|  |  |
| --- | --- |
| **Organism** | **ID/NCBI accession ID** |
| *T. longibrachiatum*  | OGRDT1 (OR102865.1) |
| *T. longibrachiatum*  | OGRDT2 (OR102866.1) |
| *T. longibrachiatum*  | GRDT1 (OR102867.1) |
| *T. harzianum*  | GRDT2 (OR102868.1) |
| *T. asperellum*  | GRDT3 (OR102869.1) |
| *T. longibrachiatum*  | GRDT5 (OR102872.1) |
| *T. asperellum*  | GRDT6 (OR102873.1) |
| *T. longibrachiatum*  | GRDT8 (OR102875.1) |
| *T. asperellum*  | AB558907.1 |
| *T. asperellum*  | AB568374.1 |
| *T. asperellum*  | AB568376.1 |
| *T. asperellum*  | AB568380.1 |
| *T. asperellum*  | AB568383.1 |
| *T. harzianum*  | AY605766.1 |
| *T. harzianum*  | AY605773.1 |
| *T. asperellum*  | EU279960.1 |
| *T. asperellum*  | EU279962.1 |
| *T. longibrachiatum*  | EU280033.1 |
| *T. longibrachiatum*  | EU280034.1 |
| *T. longibrachiatum*  | EU280046.1 |
| *T. longibrachiatum*  | FJ763174.1 |
| *T. harzianum*  | HG931200.1 |
| *T. harzianum*  | HG931204.1 |
| *T. longibrachiatum*  | HG931245.1 |
| *T. longibrachiatum*  | HG931249.1 |
| *T. longibrachiatum*  | HG931251.1 |
| *T. longibrachiatum*  | HG931255.1 |
| *T. longibrachiatum*  | HG931258.1 |
| *T. longibrachiatum*  | HG931260.1 |
| *Fusarium oxysporum*  | KP292612.1 |
| *T. koningiopsis*  | MK516049.1 |

Table : S1 Reference strain used to infer pylogentic relations of *Trichoderma* strains used in current study.

Table S2 Weather conditions prevailing during crop season from November 2020-April 2021 at Experimental site.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Meteorological week | Temp. (Max)(ºC) | Temp. (Min) (ºC) | RH (Max) | RH (Min) | Velocity (m/s ) | Sunshine (Hr) | Rain (mm) | Evaporation (mm) |
| 44 | 32.99 | 17.41 | 83.00 | 64.29 | 2.04 | 8.51 | 0 | 3.67 |
| 45 | 30.62 | 13.45 | 75.00 | 59.67 | 3.43 | 9.10 | 0.00 | 3.50 |
| 46 | 28.13 | 15.10 | 79.43 | 65.86 | 3.44 | 8.14 | 0.00 | 3.84 |
| 47 | 30.99 | 18.41 | 84.71 | 70.57 | 2.09 | 7.27 | 58.00 | 3.64 |
| 48 | 29.49 | 17.06 | 81.71 | 66.71 | 3.83 | 7.57 | 0.00 | 3.90 |
| 49 | 29.27 | 14.63 | 73.86 | 57.29 | 2.53 | 8.84 | 0.00 | 3.59 |
| 50 | 29.06 | 17.13 | 84.57 | 67.00 | 1.29 | 3.66 | 0.00 | 3.47 |
| 51 | 28.56 | 11.84 | 81.86 | 57.57 | 2.53 | 8.87 | 0.00 | 3.56 |
| 52 | 27.95 | 9.99 | 77.50 | 56.38 | 2.04 | 8.18 | 0.00 | 3.61 |
| 1 | 26.91 | 13.46 | 83.86 | 58.57 | 3.04 | 5.02 | 0.00 | 3.87 |
| 2 | 25.99 | 13.00 | 82.14 | 63.14 | 2.67 | 7.44 | 0.00 | 3.70 |
| 3 | 31.49 | 15.13 | 80.14 | 56.57 | 2.30 | 6.90 | 0.00 | 4.03 |
| 4 | 29.34 | 11.03 | 78.86 | 51.29 | 2.33 | 8.28 | 0.00 | 3.99 |
| 5 | 30.41 | 11.63 | 72.71 | 51.14 | 4.04 | 8.77 | 0.00 | 3.94 |
| 6 | 30.49 | 9.77 | 64.57 | 49.57 | 2.41 | 8.24 | 0.00 | 3.81 |
| 7 | 32.13 | 13.49 | 79.57 | 57.71 | 2.41 | 7.81 | 0.00 | 3.94 |
| 8 | 30.41 | 13.70 | 84.14 | 56.14 | 3.30 | 8.01 | 0.00 | 3.69 |
| 9 | 36.11 | 14.77 | 69.86 | 60.71 | 2.30 | 9.19 | 0.00 | 4.30 |
| 10 | 36.13 | 14.56 | 68.29 | 53.43 | 2.51 | 8.17 | 0.00 | 4.81 |
| 11 | 33.20 | 12.96 | 70.14 | 42.14 | 2.59 | 7.54 | 0.00 | 4.93 |
| 12 | 35.01 | 17.14 | 65.50 | 50.38 | 3.06 | 7.15 | 0.00 | 4.88 |
| 13 | 37.70 | 16.27 | 55.86 | 44.71 | 3.93 | 8.77 | 0.00 | 5.54 |
| 14 | 38.12 | 16.12 | 64.83 | 43.83 | 4.03 | 6.92 | 0.00 | 5.37 |
| 15 | 38.13 | 19.34 | 71.00 | 51.57 | 3.77 | 6.36 | 0.00 | 4.69 |
| 16 | 34.77 | 15.24 | 70.71 | 49.29 | 4.71 | 10.00 | 0.00 | 5.14 |
| 17 | 38.63 | 20.27 | 66.14 | 48.86 | 4.09 | 9.94 | 0.00 | 5.80 |

