   | 118±2d  | 97±4c    | 500±25b    | 52±1c    | 59±1e   | 15±2d  | 83±4d    | 71±17d    | 15±2c    | 9±1d    | 1357±20e   |
|               | BN    | 19±1d  | 263±9d  | 139±7c   | 97±3e   | 60±1e    | 649±40a    | 63±13bc  | 62±4e   | 10±1d  | 83±1d    | 105±5bc   | 26±3bc   | 11±1cd  | 1587±20d   |
|               | YN    | 34±2b  | 222±5e  | 93±3d    | 117±3d  | 77±3d    | 652±65a    | 71±8bc   | 78±3d   | 11±3d  | 94±1c    | 117±12b   | 25±6bc   | 12±0bcd | 1603±68d   |
|               | RN    | 32±0b  | 300±2c  | 154±2c   | 148±0c  | 101±5c   | 653±23a    | 61±3bc   | 94±4c   | 32±1c  | 128±4b   | 110±6b    | 32±5b    | 13±1bc  | 1858±31c   |
| Zhongming 192 |       |        |         |          |         |          |            |          |         |        |          |           |          |         |            |
| No.1          | CK    | 50±3a  | 929±2a  | 647±9a   | 726±10a | 1225±14a | 1102±99b   | 477±14a  | 713±12a | 242±5a | 507±11bc | 547±25ab  | 159±12a  | 87±3ab  | 7412±156a  |
|               | BN70% | 52±3a  | 804±10b | 475±8b   | 648±19b | 984±20b  | 1054±31b   | 315±54b  | 574±10b | 170±4b | 509±9bc  | 559±41ab  | 124±2bc  | 59±3c   | 6326±116b  |
|               | BN95% | 47±4a  | 691±7c  | 432±2c   | 593±2c  | 959±49b  | 1138±120ab | 317±43b  | 442±5c  | 154±4c | 523±5ab  | 525±10b   | 120±4c   | 63±2c   | 6004±201bc |
|               | BN    | 47±2a  | 706±9c  | 412±5d   | 527±3d  | 805±10d  | 1135±81ab  | 250±11b  | 446±8c  | 142±3d | 495±5c   | 496±23b   | 115±8c   | 66±6c   | 5643±61d   |
|               | YN    | 51±4a  | 706±15c | 409±9d   | 544±7d  | 877±10c  | 1095±122b  | 250±4b   | 442±4c  | 143±3d | 524±7ab  | 566±33ab  | 123±21bc | 83±4b   | 5811±98cd  |
|               | RN    | 54±2a  | 606±10d | 376±3e   | 539±5d  | 717±4e   | 1394±91a   | 262±42b  | 434±2c  | 128±1e | 543±11a  | 677±99a   | 152±5ab  | 95±6a   | 5978±17cd  |
| No.2          | CK    | 53±1a  | 946±28a | 590±7a   | 694±20a | 874±40a  | 1198±151ab | 310±58a  | 811±29a | 227±9a | 608±11a  | 733±20a   | 189±19a  | 123±9a  | 7355±57a   |
|               | BN70% | 46±3b  | 734±11b | 381±6b   | 531±13b | 661±4b   | 968±63b    | 238±17ab | 498±9b  | 118±2b | 418±11d  | 546±68bc  | 117±15b  | 64±2c   | 5321±167b  |
|               | BN95% | 41±2bc | 518±20d | 286±6d   | 395±6d  | 454±17c  | 1007±53ab  | 159±18b  | 308±14d | 101±6c | 494±16c  | 480±19c   | 89±8b    | 61±1c   | 4394±122d  |
|               | BN    | 38±2c  | 632±41c | 355±2c   | 448±9c  | 486±8c   | 1037±87ab  | 210±44b  | 370±5c  | 127±4b | 518±1bc  | 556±49bc  | 92±15b   | 63±1c   | 4933±79c   |
|               | YN    | 45±3b  | 626±27c | 275±12d  | 360±11e | 301±10e  | 1198±67ab  | 155±23b  | 314±10d | 88±6c  | 527±9b   | 604±78abc | 97±2b    | 82±4b   | 4673±172cd |
|               | RN    | 40±2bc | 604±45c | 281±2d   | 387±4d  | 387±8d   | 1232±65a   | 198±28b  | 328±3d  | 101±2c | 530±7b   | 672±58ab  | 161±22a  | 86±5b   | 5009±172bc |
| No.3          | CK    | 66±10a | 994±6a  | 568±6a   | 738±10a | 701±11a  | 1452±94a   | 202±3a   | 696±9a  | 217±5a | 771±2a   | 1011±176a | 170±50a  | 117±9a  | 7702±328a  |
|               | BN70% | 48±3b  | 733±8b  | 307±2b   | 477±14b | 355±6b   | 1412±6a    | 116±6b   | 380±3b  | 98±1b  | 646±20c  | 833±71ab  | 145±30a  | 105±3ab | 5653±108b  |
