**SUPPLEMENTARY MATERIAL**

**Table S1** Evaluation of cucumber germplasm for powdery mildew resistance under field conditions

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S. No.** | **Code** | **Genotype** | **Location/ origin/ source** | **PDI (Mean of two years)** | **Reaction** |
| 1 | GS1 | CSKR1\* | Goripora, Pulwama, Kashmir, J&K | 47.60 | S |
| 2 | GS2 | CSKR2\* | Awantipora, Pulwama, Kashmir, J&K | 52.60 | HS |
|  3 | GS3 | CSKR3\* | Arigam, Tral, Pulwama, Kashmir, J&K | 67.00 | HS |
| 4 | GS4 | CSKR4\* | Arigam, Tral, Pulwama, Kashmir, J&K | 51.00 | HS |
| 5 | GS5 | CSKR5\* | Satoora, Tral, Pulwama, Kashmir, J&K | 49.45 | S |
| 6 | GS6 | CSKR6\* | Samboora, Pulwama, Kashmir, J&K | 64.90 | HS |
| 7 | GS7 | CSKR7\* | PanthaChowk, Srinagar, Kashmir, J&K | 15.60 | MR |
| 8 | GS10 | K-90c | YSPUHF, Solan, Himachal Pradesh (HP) | 71.65 | HS |
| 9 | GS11 | 75-2-10-1c | CSK HPKV, Palampur, HP | 64.35 | HS |
| 10 | GS12 | HPL\* | CSK HPKV, Palampur, HP | 48.55 | S |
| 11 | GS13 | P.Barkhac | IARI, New Delhi | 67.90 | HS |
| 12 | GS15 | LG1c | IARI, New Delhi | 47.60 | S |
| 13 | GS16 | DWD\* | Locally collected, J&K | 10.21 | HR |
| 14 | GS18 | CSJR2\* | Mantalai, Udhampur, J&K | 28.70 | T |
| 15 | GS19 | CSJR3\* | Nowseshra, Rajouri, J&K | 31.05 | T |
| 16 | GS19-1 | CSJR4\* | Nowseshra, Rajouri, J&K | 34.25 | T |
| 17 | GS20 | CSJR5\* | Rajouri, J&K  | 23.05 | MR |
| 18 | GS21 | CSJR6\* | Rajouri, J&K | 33.60 | T |
| 19 | GS22 | CSJR7\* | Rajouri, J&K | 54.00 | HS |
| 20 | GS25 | CSJR9w | Chatha, Jammu, J&K  | 50.70 | HS |
| 21 | GS26 | CSJR10w | Chatha, Jammu, J&K | 52.35 | HS |
| 22 | GS27 | CSHP1\* | McLeodganj, HP | 34.60 | T |
| 23 | GS28 | CSKR10\* | Badazgam, Anantnag, Kashmir, J&K | 46.60 | S |
| 24 | GS29 | CSKR11\* | Kokernag, Anantnag, Kashmir, J&K | 37.35 | S |
| 25 | GS30 | CSKR12\* | Badazgam, Anantnag, Kashmir, J&K | 56.60 | HS |
| 26 | GS31 | CSKR13\* | Noorbagh Sopore, Kashmir, J&K | 45.50 | S |
| 27 | GS32 | CSKR14\* | Sambel, Bandipora, Kashmir, J&K | 38.50 | S |
| 28 | GS33 | CSKR15\* | Harven, Srinagar, Kashmir, J&K | 53.75 | HS |
| 29 | GS34 | CSKR16\* | Harven, Srinagar, Kashmir, J&K | 45.10 | S |
| 30 | GS35 | CSKR17\* | Kanahama Tangmarg, Kashmir, J&K | 33.00 | T |
| 31 | GS36 | CSKR18\* | Ananwan Handwara, Kashmir, J&K | 43.20 | S |
| 32 | GS37 | CSKR19\* | Baramulla, Kashmir, J&K | 61.85 | HS |
| 33 | GS38 | CSKR20\* | Pulwama, Kashmir, J&K | 57.55 | HS |
| 34 | GS39 | CSWB1\* | West Bengal | 45.95 | S |
| 35 | GS40 | CSWB2\* | West Bengal | 38.5 | S |
| 36 | GS41 | CSWB3\* | West Bengal | 8.45 | HR |
| 37 | GS42 | CSWB4\* | West Bengal | 29.10 | T |
| 38 | GS43 | CSWB5\* | West Bengal | 40.95 | S |
| 39 | GS44 | CSWB6\* | West Bengal | 40.10 | S |
| 40 | GS45 | SwarnAgetic | IIHR, Bangalore | 40.50 | S |
| 41 | GS46 | VS-474c | IIHR, Bangalore | 23.50 | MR |
| 42 | GS47 | Juliec | IIHR, Bangalore | 20.95 | MR |
| 43 | GS48 | Pb. Naveenc | IIHR, Bangalore | 43.85 | S |
| 44 | GS49 | CH-20c | IIHR, Bangalore | 60.05 | HS |
| 45 | GS50 | Ruhic | IIHR, Bangalore | 56.10 | HS |
| 46 | GS52 | PhuleShubangic | IIHR, Bangalore | 28.10 | T |
| 47 | GS53 | Sinac | IIHR, Bangalore | 18.55 | MR |
| 48 | GS54 | Peb Kamalc | IIHR, Bangalore | 51.65 | HS |