Table S2 Weather conditions prevailing during season from November 2022-April 2023 at the Experimental site

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Week No** | **Temp. Max** | Temp. (Max)(ºC) | Temp. (Min) (ºC) | RH (Max) | RH (Min) | Velocity (m/s ) | Sunshine (Hr) | Rain (mm) |
| 44 | 30.34  | 15.63  | 74.43  | 55.00  | 3.70  | 9.36  | 0.00  | 3.30  |
| 45 | 30.26  | 15.03  | 70.78  | 55.89  | 2.98  | 8.81  | 0.00  | 3.27  |
| 46 | 30.56  | 14.49  | 78.57  | 62.29  | 2.50  | 8.54  | 0.00  | 3.53  |
| 47 | 30.34  | 13.77  | 73.71  | 61.29  | 2.10  | 8.86  | 0.00  | 2.87  |
| 48 | 29.78  | 12.62  | 76.00  | 57.17  | 2.18  | 9.12  | 0.00  | 3.13  |
| 49 | 28.56  | 14.17  | 78.29  | 55.71  | 1.94  | 5.71  | 0.00  | 3.44  |
| 50 | 29.63  | 16.70  | 81.86  | 60.43  | 3.33  | 4.41  | 0.00  | 2.87  |
| 51 | 31.87  | 13.83  | 80.00  | 46.00  | 2.52  | 8.93  | 0.00  | 3.23  |
| 52 | 31.82  | 13.20  | 75.75  | 52.88  | 2.55  | 7.48  | 0.00  | 4.11  |
| 1 | 30.2 | 14.8 | 80.1 | 54.1 | 2.7 | 5.6 | 0.00  | 4.2 |
| 2 | 29.5 | 22.8 | 70.6 | 41.3 | 2.8 | 7.8 | 0.00  | 4.1 |
| 3 | 31.07  | 12.41  | 74.71  | 42.00  | 2.63  | 8.81  | 0.00  | 4.10  |
| 4 | 30.20  | 13.63  | 78.29  | 55.00  | 3.36  | 6.37  | 0.00  | 4.39  |
| 5 | 30.56  | 13.34  | 76.14  | 52.86  | 3.30  | 7.13  | 0.00  | 4.17  |
| 6 | 29.84  | 11.31  | 72.00  | 48.14  | 2.29  | 9.15  | 0.00  | 4.67  |
| 7 | 32.49  | 12.06  | 64.71  | 50.71  | 3.09  | 10.31  | 0.00  | 4.99  |
| 8 | 35.20  | 13.37  | 58.17  | 44.33  | 1.75  | 9.88  | 0.00  | 5.82  |
| 9 | 34.49  | 14.77  | 61.14  | 44.57  | 4.93  | 7.99  | 0.00  | 5.66  |
| 10 | 34.63  | 18.49  | 61.71  | 47.00  | 3.51  | 8.21  | 0.00  | 5.37  |
| 11 | 33.91  | 18.20  | 68.00  | 51.29  | 3.81  | 5.99  | 0.00  | 4.90  |
| 12 | 29.41  | 12.31  | 76.00  | 46.86  | 5.44  | 12.12  | 0.00  | 5.09  |
| 13 | 34.34  | 15.56  | 73.86  | 43.86  | 5.66  | 9.83  | 0.00  | 6.01  |
| 14 | 35.82  | 18.51  | 70.75  | 45.38  | 3.35  | 9.13  | 0.00  | 6.09  |
| 15 | 37.13  | 21.41  | 71.71  | 47.43  | 3.17  | 7.07  | 0.00  | 5.51  |
| 16 | 39.13  | 20.34  | 69.29  | 40.29  | 4.51  | 8.99  | 0.00  | 5.96  |
| 17 | 35.10  | 19.99  | 68.71  | 47.43  | 5.11  | 9.36  | 0.00  | 5.44  |

Table S3: *Trichoderma* strains used in the current study along with the NCBI accessions of ITS and *Tef1* gene

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Treatment | Organism | Strain ID | NCBI Accession(ITS1) | Sequence Length (bp) | NCBI Accession(*Tef*1) | Sequence length (bp) |
| T1 | *Trichoderma longibrachiatum* | OGRDT1 | OR048743 | 534 | OR102865 | 797 |
| T2 | *Trichoderma longibrachiatum* | OGRDT2 | OR048744 | 537 | OR102866 | 798 |
| T3 | *Trichoderma longibrachiatum* | GRDT1 | OR048745 | 530 | OR102867 | 794 |
| T4 | *Trichoderma harzianum* | GRDT2 | OR048746 | 527 | OR102868 | 823 |
| T5 | *Trichoderma asperellum* | GRDT3 | OR048747 | 482 | OR102869 | 845 |
| T6 | *Trichoderma longibrachiatum* | GRDT5 | OR048750 | 546 | OR102872 | 797 |
| T7 | *Trichoderma asperellum* | GRDT6 | OR048751 | 495 | OR102873 | 839 |
| T8 | *Trichoderma longibrachiatum* | GRDT8 | OR048753 | 552 | OR102875 | 777 |