|               | BN95% | 55±5ab | 558±8d  | 241±10d  | 341±10c | 222±8c   | 1461±140a  | 74±26dc  | 240±7c  | 67±1cd | 607±20cd | 780±108ab | 134±6a   | 81±10c  | 4863±141d  |
|               | BN    | 58±3ab | 635±15c | 278±6c   | 356±4c  | 221±8c   | 1681±38a   | 92±8bc   | 243±4c  | 77±2c  | 711±15ab | 906±24ab  | 143±9a   | 95±3bc  | 5495±48bc  |
|               | YN    | 49±3b  | 556±7d  | 206±3e   | 261±5e  | 158±4e   | 1431±139a  | 59±1d    | 194±1e  | 49±5e  | 565±45d  | 796±37ab  | 150±6a   | 94±3bc  | 4567±162d  |
|               | RN    | 45±2b  | 629±12c | 251±9d   | 316±6d  | 194±6d   | 1611±165a  | 76±3cd   | 217±7d  | 65±6d  | 652±10bc | 751±44b   | 111±17a  | 94±8bc  | 5011±232cd |
| No.4          | CK    | 64±1a  | 1033±7a | 638±2a   | 785±9a  | 888±11a  | 1043±38abc | 195±14a  | 796±1a  | 225±5a | 612±14b  | 713±14a   | 166±20a  | 150±3b  | 7308±90a   |
|               | BN70% | 54±3ab | 624±7b  | 347±11b  | 462±29b | 468±8b   | 1131±104ab | 74±5c    | 164±4e  | 145±6b | 1102±9a  | 654±9b    | 150±5ab  | 166±6a  | 5541±116b  |



|           |       |        |          |         |         |          |            |         |         |         |         |          |         |          |           |
|-----------|-------|--------|----------|---------|---------|----------|------------|---------|---------|---------|---------|----------|---------|----------|-----------|
| No.5      | BN95% | 51±5b  | 490±6e   | 221±3e  | 357±4de | 216±6d   | 1200±107a  | 101±10b | 247±6d  | 67±8d   | 588±3bc | 495±28c  | 121±16b | 75±9c    | 4228±115c |
|           | BN    | 59±6ab | 600±11c  | 291±8c  | 396±5c  | 258±8c   | 984±37bc   | 83±7bc  | 302±8b  | 90±5c   | 616±20b | 463±11cd | 61±3c   | 73±7c    | 4278±118c |
|           | YN    | 56±7ab | 589±7cd  | 240±1d  | 339±2e  | 214±3d   | 1033±21abc | 67±7c   | 270±4c  | 84±3c   | 590±8bc | 479±20cd | 44±9c   | 82±2c    | 4085±34c  |
|           | RN    | 61±6ab | 572±5d   | 235±3de | 386±4cd | 239±6c   | 948±30c    | 67±5c   | 298±13b | 86±8c   | 582±6c  | 443±18d  | 50±7c   | 70±3c    | 4036±18c  |
|           | CK    | 57±4a  | 925±33a  | 729±39a | 890±44a | 1477±87a | 712±92a    | 317±13a | 874±38a | 317±18a | 540±28a | 322±40a  | 101±4a  | 103±9a   | 7364±324a |
|           | BN70% | 37±2c  | 679±5b   | 375±4b  | 678±10b | 671±6b   | 736±168a   | 133±3b  | 526±4b  | 171±7b  | 543±19a | 307±27a  | 80±9ab  | 66±1b    | 5000±132b |
|           | BN95% | 47±2b  | 466±10d  | 297±3c  | 516±10c | 567±41b  | 677±109a   | 120±6bc | 357±11c | 135±7c  | 530±15a | 204±22b  | 68±16bc | 43±2c    | 4027±127c |
|           | BN    | 47±3b  | 609±8c   | 306±5c  | 508±10c | 425±11c  | 774±54a    | 97±6cd  | 373±7c  | 125±4c  | 557±13a | 250±34ab | 54±3cd  | 51±1c    | 4177±85c  |
|           | YN    | 43±3bc | 372±3e   | 178±2d  | 318±2d  | 209±4d   | 608±78a    | 63±13e  | 212±2d  | 62±2d   | 435±12b | 199±9b   | 35±4d   | 32±2d    | 2764±74d  |
| RN        | 47±0b | 360±4e | 203±3d   | 317±4d  | 249±1d  | 551±59a  | 73±18de    | 180±7d  | 52±3d   | 398±5b  | 104±16c | 62±8bc   | 8±1e    | 2605±60d |           |
| Wanghai 1 |       |        |          |         |         |          |            |         |         |         |         |          |         |          |           |
