**Table 1:** **Stripe rust resistant accessions with number and their pedigrees**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sr#** | **Accession Number** | **Pedigree** |  |  |
| 1 | E-II-1a  | CETA/*Ae. Squarrosa* (392) |  |  |
| 2 | E-II-2  | GAN/*Ae. Squarrosa* (335)  |  |  |
| 3 | E-II-3  | CETA/*Ae. Squarrosa* (417) |  |  |
| 4 | E-II-4 | SKARV\_2/*Ae. Squarrosa* (304) |  |  |
| 5 | E-II-6  | D67.2/P66.270//*Ae. Squarrosa* (497)  |  |  |
| 6 | E-II-7  | D67.2/P66.270//*Ae. Squarrosa* (308) |  |  |
| 7 | E-II-8  | CETA/*Ae. Squarrosa* (533)  |  |  |
| 8 | E-II-9  | SORA/*Ae. Squarrosa* (323) |  |  |
| 9 | E-II-10 | DVERD\_2/*Ae. Squarrosa* (214)  |  |  |
| 10 | E-II-11  | CROC\_1/*Ae. Squarrosa* (210)  |  |  |
| 11 | E-II-12  | SORA/*Ae. Squarrosa* (192)  |  |  |
| 12 | E-II-13  | ARLIN\_1/*Ae. Squarrosa* (218)  |  |  |
| 13 | E-II-14  | TK SN1081/*Ae. Squarrosa* (222)  |  |  |
| 14 | E-II-15  | GAN/*Ae. Squarrosa* (236)  |  |  |
| 15 | E-II-16  | LCK59.61/*Ae. Squarrosa* (693)  |  |  |
| 16 | E-II-17  | CETA/*Ae. Squarrosa* (1025)  |  |  |
| 17 | E-II-18  | DOY1/*Ae. Squarrosa* (1027)  |  |  |
| 18 | E-II-19  | CETA/*Ae. Squarrosa* (386)  |  |  |
| 19 | E-II-20  | CPI/GEDIZ/3/GOO//JO/CRA/4/*Ae. Squarrosa* (1018)  |  |  |
| 20 | E-II-21  | CETA/*Ae. Squarrosa* (1031)  |  |  |
| 21 | E-II-22  | CETA/*Ae. Squarrosa* (1038)  |  |  |
| 22 | E-II-23  | CETA/*Ae. Squarrosa* (1046)  |  |  |
| 23 | E-II-24  | CTA/*Ae. Squarrosa* (1053) |  |  |
| 24 | E-II-26  | CETA/*Ae. Squarrosa* (368)  |  |  |
| 25 | E-II-27 | ARLIN\_1/*Ae. Squarrosa* (430) |  |  |
| 26 | E-II-29  | GAN/*Ae. Squarrosa* (206)  |  |  |
| 27 | E-II-30  | ARLIN\_1/Ae. Squarrosa (335)  |  |  |
| 28 | E-II-31  | 68.111/RGB-U//WARD RESEL/3/STIL/4/*Ae. Squarrosa* (385)  |  |  |
| 29 | E-II-32  | 68.111/RGB-U//WARD RESEL/3/STIL/4/*Ae. Squarrosa* (432) |  |  |
| 30 | E-II-33 | DOY1/*Ae. Squarrosa* (534) |  |  |
| 31 | E-I-3 | ALTAR 84/ *Ae. Squarrosa* (192) |  |  |
| 32 | E-I-5 | ALTAR 84/ *Ae. Squarrosa* (198) |  |  |
| 33 | E-I-27 | GARZA/BOY// *Ae. Squarrosa* (311) |  |  |
| 34 | E-I-32 | DOY1/*Ae. Squarrosa* (447) |  |  |
| 35 | E-I-34 | DOY1/*Ae. Squarrosa* (511) |  |  |
| 36 | E-I-35 | 68.111/RGB-U//WARD/3/*Ae. Squarrosa* (511) |  |  |
| 37 | E-I-42 | YAR/ *Ae. Squarrosa* (783) |  |  |
| 38 | E-I-47 | 68.111/RGB-U//WARD/3/FG/4 RAB/5/*Ae. Squarrosa* (882) |  |  |
| 39 | E-I-62 | SCA/*Ae. Squarrosa* (518) |  |  |
| 40 | E-I-73 | GAN/*Ae. Squarrosa* (897) |  |  |
| 41 | E-I-76 | FALCIN/ *Ae. Squarrosa* (312) |  |  |
| 42 | E-I-79 | DOY1/*Ae. Squarrosa* (333) |  |  |
| 43 | E-I-80 | DOY1/*Ae. Squarrosa* (428) |  |  |
| 44 | E-I-87 | SCA/ *Ae. Squarrosa* (409) |  |  |
| 45 | E-I-88 | CPI/GEDIZ/3/GOO//J069/CRA/4/*Ae. Squarrosa* (409) |  |  |
| 46 | E-I-89 | STY-US/CETA//PALS/3/SRN\_5/4/*Ae. Squarrosa* (502) |  |  |
| 47 | E-I-90 | ALTAR 84/ *Ae. Squarrosa* (502) |  |  |
| 48 | E-I-91 | CROC-1 /*Ae. Squarrosa* (517) |  |  |
| 49 | E- I-92 | CETA/*Ae. Squarrosa* (1024) |  |  |
| 50 | E- I-93 | DVERD-2/ *Ae. Squarrosa* (1027) |  |  |
| 51 | E- I-94 | CETA/*Ae. Squarrosa* (1027) |  |  |

