**Supplementary Table S1** Data presenting relative water content, electrolyte leakage, leaf chlorophyll fluorescence and chlorophyll color index of the 48 Muskmelon genotypes evaluated in field under well-watered and drought stress condition.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Genotypes** | **RWC (WW)** | **RWC (DS)** | **EL (WW)** | **EL (DS)** | ***Fv*/*Fm* (WW)** | ***Fv*/*Fm* (DS)** | **CCI (WW)** | **CCI (DS)** |
| **IIHR-375** | 65.14 ± 4.81 | 46.34 ± 3.51 | 25.24 ± 1.49 | 40.44 ± 2.95 | 0.720 ± 0.035 | 0.543 ± 0.029 | 12.9 ± 0.87 | 23.5 ± 1.77 |
| **IIHR-652** | 79.23 ± 6.37 | 55.76 ± 5.75 | 28.48 ± 2.82 | 46.22 ± 3.70 | 0.670 ± 0.040 | 0.472 ± 0.024 | 20.3 ± 1.45 | 36.8 ± 3.28 |
| **GPW-15** | 70.94 ± 4.39 | 44.21 ± 3.27 | 26.48 ± 1.77 | 45.62 ± 4.01 | 0.672 ± 0.026 | 0.354 ± 0.032 | 12.9 ± 1.03 | 15.7 ± 1.12 |
| **EC-564754** | 75.96 ± 4.55 | 54.50 ± 4.02 | 27.10 ± 2.47 | 43.42 ± 2.40 | 0.769 ± 0.026 | 0.562 ± 0.049 | 13.5 ± 1.06 | 23.1 ± 1.86 |
| **IIHR-663** | 78.15 ± 4.93 | 41.02 ± 3.40 | 28.25 ± 3.90 | 65.32 ± 3.78 | 0.785 ± 0.032 | 0.368 ± 0.031 | 21.7 ± 1.87 | 13.4 ± 1.13 |
| **IIHR-619** | 70.37 ± 4.49 | 52.10 ± 3.89 | 20.44 ± 1.66 | 32.14 ± 2.08 | 0.699 ± 0.046 | 0.524 ± 0.033 | 17.1 ± 2.06 | 31.2 ± 1.69 |
| **JRO-4-38** | 60.76 ± 3.87 | 38.44 ± 1.60 | 24.48 ± 1.64 | 40.49 ± 4.19 | 0.772 ± 0.023 | 0.387 ± 0.025 | 13.1 ± 1.07 | 14.8 ± 1.11 |
| **EC-564755** | 72.35 ± 4.33 | 36.84 ± 4.17 | 33.98 ± 2.76 | 79.85 ± 5.84 | 0.736 ± 0.041 | 0.308 ± 0.024 | 13.7 ± 2.12 | 6.22 ± 0.22 |
| **Arka Jeet** | 85.61 ± 4.74 | 66.63 ± 4.65 | 18.12 ± 3.05 | 26.92 ± 1.80 | 0.669 ± 0.037 | 0.514 ± 0.050 | 16.2 ± 0.90 | 31.4 ± 3.19 |
| **IIHR-624** | 68.45 ± 6.58 | 41.99 ± 4.65 | 22.67 ± 1.46 | 39.70 ± 2.49 | 0.764 ± 0.040 | 0.391 ± 0.023 | 16.3 ± 1.20 | 15.2 ± 1.42 |
| **JRO-04-10** | 70.15 ± 6.03 | 46.17 ± 3.69 | 26.44 ± 1.91 | 43.13 ± 3.21 | 0.735 ± 0.025 | 0.465 ± 0.031 | 13.8 ± 0.95 | 21.1 ± 2.31 |
| **RM-43** | 69.70 ±4.39 | 43.19 ± 2.29 | 31.07 ± 1.77 | 54.20 ± 2.97 | 0.729 ± 0.047 | 0.405 ± 0.036 | 13.7 ± 1.28 | 16.6 ± 1.42 |
| **IIHR-190** | 75.56 ± 7.44 | 51.76 ± 4.93 | 20.35 ± 1.60 | 32.92 ± 2.36 | 0.820 ± 0.026 | 0.546 ± 0.026 | 10.5 ± 1.00 | 16.5 ± 1.04 |
