**Supplementary Table 1.** Combined analysis of variance (Mean Squares) for agronomy traits of 10 durum wheat genotypes evaluated under two conditions (control and salt stress condition) in 3 replications.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Source of variation** | **DF** | **NT** | **SS** | **TKW** | **GY** | **PH** |
| **Y (year)** | 1 | 0.30 ns | 27.23 ns | 536.9\*\* | 3.58\*\* | 9.98 |
| **SS (salt stress)** | 1 | 20.50\*\* | 4450\*\* | 3867\*\* | 100.7\*\* | 1774\*\* |
| **SS\*Y** | 1 | 1.54\* | 261.2\*\* | 2.19 ns | 0.15 ns | 209.6\*\* |
| **Rep (SS×Y)** | 8 | 0.16 | 5.88 | 9.87 | 0.11 | 17.99 |
| **G (genotype)** | 9 | 6.97\*\* | 111.6\*\* | 251.2\*\* | 12.20\*\* | 1605\*\* |
| **SS × G** | 9 | 0.40\*\* | 131.5\*\* | 146.1\*\* | 7.43\*\* | 36.12\*\* |
| **G × Y** | 9 | 0.11 ns | 6.22 ns | 27.83\*\* | 1.02\*\* | 6.22 ns |
| **G×SS×Y** | 9 | 0.20\*\* | 14.45\*\* | 10.84\*\* | 0.60\*\* | 22.39\* |
| **Error** | 72 | 0.07 | 3.61 | 2.04 | 0.16 | 9.12 |

Df: degrees of freedom.

Grain yield (GY), seed per spike (SS), thousand kernel weight (TKW), number of fertile tillers per plant (NT), and plant height (PH).

\*, \*\* Significant at the 5 and 1 % levels of probability, respectively. ns: non-significant.

**Supplementary Table 2.** Mean comparisons of the durum genotypes for agronomy traits under two conditions (control (N) and salt stress (S) condition).

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Genotype** | **Condition** | **NT** | **SS** | **TKW** | **GY** | **PH** | **SI** |
| Shabrang | N | 2.47 | 47.03 | 39.31 | 3.71 | 86.79 | 0.98 |
| S | 2.03 | 43.33 | 37.33 | 3.35 | 74.76 |
| Dehdasht | N | 2.73 | 41.43 | 32.65 | 3.49 | 56.82 | 0.57 |
| S | 2.37 | 34.40 | 21.64 | 2.53 | 49.03 |
| DW11 | N | 3.87 | 43.43 | 33.37 | 3.73 | 46.72 | 0.60 |
| S | 3.10 | 33.09 | 22.78 | 2.58 | 45.02 |
| Behrang | N | 4.77 | 47.22 | 32.10 | 6.91 | 66.10 | 1.28 |
| S | 4.07 | 40.40 | 26.20 | 5.35 | 58.41 |
| Yava | N | 4.87 | 45.30 | 28.71 | 4.27 | 52.09 | 0.61 |
| S | 3.50 | 31.83 | 19.95 | 2.88 | 46.29 |
| DW18 | N | 4.67 | 43.80 | 38.60 | 4.88 | 49.84 | 1.37 |
| S | 3.83 | 35.32 | 31.46 | 4.64 | 43.39 |
| Dena | N | 4.43 | 47.17 | 31.11 | 5.78 | 65.39 | 0.41 |
| S | 4.00 | 29.82 | 21.05 | 2.74 | 56.02 |
| DW7 | N | 3.93 | 41.50 | 37.02 | 4.01 | 44.00 | 0.77 |
| S | 3.00 | 31.80 | 24.18 | 3.14 | 36.09 |
| Karkhe | N | 4.53 | 51.10 | 36.63 | 7.11 | 55.32 | 0.57 |
| S | 3.17 | 30.23 | 18.35 | 3.54 | 50.81 |
| Arya | N | 4.83 | 47.33 | 37.42 | 6.95 | 55.06 | 0.16 |
| S | 3.77 | 23.32 | 10.46 | 1.83 | 41.42 |
| LSD | - | 0.44 | 3.18 | 2.66 | 0.65 | 5.14 | 0.17 |

Grain yield (GY), seed per spike (SS), thousand kernel weight (TKW), number of fertile tillers per plant (NT), plant height (PH), and stress tolerance index (SI).