**Table 2: Description of wheat microsatellite primer sets**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sr #** | **Locus** | **Forward Primer** | **Reverse primer** |  **Annealing temperature** |
| 1 | Xcfd81-5D,  | 5' TATCCCCAATCCCCTCTTTC 3' | 5' GTCAATTGTGGCTTGTCCCT 3' | 60oC |
| 2 | Xcfd82-6A | 5' GCTGATGCTGCTGTAAGTGC 3' | 5' TGAAGAATACAATGGCAGCAA 3' | 60oC |
| 3 | Xcfd83-1D | 5' AAGGATGGAGAGGACCCCTA 3' | 5' GGAGGTGGAGCAACCTATCA 3' | 60oC |
| 4 | Xcfd92-1D | 5' CTTGTTGATCTCCTTCCCCA 3' | 5' TTCTCTCATGACGGCAACAC 3' | 60oC |
| 5 | Xcfd106-4D | 5' ACGGGTGGTTTTGCTCAGT 3' | 5' ACTCCACCAGCGGAGAAATA 3' | 60oC |
| 6 | Xcfd141-3D | 5' CGTAAAGATCCGAGAGGGTG 3' | 5' TCCGAGGTGCTACCTACCAG 3' | 60oC |
| 7 | Xcfd143-3B | 5' TTCTCCATGGGCAGCTACTT 3' | 5' ACTACTTGCGGACGGCTG 3' | 60oC |
| 8 | Xcfd156-5D | 5' AGCAGTGTAATAAAAGGGCG 3' |  5' GTATTCGCACCAGAATCCGT 3' | 60oC |
| 9 | Xwmc477-2B | CGTCGAAAACCGTACACTCTCC | GCGAAACAGAATAGCCCTGATG | 61oC |
| 10 | Xbarc67-3A | 5' GCGGCATTTACATTTCAGATAGA 3' | 5' TGTGCCTGATTGTAGTAACGTATGTA 3' | 52oC |
| 11 | Xbarc72-7B | 5' CGTCCTCCCCCTCTCAATCTACTCTC 3' | 5' CGTCCCTCCATCGTCTCATCA 3' | 60oC |
| 12 | Xbarc124b-2A | 5' TGCACCCCTTCCAAATCT 3' | 5' TGCGAGTCGTGTGGTTGT 3' | 52oC |
| 13 | Xbarc167-2B | 5' AAAGGCCCATCAACATGCAAGTACC 3' | 5' CGCAGTATTCTTAGTCCCTCAT 3' | 50oC |
| 14 | Xbarc8-1B | 5' GCGGGAATCATGCATAGGAAAACAGAA 3' | 5' GCGGGGGCGAAACATACACATAAAAACA 3' | 50oC |
| 15 | Xcfa2149-2AL | 5' CTTGGAGCTCGGGTAGTAGC 3' | 5' AAGGCAGCTCAATCGGAGTA 3' | 60oC |
| 16 | Xuhw89 | 5'TCTCCAAGAGGGGAGAGA CA 3' | 5' TTCCTCTACCCA TGAATCTAGCA 3' | 59 oC |