| 49 | GS55 | Himangic | IIHR, Bangalore | 56.95 | HS |
| 50 | GS56 | Natonc | IIHR, Bangalore | 31.50 | T |
| 51 | GS57 | Nandinic | IIHR, Bangalore | 38.60 | S |
| 52 | GS58 | Sangeethac | IIHR, Bangalore | 38.65 | S |
| 53 | GS59 | Isha.KKc | IIHR, Bangalore | 42.70 | S |
| 54 | GS60 | CSJR11\* | Rajouri, J&K | 41.10 | S |
| 55 | GS61 | CSJR12\* | Kotranka, Rajouri, J&K | 54.20 | HS |
| 56 | GS62 | CSJR13\* | Manjakote, Rajouri, J&K | 27.10 | T |
| 57 | GS63 | CSJR14\* | Kotranka-1, Rajouri, J&K | 20.90 | MR |
| 58 | GS64 | CSHP2\* | Baragrahn (Kullu), H.P. | 32.15 | T |
| 59 | GS65 | CSHP3\* | Halasha (Kullu) , H.P. | 41.35 | S |
| 60 | GS66 | CSHP4\* | Pangrahn (Kullu) , H.P. | 29.50 | T |
| 61 | GS67 | CSHP5\* | Bari (Kullu) , H.P. | 38.20 | S |
| 62 | GS68 | CSHP6\* | Local Kullu Collection, H.P. | 28.55 | T |
| 63 | GS69 | CSHP7\* | Pachhad, Sirmaur, H.P. | 26.35 | T |
| 64 | GS70 | CSN\* | Navsari, Gujarat | 7.65 | HR |
| 65 | GS71 | PL-1\* | CSK HPKV, Palampur, H.P. | 34.95 | T |
| 66 | GS72 | PL-4\* | CSK HPKV, Palampur, H.P. | 2.55 | HR |
| 67 | GS73 | 173934\* | CSK HPKV, Palampur, H.P. | 9.00 | HR |
| 68 | GS74 | SG\* | CSK HPKV, Palampur, H.P. | 26.15 | T |
| 69 | GS75 | DPC-1c | CSK HPKV, Palampur, H.P. | 49.55 | S |
| 70 | GS76 | K. Paprolac | CSK HPKV, Palampur, H.P. | 59.70 | HS |
| 71 | GS77 | Pb. Naveenc | CSK HPKV, Palampur, H.P. | 63.15 | HS |
| 72 | GS78 | K-75c | YSPUHF, Solan, HP | 57.95 | HS |
| 73 | GS79 | Poinsettec | CSK HPKV, Palampur, H.P. | 8.10 | HR |
| 74 | GS80 | KR1\* | SKUAST-Kashmir, J&K | 20.15 | MR |
| 75 | GS81 | KR2\* | SKUAST-Kashmir, J&K | 22.85 | MR |
| 76 | GS82 | KR3\* | SKUAST-Kashmir, J&K | 34.05 | T |
| 77 | GS83 | KNP1\* | CSAUAT, Kanpur, J&K | 27.50 | T |
| 78 | GS84 | KNP2\* | CSAUAT, Kanpur, J&K | 30.20 | T |
| 79 | GS85 | KNPS3\* | CSAUAT, Kanpur, J&K | 41.25 | S |
| 80 | GS87 | KNP5\* | CSAUAT, Kanpur, J&K | 47.95 | S |
| 81 | GS88 | CSHP8\* | Hamirpur, HP | 9.40 | HR |
| 82 | GS90 | AAUC-2 Selc | BAU, Sabour, Bihar | 18.45 | MR |
| 83 | GS91 | ACSM-1c | BAU, Sabour, Bihar | 45.50 | S |
| 84 | GS92 | Gy-14c | BAU, Sabour, Bihar | 5.10 | HR |
| 85 | GS93 | CSJR-15\* | Seri, Sunderbani, J&K | 52.65 | HS |
| 86 | GS94 | CSJR-16\* | Tanda, Sunderbani, J&K | 39.45 | S |
| 87 | GS95 | KTC-13c | YSPUHF, Solan, HP | 30.20 | T |
| 88 | GS96 | SEL-1c | YSPUHF, Solan, HP | 11.65 | HR |
| 89 | GS97 | AVRAEc-K-11 | YSPUHF, Solan, HP | 27.20 | T |
| 90 | GS98 | IIVR-7-1c | YSPUHF, Solan, HP | 70.10 | HS |
| 91 | GS100 | HIM-15-1c | YSPUHF, Solan, HP | 65.15 | HS |
| 92 | GS101 | HIM-15-7c | YSPUHF, Solan, HP | 46.40 | S |
| 93 | GS102 | AVRAE-K-1c | YSPUHF, Solan, HP | 20.35 | MR |
| 94 | GS103 | DARL-106c | YSPUHF, Solan, HP | 71.30 | HS |
| 95 | GS104 | SEL-17c | YSPUHF, Solan, HP | 23.35 | MR |
| 96 | GS105 | PCPGR-8c | GBPUAT, Pant Nagar, Uttrakhand | 31.00 | T |
| 97 | GS106 | PCPGR-47c | GBPUAT, Pant Nagar, Uttrakhand | 32.40 | T |
| 98 | GS107 | PCPGR-55c | GBPUAT, Pant Nagar, Uttrakhand | 36.20 | S |
| 99 | GS108 | PCPGR-59c | GBPUAT, Pant Nagar, Uttrakhand | 41.25 | S |
| 100 | GS109 | PCPGR7557c | GBPUAT, Pant Nagar, Uttrakhand | 42.50 | S |
| 101 | GS110 | CSJR17\* | Sunderbani, J&K | 41.00 | S |