**Supplementary Table 3.** Combined analysis of variance (Mean Squares) for physio-biochemical traits and gene expression of two durum wheat (tolerant and sensitive) genotypes evaluated under two conditions (control and salt stress condition) in 3 replications.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Source of variation** | **DF** | **Chla** | **Chlb** | **TChl** | **Car** | **Pro** | **PC** | **TSC** | **EL** | **H2O2** | **MDA** | **OLD** | **GPX** | **CAT** | **APX** | **P5CS** | **P5CR** |
| **SS (salt stress)** | 1 | 34.9\*\* | 46.4\*\* | 162\*\* | 2.70\* | 334\*\* | 191\*\* | 2567\*\* | 1925\*\* | 1.26\*\* | 0.01\*\* | 0.01\*\* | 18.6\*\* | 26.2\* | 10.1\*\* | 42.5\*\* | 23.1\*\* |
| **Rep (SS)** | 4 | 0.24 | 1.05 | 0.72 | 0.25 | 3.68 | 15.6 | 3.53 | 16.2 | 0.01 | 0.001 | 0.001 | 0.66 | 1.97 | 0.55 | 0.13 | 0.14 |
| **G (genotype)** | 1 | 0.17 ns | 0.001 ns | 0.21 ns | 0.14 ns | 297\*\* | 72.8\*\* | 478\*\* | 563\*\* | 0.63\*\* | 0.01\*\* | 0.001 ns | 11.1\*\* | 15.2 ns | 3.85\*\* | 24.5\*\* | 11.2\*\* |
| **SS×G** | 1 | 0.19 ns | 0.15 ns | 0.68 ns | 0.03 ns | 278\*\* | 63.1\*\* | 277\*\* | 442\*\* | 0.51\*\* | 0.01\*\* | 0.001 ns | 11.9\*\* | 15.3 ns | 4.11\*\* | 24.5\*\* | 11.2\*\* |
| **Error** | 4 | 0.07 | 0.20 | 0.33 | 0.05 | 2.75 | 4.25 | 4.74 | 10.28 | 0.01 | 0.001 | 0.001 | 0.17 | 3.23 | 0.03 | 0.06 | 0.08 |

* Df: degrees of freedom.
* chlorophyll a (Chl *a*),chlorophyll b (Chl *b*), chlorophyll *a*+*b* (TChl), carotenoids (Car), ascorbate peroxidase activity (APX), catalase activity (CAT), guaiacol peroxidase activity (GPX), hydrogen peroxide (H2O2), electrolyte leakage (EL), malondialdehyde (MDA), other aldehydes (OLD), total soluble carbohydrate (TSC), proline content (Pro), protein content (PC), the expression of *P5CS* and *P5CR* genes.
* \*, \*\* Significant at the 5 and 1 % levels of probability, respectively. ns: non-significant.

**Supplementary Table 4.** Mean comparisons of the durum genotypes for photosynthesis pigments under two conditions (control and salt stress condition).

|  |  |
| --- | --- |
| **A** | Chlorophyll a content (mg g-1 FW) |
| Different genotypes | Different conditions |
|  | Control condition | Salt stress |
| Behrang (Tol) | 5.39±0.37a | 2.23±0.02b |
| Arya (Sen) | 5.40±0.43a | 1.74±0.54b |
| **B** | Chlorophyll b content (mg g-1 FW) |
| Different genotypes | Different conditions |
|  | Control condition | Salt stress |
| Behrang (Tol) | 5.98±1.00a | 2.27±0.01b |
| Arya (Sen) | 6.17±0.88a | 2.01±0.86b |
| **C** | Total chlorophyll content (mg g-1 FW) |
| Different genotypes | Different conditions |
|  | Control condition | Salt stress |
| Behrang (Tol) | 11.37±0.72a | 4.50±0.02b |
| Arya (Sen) | 11.57±0.53a | 3.76±1.14b |
| **D** | Total carotenoid content (mg g-1 FW) |
| Different genotypes | Different conditions |
|  | Control condition | Salt stress |
| Behrang (Tol) | 2.10±0.62a | 1.25±0.01a |
| Arya (Sen) | 1.98±0.38a | 0.94±0.30a |

Different letters indicate significant differences (P < 0.05) among the treatments and within the two wheat genotypes (Tol: tolerant and Sen: sensitive genotypes). The mean ± SD (standard deviation)

**Supplementary Table 5.** Mean comparisons of the durum genotypes for osmolyte contents under two conditions (control and salt stress condition).