| No.1      | CK    | 72±4a  | 358±15a  | 180±9a  | 814±45a | 430±12a  | 1477±108a  | 143±10a | 155±10a | 73±4a   | 448±62a | 152±14a  | 73±14a  | 33±2a    | 4408±182a |
|           | BN70% | 51±3cd | 181±2b   | 81±4b   | 482±11b | 230±7b   | 1263±50b   | 72±1b   | 58±2b   | 31±3b   | 281±4bc | 70±3b    | 24±1b   | 18±0c    | 2842±74b  |
|           | BN95% | 60±2b  | 112±4d   | 43±3c   | 222±4de | 96±3d    | 1301±35b   | 30±2c   | 28±3d   | 21±4c   | 239±6bc | 67±8b    | 22±0b   | 20±1bc   | 2260±33d  |
|           | BN    | 55±1bc | 170±3bc  | 80±5b   | 318±5c  | 184±6c   | 1292±65b   | 51±8bc  | 42±5c   | 30±1b   | 313±29b | 83±14b   | 39±3b   | 22±2b    | 2679±74bc |
|           | YN    | 55±1bc | 156±7c   | 48±4c   | 268±2cd | 166±5c   | 1304±56b   | 49±3c   | 35±3cd  | 26±3bc  | 258±6bc | 81±4b    | 42±13b  | 23±1b    | 2512±57c  |
|           | RN    | 46±2d  | 175±3bc  | 46±2c   | 187±1e  | 94±7d    | 1170±5b    | 41±14c  | 35±3cd  | 24±2bc  | 227±1c  | 87±18b   | 40±1b   | 21±2bc   | 2192±38d  |
| No.2      | CK    | 71±3a  | 337±15a  | 151±7a  | 881±10a | 392±6a   | 1274±54a   | 102±8a  | 145±6a  | 65±8a   | 429±14a | 132±6a   | 77±12a  | 31±3a    | 4087±105a |
|           | BN70% | 41±3c  | 205±10b  | 73±4b   | 440±6b  | 166±13b  | 1024±19c   | 36±3b   | 63±1b   | 28±2b   | 261±4d  | 81±13b   | 25±2b   | 19±1c    | 2462±50b  |
|           | BN95% | 51±3b  | 129±4d   | 37±1c   | 197±3e  | 75±2e    | 1138±31bc  | 18±4c   | 24±1d   | 23±2b   | 254±1d  | 75±9b    | 31±9b   | 21±3bc   | 2072±39d  |
|           | BN    | 43±1c  | 143±6d   | 36±1c   | 172±13e | 84±11de  | 1206±72ab  | 26±5bc  | 25±3d   | 23±1b   | 257±6d  | 75±5b    | 41±25b  | 20±3bc   | 2151±90cd |
|           | YN    | 52±3b  | 186±10bc | 65±3b   | 320±10c | 130±6c   | 1108±32bc  | 35±6b   | 40±5c   | 29±3b   | 376±14b | 93±7b    | 41±3b   | 21±4bc   | 2498±57b  |
|           | RN    | 43±2c  | 168±5c   | 45±2c   | 254±11d | 104±8d   | 1132±27bc  | 30±8bc  | 36±3c   | 25±1b   | 304±2c  | 102±17b  | 49±7ab  | 26±2ab   | 2320±24bc |
| No.3      | CK    | 65±1a  | 283±9a   | 169±4a  | 948±20a | 427±11a  | 1291±42a   | 70±4a   | 97±5a   | 53±4a   | 622±16a | 79±3a    | 49±1a   | 27±2a    | 4177±83a  |
|           | BN70% | 43±3d  | 168±3b   | 73±2b   | 420±6b  | 184±2b   | 1299±93a   | 32±2c   | 34±5b   | 30±5b   | 483±18b | 66±3b    | 30±3c   | 15±1c    | 2876±69b  |
|           | BN95% | 51±3bc | 57±2e    | 20±2d   | 110±2e  | 73±2e    | 1101±20b   | 20±1d   | 10±1d   | 14±2d   | 325±22d | 32±1d    | 13±0e   | 21±1b    | 1848±40e  |
|           | BN    | 53±3b  | 129±1c   | 56±4c   | 255±12c | 125±6c   | 1303±70a   | 39±2b   | 22±2c   | 23±2bc  | 403±7c  | 62±5b    | 24±1d   | 20±1b    | 2513±86c  |
|           | YN    | 44±2d  | 79±7d    | 10±2e   | 124±7e  | 80±1e    | 1070±16b   | 17±1d   | 13±1d   | 21±2cd  | 333±14d | 47±6c    | 25±2cd  | 19±1b    | 1883±17e  |

|            |       |        |         |         |           |           |           |          |         |         |          |          |         |        |           |
|------------|-------|--------|---------|---------|-----------|-----------|-----------|----------|---------|---------|----------|----------|---------|--------|-----------|
|            | RN    | 47±1cd | 88±3d   | 19±1d   | 176±1d    | 97±2d     | 1206±87ab | 18±2d    | 15±2cd  | 20±1cd  | 365±14cd | 69±4ab   | 41±4b   | 20±1b  | 2180±92d  |