| **IIHR-718** | 74.13 ± 4.50 | 49.03 ± 3.37 | 28.65 ± 2.05 | 48.40 ± 3.43 | 0.676 ± 0.023 | 0.382 ± 0.021 | 21.6 ± 1.52 | 27.3 ± 2.79 |
| **IC-570065** | 71.35 ± 3.55 | 46.84 ± 4.56 | 23.33 ± 1.70 | 38.23 ± 2.53 | 0.736 ± 0.027 | 0.457 ± 0.033 | 28.7 ± 2.22 | 14.4 ± 0.93 |
| **Durgapura Madhu** | 70.12 ± 6.37 | 39.66 ± 3.61 | 24.87 ± 1.95 | 46.04 ± 2.85 | 0.673 ± 0.027 | 0.322 ± 0.018 | 28.4 ± 1.88 | 22.1 ± 1.88 |
| **IIHR-681** | 67.38 ± 5.94 | 43.60 ± 2.80 | 21.05 ± 1.53 | 35.02 ± 2.16 | 0.692 ± 0.021 | 0.422 ± 0.032 | 19.2 ± 1.31 | 28.7 ± 2.45 |
| **IIHR-Gyno** | 82.54 ± 5.83 | 51.40 ± 4.56 | 23.80 ± 1.91 | 41.44 ± 3.19 | 0.672 ± 0.023 | 0.385 ± 0.019 | 15.3 ± 1.30 | 18.2 ± 2.83 |
| **IIHR-671** | 72.93 ± 6.78 | 46.72 ± 3.15 | 28.09 ± 3.19 | 46.34 ± 2.12 | 0.736 ± 0.015 | 0.448 ± 0.031 | 21.3 ± 1.37 | 29.3 ± 2.41 |
| **Pusa Madhuras** | 66.25 ± 4.33 | 46.19 ± 6.22 | 21.49 ± 1.72 | 34.79 ± 2.21 | 0.716 ± 0.021 | 0.478 ± 0.033 | 19.3 ± 1.54 | 34.1 ± 2.62 |
| **IIHR-660** | 74.51 ± 6.96 | 40.75 ± 3.31 | 19.23 ± 1.28 | 38.89 ± 3.43 | 0.623 ± 0.018 | 0.325 ± 0.005 | 12.3 ± 0.94 | 11.1 ± 1.31 |
| **IIHR-675** | 78.97 ± 8.06 | 46.32 ± 2.87 | 21.37 ± 1.45 | 37.90 ± 3.62 | 0.672 ± 0.028 | 0.354 ± 0.028 | 23.5 ± 2.21 | 23.8 ± 2.02 |
| **Dharwad Sel 1** | 65.57 ± 3.60 | 42.27 ± 3.27 | 26.66 ± 2.10 | 45.36 ± 3.98 | 0.753 ± 0.023 | 0.454 ± 0.029 | 21.1 ± 1.55 | 30.4 ± 2.44 |
| **GPW-12** | 61.97 ± 4.83 | 35.28 ± 2.70 | 26.78 ± 2.77 | 49.69 ± 3.65 | 0.788 ± 0.025 | 0.388 ± 0.025 | 21.2 ± 1.84 | 16.1 ± 1.00 |
| **IIHR-673** | 69.80 ± 6.25 | 40.67 ± 2.46 | 23.12 ± 1.68 | 40.51 ± 1.39 | 0.766 ± 0.039 | 0.381 ± 0.018 | 21.7 ± 1.59 | 24.1 ± 2.12 |
| **IIHR-655** | 82.35 ± 6.09 | 52.94 ± 6.14 | 22.22 ± 1.74 | 37.82 ± 2.55 | 0.688 ± 0.018 | 0.412 ± 0.034 | 21.3 ± 1.96 | 28.5 ± 1.66 |
| **IIHR-680** | 82.60 ± 5.71 | 56.13 ± 5.42 | 23.07 ± 1.97 | 37.42 ± 2.21 | 0.676 ± 0.028 | 0.442 ± 0.043 | 13.9 ± 1.35 | 24.2 ± 2.29 |
| **IIHR-MS-5** | 85.19 ± 6.71 | 54.85 ± 2.63 | 18.89 ± 1.13 | 32.85 ± 2.05 | 0.690 ± 0.028 | 0.395 ± 0.039 | 21.8 ± 1.55 | 26.6 ± 2.55 |
| **IIHR-623** | 82.58 ± 4.96 | 54.89 ± 4.70 | 22.32 ± 1.57 | 35.76 ± 2.26 | 0.743 ±0.020 | 0.482 ± 0.025 | 18.6 ± 0.92 | 29.4 ± 2.31 |
| **MJ-7** | 86.92 ± 6.58 | 67.72 ± 4.45 | 17.22 ± 1.06 | 25.16 ± 2.40 | 0.670 ±0.034 | 0.521 ± 0.023 | 15.5 ± 1.03 | 30.2 ± 1.18 |