HR: Highly Resistant, MR: Moderately Resistant, T: Tolerant, S: Susceptible, HS: Highly Susceptible

\* = Landraces; c = cultivated; w = wild

**Table S2** Screening of cucumber germplasm for powdery mildew resistance under artificial conditions

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **S. No.** | **Code** | **Genotype** | **Location/ origin/ source** | **PDI (Mean)** | **Reaction** | **Leaf disk response** |
| 1 | GS7 | CSKR7\* | Pantha Chowk, J&K | 91.67 | HS | S |
| 2 | GS20 | CSJR5\* | Rajouri, J&K | 83.33 | HS | S |
| 3 | GS46 | ACC-2\* | IIHR, Bangalore | 65.15 | HS | S |
| 4 | GS47 | ACC-3\* | IIHR, Bangalore | 71.30 | HS | S |
| 5 | GS53 | ACC-9\* | IIHR, Bangalore | 52.65 | HS | S |
| 6 | GS63 | CSJR14\* | Kotranka-1, Rajouri, J&K | 54.20 | HS | S |
| 7 | GS80 | KR-1\* | SKUAST-Kashmir, J&K | 52.65 | HS | S |
| 8 | GS81 | KR-2\* | SKUAST-Kashmir, J&K | 91.67 | HS | S |
| 9 | GS90 | AAUC-2 Sel.\* | BAU, Sabour, Bihar | 75.00 | HS | S |
| 10 | GS102 | AVRAE-K-1\* | YSPUHF, Solan, HP | 58.33 | HS | S |
| 11 | GS104 | SEL-17\* | YSPUHF, Solan, HP | 100.00 | HS | S |
| 12 | GS16 | DWD# | Locally collected, J&K | 16.67 | MR | S |
| 13 | GS41 | CSWB3# | West Bengal | 50.00 | HS | S |
| 14 | GS70 | CSN# | Navsari, Gujarat | 16.67 | MR | S |
| 15 | GS72 | PL-4# | CSK HPKV, Palampur | 66.67 | HS | S |
| 16 | GS73 | 173934# | CSK HPKV, Palampur | 83.33 | HS | S |
| 17 | GS79 | Poinsette# | CSK HPKV, Palampur | 91.67 | HS | S |
| 18 | GS88 | CSHP8# | Hamirpur, HP | 83.33 | HS | S |
| 19 | GS92 | Gy-14# | BAU, Sabour, Bihar | 58.33 | HS | S |
| 20 | GS96 | SEL-1# | YSPUHF, Solan, HP | 91.67 | HS | S |
| 21 | GS127 | PusaUday | IARI, Pusa, N. Delhi | 91.67 | HS | S |
| 22 | GS140 | VIO45977 (EC904094) | AVRDC, Taiwan | 8.33 | R | R |
| 23 | GS141 | VIO46149 (EC904095) | AVRDC, Taiwan | 91.67 | HS | S |
| 24 | GS142 | VIO46778 (EC904096) | AVRDC, Taiwan | 91.67 | HS | S |
| 25 | GS143 | VIO47765 (EC904097) | AVRDC, Taiwan | 100.00 | HS | S |
| 26 | GS144 | VIO48036 (EC904098) | AVRDC, Taiwan | 100.00 | HS | S |
| 27 | GS145 | VIO55534 (EC904099) | AVRDC, Taiwan | 100.00 | HS | S |
| 28 | GS146 | VIO55629 (EC904100) | AVRDC, Taiwan | 100.00 | HS | S |
| 29 | GS147 | VIO56347 (EC904101) | AVRDC, Taiwan | 91.67 | HS | S |
| 30 | GS148 | VIO56390 (EC904102) | AVRDC, Taiwan | 25.00 | MR | S |
| 31 | GS152 | Ames 7735 (EC904236) | USNPGS, USA | 100.00 | HS | S |