| No.4       | CK    | 64±6a  | 301±8a  | 222±3a  | 1021±15a  | 517±12a   | 972±20b   | 89±8a    | 127±3a  | 82±1a   | 451±15b  | 70±7a    | 44±3a   | 27±1a  | 3987±57a  |
|            | BN70% | 38±1c  | 161±4b  | 120±7b  | 515±22b   | 234±11b   | 1065±5a   | 34±2b    | 39±5b   | 35±4b   | 501±20a  | 34±5b    | 13±2b   | 10±1c  | 2800±71b  |
|            | BN95% | 48±1b  | 55±2e   | 43±1d   | 194±1c    | 101±3cd   | 889±16c   | 18±5c    | 14±1cd  | 14±1c   | 354±3cd  | 23±2c    | 10±0b   | 16±2b  | 1779±27d  |
|            | BN    | 43±1bc | 94±0c   | 62±3c   | 186±5c    | 113±5c    | 992±18b   | 23±4bc   | 20±2c   | 19±4c   | 389±13c  | 23±3c    | 13±1b   | 11±1c  | 1990±41c  |
|            | YN    | 43±2bc | 65±5de  | 29±3e   | 121±3d    | 80±2e     | 839±23d   | 15±5c    | 15±2cd  | 16±1c   | 308±17e  | 28±1bc   | 12±3b   | 14±1bc | 1586±17e  |
|            | RN    | 43±2bc | 75±2d   | 38±5de  | 127±2d    | 87±1de    | 877±13cd  | 15±2c    | 13±0d   | 16±2c   | 339±16de | 30±0bc   | 13±2b   | 11±1c  | 1684±9de  |
| No.5       | CK    | 80±8a  | 400±30a | 453±47a | 1655±146a | 1136±106a | 794±55a   | 152±22a  | 154±20a | 137±21a | 510±54a  | 39±8a    | 59±6a   | 23±1a  | 5593±515a |
|            | BN70% | 33±2b  | 121±1b  | 110±3b  | 786±14b   | 396±10b   | 581±27bc  | 47±6b    | 30±1bc  | 28±5b   | 265±7b   | 10±1b    | 13±1b   | 5±0c   | 2426±23b  |
|            | BN95% | 36±1b  | 18±2d   | 11±1c   | 73±3d     | 50±4d     | 589±13bc  | 12±2c    | 8±1c    | 9±2b    | 179±3d   | 11±3b    | 4±1b    | 8±1b   | 1008±17e  |
|            | BN    | 42±2b  | 96±5b   | 90±1b   | 404±21c   | 216±10c   | 651±45b   | 26±2bc   | 28±1bc  | 27±3b   | 290±5b   | 12±1b    | 13±2b   | 7±3bc  | 1902±8bc  |
|            | YN    | 36±4b  | 34±4cd  | 21±2c   | 107±3d    | 74±3d     | 547±6c    | 14±4c    | 12±2c   | 13±2b   | 196±6cd  | 10±1b    | 6±3b    | 6±1bc  | 1076±15de |
|            | RN    | 38±3b  | 53±6c   | 29±5c   | 237±3d    | 122±7cd   | 671±24b   | 20±8bc   | 86±62ab | 48±27b  | 257±12bc | 10±1b    | 11±9b   | 8±1bc  | 1590±46cd |
| Jingning 1 |       |        |         |         |           |           |           |          |         |         |          |          |         |        |           |
| No.1       | CK    | 126±3a | 683±7a  | 495±2a  | 73±1a     | 722±11a   | 133±11a   | 179±17a  | 321±3a  | 163±29a | 692±38a  | 647±35a  | 99±22a  | 166±4a | 4499±65a  |
|            | BN70% | 98±3b  | 581±8b  | 414±8b  | 55±3b     | 484±7c    | 92±11ab   | 114±12b  | 240±9b  | 123±5b  | 561±12b  | 564±86ab | 54±10b  | 149±8a | 3529±42b  |
|            | BN95% | 98±3b  | 468±9d  | 360±12c | 45±1c     | 517±14b   | 121±24ab  | 117±13b  | 164±6d  | 88±5c   | 552±16b  | 519±55ab | 66±6ab  | 119±8b | 3234±37c  |
|            | BN    |        |         | 337±    |           |           |           |          |         |         |          |          |         |        |           |
|            |       | 78±6c  | 490±14c | 11d     | 35±1d     | 269±15e   | 88±17b    | 81±9c    | 182±8c  | 87±2c   | 512±25b  | 490±48b  | 42±19b  | 161±9a | 2853±46d  |
|            | YN    | 83±3c  | 439±2e  | 318±7de | 35±3d     | 329±11d   | 92±20ab   | 100±3bc  | 169±6cd | 82±6c   | 538±27b  | 463±27b  | 45±6b   | 151±7a | 2845±101d |