| **MM-1** | 73.64 ± 7.29 | 43.45 ± 3.75 | 24.55 ± 3.31 | 45.14 ± 3.20 | 0.668 ± 0.026 | 0.332 ± 0.016 | 23.4 ± 1.97 | 24.3 ± 2.48 |
| **IIHR-708** | 72.06 ± 1.57 | 48.71 ± 2.66 | 18.46 ± 1.46 | 30.17 ± 2.91 | 0.758 ± 0.037 | 0.531 ± 0.029 | 13.5 ± 1.59 | 22.2 ± 1.66 |
| **BS-41** | 74.76 ± 3.62 | 42.70 ± 3.51 | 29.16 ± 2.67 | 50.73 ± 5.83 | 0.694 ± 0.027 | 0.398 ± 0.027 | 32.6 ± 1.88 | 32.3 ± 1.66 |
| **BS-25** | 82.38 ± 6.63 | 59.61 ± 3.22 | 18.37 ± 2.01 | 28.50 ± 1.76 | 0.772 ± 0.023 | 0.586 ± 0.036 | 14.3 ± 1.08 | 26.3 ± 2.37 |
| **MS-1** | 75.82 ± 6.93 | 44.67 ± 2.41 | 23.88 ± 1.93 | 42.56 ± 3.69 | 0.758 ± 0.038 | 0.392 ± 0.029 | 22.7 ± 1.51 | 25.5 ± 2.00 |
| **IIHR-662** | 65.41 ± 5.25 | 43.74 ± 2.45 | 18.89 ± 1.26 | 30.67 ± 1.52 | 0.738 ± 0.025 | 0.471 ± 0.026 | 16.5 ± 0.99 | 25.5 ± 1.46 |
| **IIHR-659** | 69.45 ± 3.70 | 36.50 ± 3.47 | 30.60 ± 2.60 | 63.38 ± 4.47 | 0.736 ± 0.033 | 0.362 ± 0.037 | 24.6 ± 2.30 | 15.1 ± 1.15 |
| **IIHR-616** | 72.88 ± 5.37 | 47.58 ± 2.60 | 23.07 ± 1.80 | 38.81 ± 3.10 | 0.715 ± 0.026 | 0.412 ± 0.029 | 16.3 ± 2.87 | 24.3 ± 2.03 |
| **IIHR-595** | 69.93 ± 7.25 | 36.24 ± 1.96 | 32.22 ± 2.01 | 71.92 ± 5.71 | 0.752 ± 0.019 | 0.335 ± 0.027 | 12.3 ± 1.25 | 6.12 ± 0.27 |
| **IIHR-677** | 62.51 ± 3.66 | 47.68 ± 3.75 | 23.33 ± 1.70 | 36.45 ± 2.76 | 0.681 ± 0.026 | 0.524 ± 0.038 | 13.3 ± 1.36 | 24.4 ± 2.33 |
| **Punjab Sunehari**  | 77.11 ± 7.22 | 42.87 ± 5.21 | 23.73 ± 1.98 | 48.28 ± 2.96 | 0.802 ± 0.017 | 0.398 ± 0.025 | 30.5 ± 3.25 | 28.2 ± 2.15 |
| **GP-3** | 80.22 ± 3.96 | 49.23 ± 2.21 | 18.46 ± 2.75 | 31.73 ± 1.98 | 0.682 ± 0.020 | 0.364 ± 0.026 | 15.6 ± 1.63 | 23.2 ± 1.77 |
| **SC-15** | 83.57 ± 4.52 | 68.25 ± 3.16 | 15.89 ± 0.90 | 22.60 ± 1.41 | 0.758 ± 0.030 | 0.651 ± 0.052 | 13.1 ± 1.17 | 25.9 ± 1.67 |
| **MJ-1** | 71.55 ± 4.08 | 38.49 ± 1.98 | 28.48 ±3.26 | 52.47 ± 3.72 | 0.685 ± 0.030 | 0.337 ± 0.030 | 22.3 ± 1.72 | 15.8 ± 1.14 |
| **IIHR-653** | 72.06 ± 3.21 | 39.90 ± 2.06 | 18.81 ± 2.09 | 35.22 ± 1.97 | 0.816 ± 0.018 | 0.493 ± 0.030 | 16.6 ± 1.01 | 22.4 ± 2.23 |
| **IIHR-387** | 81.17 ± 5.18 | 55.82 ± 4.05 | 21.49 ± 2.08 | 35.53 ± 3.71 | 0.725 ± 0.021 | 0.457 ± 0.019 | 12.5 ± 0.96 | 21.9 ± 2.22 |