**Table 3:** Description of microsatellite marker’s along with PIC values.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **SR#** | **Marker** | **Major Allele Frequency** | **Sample Size** | **No. of obs.** | **Allele No** | **Availability** | **Gene Diversity** | **PIC** |
| **1** | **CFD-81** | 0.7647 | 51.0000 | 51.0000 | 2.0000 | 1.0000 | 0.3599 | 0.2951 |
| **2** | **CFD-82** | 0.4902 | 51.0000 | 51.0000 | 4.0000 | 1.0000 | 0.5375 | 0.4303 |
| **3** | **CFD-83** | 0.8431 | 51.0000 | 51.0000 | 3.0000 | 1.0000 | 0.2768 | 0.2592 |
| **4** | **CFD-92** | 0.4706 | 51.0000 | 51.0000 | 4.0000 | 1.0000 | 0.6820 | 0.6335 |
| **5** | **CFD-106** |  0.6078 | 51.0000 | 51.0000 | 8.0000 | 1.0000 | 0.6013 | 0.5791 |
| **6** | **CFD-141** | 0.5686 | 51.0000 | 51.0000 | 9.0000 | 1.0000 | 0.6344 | 0.6059 |
| **7** | **CFD-143** | 0.4510 | 51.0000 | 51.0000 | 6.0000 | 1.0000 | 0.6959 | 0.6507 |
| **8** | **CFD-156** | 0.8824 | 51.0000 | 51.0000 | 2.0000 | 1.0000 | 0.2076 | 0.1861 |
| **9** | **BARC-08** | 1.0000 | 51.0000 | 51.0000 | 1.0000 | 1.0000 | 0.0000 | 0.0000 |
| **10** | **BARC-67** | 0.4902 | 51.0000 | 51.0000 | 6.0000 | 1.0000 | 0.6282 | 0.5633 |
| **11** | **BARC-72** | 0.5294 | 51.0000 | 51.0000 | 4.0000 | 1.0000 | 0.5759 | 0.4939 |
| **12** | **BARC-124** | 0.4706 | 51.0000 | 51.0000 | 18.0000 | 1.0000 | 0.7589 | 0.7499 |
| **13** | **BARC-167** | 0.8039 | 51.0000 | 51.0000 | 8.0000 | 1.0000 | 0.3453 | 0.3343 |
| **14** | **WMC-477** | 0.1961 | 51.0000 | 51.0000 | 10.0000 | 1.0000 | 0.8635 | 0.8487 |
| **15** | **CFA-2149** | 0.1569 | 51.0000 | 51.0000 | 24.0000 | 1.0000 | 0.9250 | 0.9205 |
| **16** | **UHW-89** | 0.7255 | 51.0000 | 51.0000 | 7.0000 | 1.0000 | 0.4591 | 0.4435 |
|  | **Mean** | 0.5919 | 51.0000 | 51.0000 | 7.2500 | 1.0000 |  0.5345 | 0.4996 |

**Table 4: Showing number of alleles detecting chromosome specific primers.**

|  |  |  |  |
| --- | --- | --- | --- |
| **Genome** | **SSR Markers** | **No. of alleles** | **Total No of Alleles** |
| A Genome |

|  |  |  |  |
| --- | --- | --- | --- |
|

|  |
| --- |
|  |

 |

|  |
| --- |
|  |

 |

Xbarc124b-2A | 18 | 38 |
| Xbarc67-3A | 6 |
| Xcfa2149-5A | 10 |
| Xcfd82-6A | 4 |
| B Genome | Xwmc477-2B | 24 | 49 |
| Xbarc167-2B | 8 |
| Xcfd143-3B | 6 |
| Xbarc72-7B | 4 |
| Xuhw-89 | 7 |
| D Genome | Xcfd83-1D | 3 | 29 |
| Xcfd92-1D | 4 |
| Xbarc8-3D | 1 |
|

|  |  |
| --- | --- |
|

|  |
| --- |
|  |

 |

Xcfd141-3D | 9 |
|

|  |  |
| --- | --- |
|

|  |
| --- |
|  |

 |

Xcfd106-4D | 8 |
| Xcfd81-5D | 2 |
| Xcfd156-5D | 2 |

  

Figure 2. Dendrogram constructed for 51 synthetic hexaploid wheat accessions using SSR markers**.**

Figure 3.Dendrogram constructed for 51 synthetic hexaploid wheat accessions using SDS-PAGE for seed storage proteins



Fig 3. A Dendrogram constructed for 51 synthetic hexaploid wheat accessions using SSR markers