| No.2       | RN    | 86±2c  | 490±3cd | 313±4e  | 38±2d     | 241±3e    | 81±6b     | 88±7bc   | 174±5cd | 77±3c   | 556±17b  | 506±31b  | 42±11b  | 166±9a | 2857±65d  |
|            | CK    | 129±3a | 717±16a | 567±14a | 73±2a     | 734±30a   | 103±10a   | 120±12a  | 398±13a | 218±9a  | 790±19a  | 651±77a  | 90±21a  | 194±3a | 4785±125a |
|            | BN70% |        |         | 439±    |           |           |           |          |         |         |          |          |         |        |           |
|            |       | 103±2b | 592±9b  | 10b     | 63±0b     | 479±12b   | 124±14a   | 110±22ab | 288±6b  | 158±6b  | 719±20bc | 604±51a  | 83±18ab | 199±5a | 3961±140b |
|            | BN95% | 90±2c  | 381±7d  | 324±6d  | 43±1d     | 310±2cd   | 106±5a    | 75±9bc   | 178±3cd | 99±4c   | 650±3d   | 562±112a | 49±6b   | 193±6a | 3061±127e |
|            | BN    | 93±1c  | 436±40c | 354±4c  | 44±2d     | 322±3c    | 130±11a   | 70±18bc  | 184±3cd | 105±0c  | 709±9c   | 577±51a  | 70±16ab | 207±3a | 3300±77de |
|            | YN    | 104±2b | 417±1cd | 320±6d  | 43±2d     | 279±7d    | 130±27a   | 61±18c   | 171±7d  | 108±13c | 758±11ab | 616±87a  | 52±4ab  | 201±5a | 3260±25de |

|              |       |         |          |         |         |          |           |         |         |         |          |           |          |         |           |
|--------------|-------|---------|----------|---------|---------|----------|-----------|---------|---------|---------|----------|-----------|----------|---------|-----------|
|              |       | 341±    |          |         |         |          |           |         |         |         |          |           |          |         |           |
| RN           |       | 111±6b  | 419±10cd | 15cd    | 51±2c   | 342±9c   | 140±12a   | 69±6bc  | 192±7c  | 105±5c  | 781±27a  | 663±96a   | 76±9ab   | 200±17a | 3490±38c  |
| No.3         | CK    | 136±3a  | 622±5a   | 497±4a  | 88±4a   | 741±17a  | 139±5c    | 69±5a   | 322±5a  | 158±3a  | 911±15a  | 691±82ac  | 136±5a   | 189±5a  | 4700±118a |
|              | BN70% | 112±2c  | 372±9b   | 321±6b  | 67±1b   | 427±12b  | 141±10c   | 53±5ab  | 181±2b  | 110±14b | 884±8a   | 697±39abc | 52±26ab  | 182±5a  | 3601±21b  |
|              | BN95% | 96±3d   | 268±5e   | 228±4d  | 43±1d   | 270±1e   | 145±9c    | 36±5b   | 105±3d  | 78±3cd  | 757±15c  | 549±40c   | 38±4b    | 177±6a  | 2790±38d  |
|              | BN    | 107±3c  | 305±3d   | 282±3c  | 48±1c   | 347±6c   | 158±7c    | 67±8ab  | 114±5c  | 81±10cd | 822±11b  | 599±82bc  | 95±12ab  | 154±3b  | 3178±81c  |
|              | YN    | 109±2c  | 313±6d   | 220±4d  | 46±1cd  | 222±3f   | 223±14a   | 40±3ab  | 93±0e   | 61±5d   | 785±28bc | 716±45ab  | 45±5ab   | 158±5b  | 3031±88cd |
| RN           |       | 120±3b  | 343±15c  | 278±11c | 49±1c   | 307±5d   | 196±5b    | 60±26ab | 123±3c  | 83±2c   | 919±29a  | 795±26a   | 106±81ab | 190±5a  | 3568±194b |
| No.4         | CK    | 130±2a  | 637±5a   | 651±7a  | 83±2b   | 1096±14a | 132±22bcd | 143±21a | 372±9b  | 280±6a  | 847±17a  | 565±22b   | 96±24ab  | 137±2a  | 5169±98a  |
|              | BN70% | 109±1ab | 387±33b  | 384±2b  | 66±1c   | 580±3b   | 174±37bc  | 84±8b   | 224±3c  | 154±1b  | 781±2b   | 607±48b   | 65±2bc   | 144±1a  | 3760±50b  |