| **Hara Madhu** | 74.88 ± 4.95 | 47.66 ± 2.67 | 24.48 ± 2.15 | 42.19 ± 1.84 | 0.788 ± 0.025 | 0.457 ± 0.034 | 15.1 ± 1.32 | 20.1 ± 1.08 |
| **SPO4-20** | 67.70 ± 5.85 | 42.48 ± 1.96 | 21.17 ± 1.39 | 38.59 ± 3.21 | 0.648 ± 0.016 | 0.488 ± 0.035 | 14.8 ± 1.31 | 28.4 ± 2.45 |

The values are mean of three replicates ± standard error, and values with **\*** and **\*\*** are significantly different at *p* ≤ 0.05, and *p* ≤ 0.01. RWC – Relative Water Content, EL – Electrolyte Leakage Fv/Fm – Photosynthetic Efficiency, CCI – Chlorophyll Concentration Index, WW – Well-watered, DS – Drought Stress

**Supplementary Table S2** Data presenting root and shoot length of the 48 Muskmelon genotypes evaluated in field under well-watered and drought stress condition.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Genotypes** | **Root length**(WW) | **Root length**(DS) | **Shoot length**(WW) | **Shoot length**(DS) |
| IIHR-375 | 28.00 ± 2.52 | 35.00 ± 3.79 | 106.00 ± 1.99 | 67.00 ± 3.44 |
| IIHR-652 | 20.00 ± 1.53 | 21.00 ± 2.00 | 150.00 ± 8.97 | 106.00 ± 6.76 |
| GPW-15 | 32.00 ± 2.52 | 25.25 ± 1.15 | 104.00 ± 6.39 | 101.33 ± 2.19 |
| EC-564754 | 29.00 ± 3.05 | 30.00 ± 3.47 | 175.00 ± 9.84 | 100.00 ± 7.29 |
| IIHR-663 | 26.00 ± 2.65 | 17.00 ± 1.53 | 97.33 ± 5.70 | 110.26 ± 6.97 |
| IIHR-619 | 22.00 ± 2.52 | 32.23 ± 2.13 | 212.66 ± 13.65 | 121.00 ± 8.57 |
| JRO-4-38 | 24.00 ± 1.73 | 24.77 ± 3.39 | 125.33 ± 8.27 | 121.29 ± 7.41 |
| EC-564755 | 38.00 ± 3.22 | 20.00 ± 1.53 | 45.50 ± 3.88 | 49.59 ± 7.48 |
| Arka Jeet | 32.00 ± 3.00 | 49.86 ± 4.63 | 104.00 ± 6.69 | 59.00 ± 5.66 |
| IIHR-624 | 26.00 ± 2.08 | 28.94 ± 7.59 | 131.66 ± 4.42 | 125.53 ± 7.67 |
| JRO-04-10 | 20.00 ± 2.08 | 21.00 ± 1.40 | 125.00 ± 6.84 | 117.00 ± 7.44 |
| RM-43 | 26.00 ± 2.31 | 21.00 ± 1.41 | 145.00 ± 10.08 | 133.38 ± 10.28 |
| IIHR-190 | 31.00 ± 3.06 | 32.33 ± 2.99 | 177.50 ± 10.64 | 129.00 ± 8.96 |
| IIHR-718 | 18.00 ± 1.53 | 18.55 ± 2.54 | 242.66 ± 17.03 | 172.00 ± 13.82 |
| IC-570065 | 18.00 ± 0.58 | 15.40 ± 1.52 | 152.50 ± 7.07 | 150.00 ± 7.22 |
| Durgapura Madhu | 29.00 ± 2.52 | 20.00 ± 1.53 | 81.66 ± 3.80 | 87.78 ± 11.98 |
| IIHR-681 | 23.00 ± 0.58 | 19.65 ± 0.87 | 104.34 ± 6.70 | 103.00 ± 7.67 |
| IIHR-Gyno | 28.00 ± 2.08 | 23.00 ± 2.89 | 80.00 ± 6.90 | 72.75 ± 5.89 |
| IIHR-671 | 25.00 ± 2.08 | 26.00 ± 1.00 | 101.00 ± 8.10 | 94.00 ± 6.01 |