| 32 | GS153 | Ames 7736 (EC904237) | USNPGS, USA | 100.00 | HS | S |
| 33 | GS154 | NLS 20149 (EC904238) | USNPGS, USA | 91.67 | HS | S |
| 34 | GS155 | PI 234517 (EC904239) | USNPGS, USA | 100.00 | HS | S |
| 35 | GS156 | PI 414157 (EC904240) | USNPGS, USA | 100.00 | HS | S |
| 36 | GS157 | PI 103049 (EC904241) | USNPGS, USA | 83.33 | HS | S |
| 37 | GS158 | PI 418962 (EC904242) | USNPGS, USA | 75.00 | HS | S |
| 38 | GS159 | PI 419009 (EC904243) | USNPGS, USA | 91.67 | HS | S |
| 39 | GS160 | PI 432860 (EC904244) | USNPGS, USA | 83.33 | HS | S |
| 40 | GS161 | PI 432870 (EC904245) | USNPGS, USA | 75.00 | HS | S |
| 41 | GS162 | PI 618860 (EC904246) | USNPGS, USA | 83.33 | HS | S |
| 42 | GS163 | PI 618863 (EC904247) | USNPGS, USA | 91.67 | HS | S |
| 43 | GS164 | PI 212233 (EC904248) | USNPGS, USA | 75.00 | HS | S |
| 44 | GS165 | PI 224668 (EC904249) | USNPGS, USA | 100.00 | HS | S |
| 45 | GS166 | PI 483344 (EC904250) | USNPGS, USA | 83.33 | HS | S |
| 46 | GS167 | PI 246930 (EC904251) | USNPGS, USA | 83.33 | HS | S |
| 47 | GS168 | PI 277741 (EC904252) | USNPGS, USA | 91.67 | HS | S |
| 48 | GS169 | PI 279465 (EC904253) | USNPGS, USA | 33.33 | T | S |
| 49 | GS170 | PI 321006 (EC904254) | USNPGS, USA | 66.67 | HS | S |
| 50 | GS171 | PI 321009 (EC904255) | USNPGS, USA | 100.00 | HS | S |
| 51 | GS172 | PI 321011 (EC904256) | USNPGS, USA | 58.33 | HS | S |
| 52 | GS173 | PI 354952 (EC904257) | USNPGS, USA | 100.00 | HS | S |
| 53 | GS174 | PI 356809 (EC904258) | USNPGS, USA | 100.00 | HS | S |
| 54 | GS175 | PI 390258 (EC904259) | USNPGS, USA | 91.67 | HS | S |
| 55 | GS176 | PI 390266 (EC904260) | USNPGS, USA | 83.33 | HS | S |
| 56 | GS177 | PI 426169 (EC904261) | USNPGS, USA | 91.67 | HS | S |
| 57 | GS178 | PI 618936 (EC904262) | USNPGS, USA | 75.00 | HS | S |
| 58 | GS179 | PI 183967 (IC571488) | USNPGS, USA | 83.33 | HS | S |
| 59 | GS180 | PI 197088 (IC0622750) | USNPGS, USA | 83.33 | HS | S |

\* and # which have been reported to be MR and HR, respectively under field conditions, HR: Highly Resistant, MR: Moderately Resistant, R: Resistant, T: Tolerant, S: Susceptible, HS: Highly Susceptible

Information related to germplasm, GS140 to GS148 and GS152 to GS180 can be taken from <http://seed.worldveg.org/search/passport> and <https://npgsweb.ars-grin.gov/gringlobal/search>, respectively