|              | BN95% | 91±2b   | 204±1e   | 205±3e  | 37±0e   | 331±2d   | 112±25cd  | 45±3c   | 98±2d   | 75±1d   | 586±3d   | 323±54cd  | 40±3cd   | 85±5c   | 2232±24c  |
|              | BN    | 48±2c   | 617±5a   | 320±4c  | 53±0d   | 456±3c   | 96±5d     | 79±6b   | 449±3a  | 106±2c  | 379±7f   | 860±44a   | 121±39a  | 60±6d   | 3645±95b  |
|              | YN    | 100±1ab | 256±5d   | 216±5d  | 35±2e   | 250±4e   | 185±15b   | 42±13c  | 97±4d   | 68±1d   | 632±10c  | 388±20c   | 24±1cd   | 105±4b  | 2398±24c  |
| RN           |       | 48±29c  | 341±9c   | 154±0f  | 115±2a  | 81±3f    | 623±26a   | 32±12c  | 104±20d | 70±21d  | 490±27e  | 255±37d   | 10±1d    | 42±9e   | 2366±123c |
| No.5         | CK    | 138±5a  | 631±5a   | 714±10a | 123±1a  | 1730±33a | 159±21a   | 257±11a | 377±5a  | 286±5a  | 774±17a  | 366±30bc  | 129±23a  | 80±2a   | 5763±38a  |
|              | BN70% | 98±3b   | 373±42b  | 338±1b  | 70±4b   | 643±11b  | 136±15a   | 111±25b | 205±1b  | 128±1b  | 628±7b   | 479±9a    | 66±2b    | 96±4ab  | 3371±64b  |
|              | BN95% | 85±5c   | 201±9d   | 221±6d  | 44±1d   | 514±11c  | 86±17bc   | 77±8bc  | 112±2d  | 86±3c   | 505±12d  | 273±69c   | 39±6bcd  | 56±3b   | 2298±111d |
|              | BN    | 70±3d   | 138±8e   | 182±2e  | 26±2e   | 303±11e  | 81±10c    | 54±10c  | 59±6e   | 54±1d   | 329±3e   | 115±10d   | 29±4cd   | 99±40ab | 1540±65e  |
| YN           |       |         |          |         |         |          |           |         |         |         |          |           |          | 111±    |           |
|              |       | 71±4d   | 147±2e   | 150±4f  | 38±6d   | 251±2f   | 78±7c     | 58±16c  | 49±8e   | 43±9d   | 320±2e   | 153±13d   | 21±8d    | 16ab    | 1491±20e  |
| RN           |       | 92±3bc  | 262±10c  | 257±4c  | 54±3c   | 451±7d   | 121±11ab  | 70±15bc | 132±4c  | 89±1c   | 538±6c   | 382±34b   | 58±6bc   | 66±4ab  | 2571±42c  |
| Zhonghuang 2 |       |         |          |         |         |          |           |         |         |         |          |           |          |         |           |
| No.1         | CK    | 94±7a   | 953±49a  | 500±34a | 918±66a | 790±55a  | 899±112a  | 258±11a | 479±31a | 100±6a  | 253±17b  | 219±16ab  | 73±5a    | 28±2a   | 5562±303a |
|              |       | 321±    |          |         |         |          |           |         |         |         |          |           |          |         |           |
|              | BN70% | 83±7abc | 675±46b  | 20b     | 682±43b | 486±30b  | 930±93a   | 171±28b | 301±18b | 57±3b   | 251±17bc | 239±26a   | 73±15a   | 25±1bc  | 4292±323b |
|              | BN95% | 74±2c   | 410±9c   | 204±7d  | 507±6c  | 344±6cd  | 824±33a   | 106±5d  | 184±6d  | 45±4bcd | 243±6bc  | 182±6b    | 41±6a    | 20±2c   | 3184±72c  |
|              | BN    | 74±3c   | 441±13c  | 214±8d  | 470±17c | 304±11d  | 805±92a   | 114±17d | 181±4d  | 41±4cd  | 215±12c  | 205±14ab  | 50±12a   | 21±1cd  | 3135±181c |
|              | YN    | 80±1bc  | 448±5c   | 203±3d  | 486±3c  | 306±5d   | 886±26a   | 103±35d | 174±1d  | 38±6d   | 223±14bc | 174±10b   | 42±17a   | 20±1c   | 3186±37c  |

|      |       |         |          |         |          |          |           |          |          |         |          |         |         |        |           |
