**Table S1:**

**The descriptive statistics and analysis of seed vigor traits in parents and IL-1** **population.**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Trait** | **Parents** | |  | **IL - 1 population** | | | | | |
| **Lumai 14** | **shaanhan8675** |  | **Mean** | **Variation** | **SD** | **Skewness** | **Kurtosis** | **CV (%)** |
| GE0h | 0.84 | 0.73 |  | 0.82 a | 0.49-0.97 | 0.10 | -0.77 | 0.35 | 0.12 |
| GE24h | 0.63 | 0.65 |  | 0.64 ab | 0.26-0.92 | 0.16 | -0.52 | -0.48 | 0.26 |
| GE36h | 0.51 | 0.55 |  | 0.53 b | 0.10-0.89 | 0.20 | -0.44 | -0.78 | 0.37 |
| GE48h | 0.43 | 0.51 |  | 0.41 b | 0.02-0.83 | 0.22 | -0.33 | -0.97 | 0.54 |
| GE60h | 0.29 | 0.43 \* |  | 0.22 c | 0.02-0.72 | 0.20 | 0.66 | -0.71 | 0.91 |
| GE72h | 0.10 | 0.33 \* |  | 0.14 c | 0.02-0.61 | 0.16 | 1.31 | 0.46 | 1.20 |
| GR0h | 0.97 | 0.91 |  | 0.96 a | 0.88-0.99 | 0.02 | -1.10 | 1.06 | 0.02 |
| GR24h | 0.91 | 0.85 \* |  | 0.91 a | 0.67-0.99 | 0.07 | -1.39 | 1.75 | 0.08 |
| GR36h | 0.87 | 0.79 |  | 0.85 ab | 0.52-0.99 | 0.11 | -1.07 | 0.34 | 0.13 |
| GR48h | 0.79 | 0.71 |  | 0.76 b | 0.28-0.97 | 0.17 | -0.98 | 0.18 | 0.22 |
| GR60h | 0.57 | 0.67 |  | 0.55 c | 0.03-0.95 | 0.25 | -0.44 | -1.07 | 0.45 |
| GR72h | 0.45 | 0.57 |  | 0.34 c | 0.02-0.91 | 0.27 | 0.35 | -1.21 | 0.79 |
| GI0h | 15.51 | 14.14 \*\* |  | 15.27 a | 12.78-16.39 | 0.75 | -0.95 | 0.91 | 0.05 |
| GI24h | 13.41 | 12.96 |  | 13.62 a | 8.40-15.95 | 1.72 | -1.00 | 0.54 | 0.13 |
| GI36h | 12.39 | 11.56 |  | 12.17 ab | 4.34-16.02 | 2.42 | -0.87 | 0.00 | 0.20 |
| GI48h | 10.81 | 10.64 |  | 10.54 b | 1.57-15.47 | 3.15 | -0.85 | -0.11 | 0.30 |
| GI60h | 7.55 | 9.67 |  | 7.21 c | 0.89-14.62 | 3.74 | -0.13 | -1.20 | 0.52 |
| GI72h | 5.46 | 8.12 |  | 4.21 c | 0.15-13.45 | 3.71 | 0.64 | -0.81 | 0.88 |
| GP0h | 31.20 | 30.22 |  | 30.98 a | 26.00-33.26 | 1.43 | -0.97 | 0.88 | 0.05 |
| GP24h | 27.96 | 28.86 |  | 28.42 a | 22.32-32.36 | 2.32 | -0.60 | -0.31 | 0.08 |
| GP36h | 26.99 | 27.37 |  | 26.86 b | 20.23-31.67 | 2.56 | -0.51 | -0.35 | 0.10 |
| GP48h | 25.55 | 27.85 |  | 25.43 b | 18.42-31.37 | 2.94 | -0.41 | -0.46 | 0.12 |
| GP60h | 23.87 | 26.64 |  | 22.85 c | 16.40-30.13 | 3.22 | 0.15 | -0.58 | 0.14 |
| GP72h | 22.44 | 26.51 \*\* |  | 21.42 c | 15.48-29.17 | 3.16 | 0.45 | -0.53 | 0.15 |
| SL0h | 11.31 | 11.77 |  | 11.04 a | 9.04-14.43 | 0.92 | 0.66 | 1.45 | 0.08 |
| SL24h | 10.62 | 11.53 |  | 10.55 a | 8.63-14.43 | 0.92 | 0.65 | 1.79 | 0.09 |
| SL36h | 10.38 | 11.10 |  | 9.91 ab | 7.98-13.26 | 0.88 | 0.57 | 1.68 | 0.09 |
| SL48h | 9.70 | 10.33 |  | 9.12 ab | 5.37-12.68 | 1.21 | -0.32 | 0.84 | 0.13 |
| SL60h | 9.10 | 9.58 |  | 7.54 b | 2.27-10.99 | 1.88 | -0.82 | 0.21 | 0.25 |
| SL72h | 8.28 | 7.69 |  | 6.02 b | 0.29-10.49 | 2.45 | -0.64 | -0.38 | 0.41 |
| RL0h | 10.75 | 9.00 \*\* |  | 10.08 a | 7.32-12.63 | 1.08 | -0.02 | -0.24 | 0.11 |
| RL24h | 10.22 | 8.80 \* |  | 9.74 a | 6.92-12.68 | 1.02 | 0.05 | 0.40 | 0.10 |