|  |  |
| --- | --- |
| **A** | Proline concentration (µmol g-1 FW) |
| Different genotypes | Different conditions |
|  | Control condition | Salt stress |
| Behrang (Tol) | 9.16±0.76b | 29.33±3.48a |
| Arya (Sen) | 8.83±0.31b | 9.77±0.27b |
| **B** | Total soluble carbohydrate concentration (mg g-1 FW) |
| Different genotypes | Different conditions |
|  | Control condition | Salt stress |
| Behrang (Tol) | 24.14±2.65c | 62.99±2.87a |
| Arya (Sen) | 21.12±0.99c | 40.77±0.56b |
| **C** |  Total soluble proteins concentration (µg g-1 FW) |
| Different genotypes | Different conditions |
|  | Control condition | Salt stress |
| Behrang (Tol) | 43.67±5.69a | 40.27±0.64a |
| Arya (Sen) | 43.33±2.57a | 30.76±0.53b |

Different letters indicate significant differences (P < 0.05) among the treatments and within the two wheat genotypes (Tol: tolerant and Sen: sensitive genotypes). The mean ± SD (standard deviation)

**Supplementary Table 6.** Mean comparisons of the durum genotypes for oxidative parameters under two conditions (control and salt stress condition).

|  |  |
| --- | --- |
| **A** | Electrolyte leakage content (%) |
| Different genotypes | Different conditions |
|  | Control condition | Salt stress |
| Behrang (Tol) | 3.77±0.06d | 16.96±1.09b |
| Arya (Sen) | 5.32±0.95c | 42.79±7.14a |
| **B** | Malondialdehyde content (µmol g-1 FW) |
| Different genotypes | Different conditions |
|  | Control condition | Salt stress |
| Behrang (Tol) | 0.02±0.01b | 0.033±0.006b |
| Arya (Sen) | 0.017±0.006b | 0.090±0.001a |
| **C** | Other aldehydes (µmol g-1 FW) |
| Different genotypes | Different conditions |
|  | Control condition | Salt stress |
| Behrang (Tol) | 0.043±0.006c | 0.073±0.006b |
| Arya (Sen) | 0.043±0.006c | 0.103±0.015a |
| **D** | Hydrogen peroxide content (µmol g-1 FW) |
| Different genotypes | Different conditions |
|  | Control condition | Salt stress |
| Behrang (Tol) | 0.21±0.07c | 0.45±0.07b |
| Arya (Sen) | 0.26±0.07c | 1.32±0.09a |

Different letters indicate significant differences (P < 0.05) among the treatments and within the two wheat genotypes (Tol: tolerant and Sen: sensitive genotypes). The mean ± SD (standard deviation)

**Supplementary Table 7.** Mean comparisons of the durum genotypes for antioxidant enzyme activities under two conditions (control and salt stress condition).

|  |  |
| --- | --- |
| **A** | Ascorbate peroxidase activity (U. min-1 mg-1 protein) |
| Different genotypes | Different conditions |
|  | Control condition | Salt stress |
| Behrang (Tol) | 1.23±0.20b | 4.24±0.70a |
| Arya (Sen) | 1.27±0.50b | 1.93±0.60b |
| **B** | Catalase activity (U. min-1 mg-1 protein) |
| Different genotypes | Different conditions |
|  | Control condition | Salt stress |
| Behrang (Tol) | 1.57±1.09c | 6.78±3.00a |
| Arya (Sen) | 1.58±0.05c | 2.27±0.42b |
| **C** | Guaiacol peroxidase activity (U. min-1 mg-1 protein) |
| Different genotypes | Different conditions |
|  | Control condition | Salt stress |
| Behrang (Tol) | 1.46±0.53b | 5.95±0.51a |
| Arya (Sen) | 1.53±0.48b | 2.03±0.95b |

Different letters indicate significant differences (P < 0.05) among the treatments and within the two wheat genotypes (Tol: tolerant and Sen: sensitive genotypes). The mean ± SD (standard deviation)

**Supplementary Table 8.** Mean comparisons of the durum genotypes for antioxidant enzyme activities under two conditions (control and salt stress condition).

|  |  |
| --- | --- |
| **A** | *P5CS* gene expression |
| Different genotypes | Different conditions |
|  | Control condition | Salt stress |
| Behrang (Tol) | 1 | 7.62±0.58a |
| Arya (Sen) | 1 | 1.91±0.22b |
| **B** | *P5CR* gene expression |
| Different genotypes | Different conditions |
|  | Control condition | Salt stress |
| Behrang (Tol) | 1 | 5.71±0.65a |
| Arya (Sen) | 1 | 1.84±0.14b |

Different letters indicate significant differences (P < 0.05) among the treatments and within the two wheat genotypes (Tol: tolerant and Sen: sensitive genotypes). The mean ± SD (standard deviation)