|------|-------|---------|----------|---------|----------|----------|-----------|----------|----------|---------|----------|---------|---------|--------|-----------|
| No.2 | RN    | 88±1ab  | 593±47b  | 265±3c  | 614±20b  | 411±13c  | 966±44a   | 116±6cd  | 238±5c   | 52±6bc  | 296±9a   | 239±26a | 67±12a  | 23±1cd | 3970±122b |
|      | CK    | 91±3a   | 1064±8a  | 566±7a  | 1036±11a | 875±11a  | 826±44a   | 235±8a   | 563±4a   | 124±3a  | 271±6a   | 227±19a | 68±10a  | 28±6a  | 5973±77a  |
|      | BN70% | 86±4a   | 907±1b   | 437±5b  | 867±10b  | 596±8b   | 908±22a   | 141±18b  | 387±6b   | 81±11b  | 279±6a   | 205±20a | 49±8ab  | 26±1a  | 4969±22b  |
|      | BN95% | 66±1bc  | 502±7e   | 222±5e  | 537±6de  | 311±5c   | 892±30a   | 75±10c   | 214±5d   | 45±5c   | 243±10bc | 191±19a | 50±11ab | 21±2a  | 3370±53d  |
|      | BN    |         |          | 250±    |          |          |           |          |          |         |          |         |         |        |           |
| No.3 |       | 64±2c   | 601±11d  | 10d     | 508±8e   | 287±9d   | 845±47a   | 80±8c    | 194±7e   | 38±5c   | 222±10c  | 194±32a | 42±9b   | 23±1a  | 3346±113d |
|      | YN    |         |          | 260±    |          |          |           |          |          |         |          |         |         |        |           |
|      |       | 74±5b   | 636±27d  | 11cd    | 560±20cd | 325±13c  | 900±37a   | 103±12bc | 219±9d   | 42±6c   | 238±10bc | 182±17a | 43±4b   | 21±1a  | 3602±126c |
|      | RN    | 70±3bc  | 689±12c  | 276±6c  | 575±11c  | 332±4c   | 833±29a   | 100±23c  | 243±4c   | 50±3c   | 261±10ab | 201±12a | 63±3ab  | 24±1a  | 3716±47c  |
|      | CK    | 141±6a  | 994±5a   | 531±4a  | 920±8a   | 707±8a   | 748±35b   | 176±2a   | 425±10a  | 100±15a | 262±21b  | 184±10a | 46±1ab  | 28±1a  | 5262±43a  |
| No.4 | BN70% | 142±4a  | 738±14b  | 324±5b  | 744±15b  | 449±4b   | 950±41a   | 97±3b    | 285±1b   | 69±2b   | 285±6ab  | 187±11a | 49±3ab  | 25±1ab | 4342±54b  |
|      | BN95% | 126±5b  | 461±2e   | 163±3e  | 423±2e   | 222±4d   | 1008±104a | 71±6cd   | 127±5d   | 38±1c   | 281±3ab  | 167±7ab | 35±5c   | 21±2b  | 3144±115e |
|      | BN    | 142±5a  | 554±6d   | 205±5d  | 446±4d   | 234±1d   | 956±37a   | 67±5de   | 137±2d   | 33±9c   | 277±14ab | 174±12a | 56±6a   | 21±1b  | 3301±49de |
|      | YN    | 143±3a  | 551±10d  | 221±9c  | 506±10c  | 273±9c   | 997±51a   | 81±7c    | 165±8c   | 43±3c   | 281±8ab  | 143±4bc | 34±4c   | 22±2b  | 3461±96c  |
|      | RN    | 137±7ab | 593±5c   | 214±2cd | 491±2c   | 260±2c   | 895±46ab  | 56±3e    | 166±7c   | 42±1c   | 301±3a   | 135±12c | 43±1bc  | 24±1ab | 3358±51c  |
| No.5 | CK    | 45±6a   | 1133±13a | 599±10a | 1014±16a | 858±19a  | 793±44a   | 263±15a  | 541±14a  | 130±2a  | 277±6a   | 188±14a | 74±10a  | 29±1a  | 5944±120a |
|      |       |         |          | 307±    |          |          |           |          |          |         |          |         |         |        |           |
|      | BN70% | 37±1a   | 668±18b  | 12b     | 758±25b  | 478±18b  | 741±70a   | 108±13b  | 254±7b   | 51±5b   | 206±3b   | 72±23b  | 36±4b   | 15±1b  | 3732±140b |
|      | BN95% | 39±3a   | 372±35d  | 153±2d  | 443±4e   | 241±3e   | 732±21a   | 44±3c    | 135±5d   | 18±1d   | 172±11c  | 64±9b   | 15±7c   | 14±1b  | 2442±61d  |