| RL36h | 9.40 | 8.38 \* |  | 9.28 a | 6.22-12.07 | 1.01 | 0.16 | 0.27 | 0.11 |
| RL48h | 9.28 | 8.28 \* |  | 8.73 ab | 5.11-11.85 | 1.24 | -0.43 | 0.68 | 0.14 |
| RL60h | 8.83 | 7.61 \* |  | 7.59 b | 2.83-11.29 | 1.81 | -0.80 | 0.15 | 0.24 |
| RL72h | 8.20 | 6.78 |  | 6.30 c | 0.37-9.70 | 2.32 | -0.95 | 0.27 | 0.37 |
| SFW0h | 75.24 | 70.32 |  | 76.13 a | 60.88-103.87 | 7.65 | 0.67 | 0.87 | 0.10 |
| SFW24h | 67.50 | 70.69 |  | 70.68 a | 53.44-91.04 | 7.14 | 0.60 | 0.36 | 0.10 |
| SFW36h | 65.03 | 67.79 |  | 65.53 ab | 50.52-86.14 | 6.46 | 0.55 | 1.20 | 0.10 |
| SFW48h | 58.19 | 62.14 |  | 60.29 b | 44.21-82.26 | 7.46 | 0.43 | 0.32 | 0.12 |
| SFW60h | 57.40 | 56.21 |  | 50.22 c | 19.54-78.85 | 10.53 | -0.47 | 0.23 | 0.21 |
| SFW72h | 50.92 | 47.48 |  | 42.02 d | 14.63-74.04 | 11.84 | -0.16 | -0.04 | 0.28 |
| RFW0h | 57.46 | 64.83 |  | 58.40 a | 35.84-77.96 | 7.74 | -0.15 | 0.43 | 0.13 |
| RFW24h | 52.62 | 62.35\* |  | 55.73 a | 32.69-73.24 | 7.72 | -0.56 | 0.45 | 0.14 |
| RFW36h | 51.73 | 61.01 \* |  | 53.71 a | 35.28-77.56 | 7.22 | 0.07 | 0.59 | 0.13 |
| RFW48h | 48.98 | 59.83\* |  | 49.74 ab | 21.55-70.54 | 8.68 | -0.47 | 0.35 | 0.17 |
| RFW60h | 48.34 | 54.32 |  | 43.73 b | 17.16-65.91 | 9.58 | -0.45 | 0.03 | 0.22 |
| RFW72h | 43.62 | 45.54 |  | 36.66 c | 7.20-67.35 | 10.70 | -0.21 | 0.10 | 0.29 |
| VI0h | 175.44 | 166.65 |  | 169.24 a | 133.12-222.76 | 15.14 | 0.19 | 0.77 | 0.09 |
| VI24h | 142.39 | 149.66 |  | 144.21 b | 91.47-200.34 | 21.55 | -0.07 | -0.02 | 0.15 |
| VI36h | 128.60 | 127.93 |  | 122.35 c | 61.31-178.66 | 28.12 | -0.37 | -0.77 | 0.23 |
| VI48h | 104.81 | 110.74 |  | 100.49 d | 18.43-155.11 | 34.63 | -0.54 | -0.62 | 0.34 |
| VI60h | 68.53 | 92.96 |  | 61.19 e | 2.00-135.72 | 38.10 | 0.11 | -1.11 | 0.62 |
| VI72h | 44.87 | 63.44 |  | 39.38 e | 0.10-119.18 | 32.36 | 0.67 | -0.59 | 0.82 |
| SVI0h | 11.01 | 10.69 |  | 10.62 a | 8.62-13.95 | 0.89 | 0.44 | 1.16 | 0.08 |
| SVI24h | 9.63 | 9.84 |  | 9.59 a | 7.01-12.79 | 1.08 | 0.11 | 0.30 | 0.11 |
| SVI36h | 9.00 | 8.72 |  | 8.46 ab | 5.37-11.81 | 1.44 | -0.33 | -0.51 | 0.17 |
| SVI48h | 7.63 | 7.41 |  | 7.02 b | 1.92-10.79 | 2.08 | -0.60 | -0.46 | 0.30 |
| SVI60h | 5.22 | 6.41 |  | 4.65 c | 0.18-9.23 | 2.52 | -0.15 | -1.19 | 0.54 |
| SVI72h | 3.73 | 4.47 |  | 3.05 c | 0.01-8.18 | 2.28 | 0.43 | -0.91 | 0.75 |

**Note:** GE, GR, GI, GP, SL, RL, SFW, RFW, VI, SVI = Germinating Energy, Germination Rate, Germination Index, Germination pace, Seedling Length, Root Length, Seedling Fresh Weight, Root Fresh Weight, Vigor Index, and Simple Vigor Index, respectively. 0 h, 24 h, 36 h, 48 h, 60 h, and 72 h represent aging time respectively. Seedling and Root length is measured in centimeters, Seedling and Root weight is measured in milligram. \* and \*\* represent the significance level at *p* < 0.05 and *p* < 0.01, respectively. Different lowercase letters in the same column showed significant difference (*p* < 0.05).