| Pusa Madhuras | 29.00 ± 2.52 | 35.00 ± 4.17 | 187.50 ± 14.99 | 127.00 ± 7.86 |
| IIHR-660 | 30.00 ± 1.53 | 20.00 ± 1.16 | 121.33 ± 7.35 | 111.19 ± 15.36 |
| IIHR-675 | 28.00 ± 2.89 | 22.00 ± 1.53 | 205.00 ± 14.87 | 75.00 ± 6.25 |
| Dharwad Sel 1 | 26.00 ± 2.08 | 26.53 ± 2.24 | 244.00 ± 14.75 | 147.00 ± 10.73 |
| GPW-12 | 26.14 ± 2.93 | 17.44 ± 1.08 | 65.00 ± 5.53 | 74.49 ± 3.54 |
| IIHR-673 | 31.00 ± 2.89 | 23.00 ± 2.65 | 88.00 ± 3.12 | 73.39 ± 2.08 |
| IIHR-655 | 26.00 ± 2.65 | 27.15 ± 6.71 | 161.66 ± 9.78 | 147.78 ± 3.11 |
| IIHR-680 | 14.00 ± 1.00 | 15.00 ± 1.13 | 146.50 ± 8.43 | 115.00 ± 8.61 |
| IIHR-MS-5 | 28.00 ± 2.00 | 23.00 ± 1.46 | 155.00 ± 11.45 | 137.29 ± 8.13 |
| IIHR-623 | 26.00 ± 1.53 | 26.00 ± 1.57 | 107.50 ± 7.29 | 88.00 ± 5.31 |
| MJ-7 | 27.00 ± 1.00 | 45.00 ± 3.53 | 215.00 ± 11.66 | 85.00 ± 5.67 |
| MM-1 | 27.00 ± 2.31 | 21.00 ± 1.59 | 74.33 ± 4.19 | 76.00 ± 6.04 |
| IIHR-708 | 16.00 ± 1.73 | 22.00 ± 1.88 | 105.00 ± 7.56 | 93.00 ± 4.98 |
| BS-41 | 23.00 ± 1.16 | 17.00 ± 1.02 | 127.33 ± 8.17 | 123.79 ± 11.19 |
| BS-25 | 24.00 ± 2.52 | 37.04 ± 2.02 | 75.00 ± 5.13 | 53.00 ± 2.78 |
| MS-1 | 29.00 ± 1.00 | 22.00 ± 2.31 | 158.33 ± 12.14 | 165.17 ± 6.47 |
| IIHR-662 | 25.00 ± 0.58 | 26.44 ± 4.06 | 107.50 ± 5.77 | 105.00 ± 5.51 |
| IIHR-659 | 26.00 ± 2.00 | 17.00 ± 1.73 | 107.00 ± 7.78 | 116.66 ± 3.57 |
| IIHR-616 | 22.00 ± 1.73 | 23.54 ± 2.86 | 121.66 ± 7.58 | 97.00 ± 4.90 |
| IIHR-595 | 32.00 ± 1.15 | 19.00 ± 1.72 | 45.00 ± 3.23 | 47.73 ± 2.54 |
| IIHR-677 | 24.00 ± 2.65 | 35.00 ± 2.26 | 131.00 ± 6.19 | 122.29 ± 4.82 |
| Punjab Sunehari  | 22.00 ± 2.31 | 15.00 ± 1.13 | 75.00 ± 4.75 | 79.81 ± 5.28 |
| GP-3 | 46.00 ± 3.21 | 35.00 ± 3.64 | 131.00 ± 8.24 | 121.59 ± 13.69 |
| SC-15 | 29.00 ± 1.53 | 48.48 ± 3.77 | 199.00 ± 13.72 | 84.00 ± 6.31 |
| MJ-1 | 26.00 ± 0.58 | 17.29 ± 1.36 | 113.33 ± 5.88 | 107.78 ± 12.63 |
| IIHR-653 | 30.00 ± 2.52 | 21.00 ± 2.52 | 148.66 ± 8.62 | 128.25 ± 7.57 |
| IIHR-387 | 30.00 ± 1.53 | 44.32 ± 3.71 | 152.50 ± 9.20 | 148.00 ± 8.87 |
| Hara Madhu | 23.00 ± 2.52 | 23.95 ± 2.60 | 96.66 ± 5.28 | 91.94 ± 10.50 |
| SPO4-20 | 26.00 ± 1.00 | 27.24 ± 2.13 | 160.00 ± 10.94 | 165.19 ± 12.68 |

The values are mean of three replicates ± standard error, WW – well-watered, DS – drought stress