|      | BN    | 44±2a   | 503±44c  | 224±4c  | 480±11de | 255±2de  | 816±53a   | 67±7bc   | 149±10cd | 25±3d   | 187±3bc  | 82±17b  | 36±2b   | 16±1b  | 2884±81c  |
| No.5 | YN    | 46±5a   | 502±36c  | 222±7c  | 503±14cd | 300±5c   | 855±45a   | 81±20bc  | 170±7c   | 35±2c   | 182±8c   | 90±12b  | 21±4bc  | 16±1b  | 3022±137c |
|      | RN    | 42±5a   | 553±12c  | 230±5c  | 523±7c   | 282±11cd | 855±27a   | 75±25bc  | 165±6c   | 35±1c   | 205±9b   | 86±10b  | 20±1c   | 16±1b  | 3088±10c  |
|      | CK    | 89±3a   | 930±8a   | 506±5a  | 967±13a  | 863±10a  | 756±89a   | 302±14a  | 450±7a   | 116±2a  | 240±4a   | 116±14a | 69±30a  | 22±1a  | 5426±112a |
|      |       |         |          | 294±    |          |          |           |          |          |         |          |         |         |        |           |
|      | BN70% | 87±3ab  | 504±12b  | 13b     | 735±18b  | 604±13b  | 607±53abc | 113±6b   | 183±6b   | 51±10b  | 170±7c   | 40±8c   | 19±3b   | 11±1bc | 3419±37b  |
| No.5 | BN95% | 84±2ab  | 234±9e   | 132±3e  | 404±8d   | 285±5e   | 527±83c   | 60±12d   | 86±2d    | 10±3d   | 146±4d   | 41±3c   | 24±2b   | 9±1c   | 2042±77d  |
|      | BN    | 87±2ab  | 417±7c   | 225±1c  | 580±6c   | 380±5d   | 725±6ab   | 90±1bcd  | 147±5c   | 39±2bc  | 190±3b   | 84±30ab | 34±13ab | 12±0b  | 3008±58c  |
|      | YN    | 79±6bc  | 267±11d  | 167±0d  | 403±9d   | 303±4e   | 498±40c   | 69±26cd  | 88±6d    | 19±12cd | 126±7e   | 34±4c   | 16±4b   | 9±0c   | 2077±114d |

|    |       |         |        |        |         |          |         |        |       |         |         |         |        |          |
|----|-------|---------|--------|--------|---------|----------|---------|--------|-------|---------|---------|---------|--------|----------|
| RN | 75±1c | 396±10c | 236±3c | 581±7c | 423±10c | 587±30bc | 105±4bc | 170±4b | 43±8b | 160±7cd | 50±10bc | 29±20ab | 10±0bc | 2865±79c |
|----|-------|---------|--------|--------|---------|----------|---------|--------|-------|---------|---------|---------|--------|----------|

a Abbreviation: M-gal-rha-glu: Myricetin glucosyl-rhamnosyl-galactoside; M-gal: Myricetin galactoside; M-glu: Myricetin glucoside; Q-gal-rha-glu: Quercetin glucosyl-rhamnosyl-galactoside; Q-glu-rha-glu: Quercetin glucosyl-rhamnosyl-glucoside; Q-glu-rha-rha: Quercetin rhamnosyl-rhamnosyl-glucoside; Q-glu-rha: Quercetin rhamnosyl-glucoside; Q-gal: quercetin galactoside; Q-glu: Quercetin glucoside; K-glu-rha-glu: Kaempferol glucosyl-rhamnosyl-glucoside; K-gal: kaempferol galactoside; K-glu-rha: Kaempferol rhamnosyl-glucoside; K-glu: Kaempferol glucoside; TFG: Total flavonol glycosides; BN70%: samples under black net 70% shade treatment; BN95%: samples under black net 95% shade treatment; BN: samples under blue net shade treatment; YN: samples under yellow net shade treatment; RN: samples under red net shade treatment. For the same tea cultivars with the same serial number, data with different alphabetic letters (a, b, c, d, e, f) in a same row were significantly different at  $P<0.05$ . Significant difference analysis was carried out by the SAS System for Windows version 8.1 (SAS Institute Inc., Cary, NC, USA) using Tukey test. Data expressed as mean± SD represent n = 3 replicates.

<sup>b</sup> Relatively quantified by the corresponding aglycone.