Table S1. Passport data of the coloured landraces collected from different districts of NEHR

| **S.No.** | **Code** | **Local Name** | **District** | **State** |
| --- | --- | --- | --- | --- |
| 1 | P/AP 2 | Sapa | Lepa Rada | Arunachal Pradesh |
| 2 | P/AP 3 | Sapa | Upper Siang | Arunachal Pradesh |
| 3 | P/AP 4 | Sapa | Upper Siang | Arunachal Pradesh |
| 4 | P/AP 5 | Sapa | Upper Siang | Arunachal Pradesh |
| 5 | P/AP 6 | Sapa | Upper Siang | Arunachal Pradesh |
| 6 | P/AP 7 | Sapa | Upper Siang | Arunachal Pradesh |
| 7 | P/AP 8 | Sapa | Lower Dibang Valley | Arunachal Pradesh |
| 8 | P/AP 9 | Sapa | Lower Dibang Valley | Arunachal Pradesh |
| 9 | P/AP 10 | Sapa | Lower Dibang Valley | Arunachal Pradesh |
| 10 | P/AP 11 | Sapa | Lower Dibang Valley | Arunachal Pradesh |
| 11 | P/AP 12 | Sapa | Lower Dibang Valley | Arunachal Pradesh |
| 12 | P/AP 13 | Sapa | Lower Dibang Valley | Arunachal Pradesh |
| 13 | P/AP 14 | Sapa | Lower Dibang Valley | Arunachal Pradesh |
| 14 | P/AP 15 | Sapa | Lower Dibang Valley | Arunachal Pradesh |
| 15 | Y/AP 16 | Sapa | Lower Dibang Valley | Arunachal Pradesh |
| 16 | Y/AP 17 | Sapa | Lower Dibang Valley | Arunachal Pradesh |
| 17 | Y/AP 18 | Sapa | Lower Dibang Valley | Arunachal Pradesh |
| 18 | P/MA 1 | Chakhao Chuzak | Thoubal | Manipur |
| 19 | P/MA 2 | Chakhao Chuzak | Thoubal | Manipur |
| 20 | P/MA 3 | Chakhao Chuzak | Chandel | Manipur |
| 21 | P/MG 1 | Meiraku | West Garo Hills | Meghalaya |
| 22 | P/MG 2 | Meiraku | West Garo Hills | Meghalaya |
| 23 | P/MG 3 | Meiraku | West Garo Hills | Meghalaya |
| 24 | P/MG 4 | Meiraku | West Garo Hills | Meghalaya |
| 25 | P/MG 5 | Riew Hadem | Ri Bhoi | Meghalaya |
| 26 | P/MG 6 | Riew Hadem | Ri Bhoi | Meghalaya |
| 27 | P/MG 7 | Riew Hadem | Ri Bhoi | Meghalaya |
| 28 | P/MG 8 | Riew Hadem | Ri Bhoi | Meghalaya |
| 29 | P/MG 9 | Meiraku | West Garo Hills | Meghalaya |
| 30 | P/MG 10 | Meiraku | West Garo Hills | Meghalaya |
| 31 | P/MG 11 | Meiraku | West Garo Hills | Meghalaya |
| 32 | P/MG 12 | Meiraku | West Garo Hills | Meghalaya |
| 33 | P/MG 13 | Meiraku | West Garo Hills | Meghalaya |
| 34 | Y/MG 14 | Meiraku | West Garo Hills | Meghalaya |
| 35 | Y/MG 15 | Meiraku | West Garo Hills | Meghalaya |
| 36 | P/MI 15 | Lalngailiana | Aizawl | Mizoram |
| 37 | P/MI 22 | Mimpui | Aizawl | Mizoram |
| 38 | W/MI 24 | Mimban | Siaha | Mizoram |
| 39 | W/MI 25 | Mimban | Siaha | Mizoram |
| 40 | Y/MI 26 | Mimpui | Champhai | Mizoram |
| 41 | P/N 2 | Teupui Tangnei | Peren | Nagaland |
| 42 | P/N 3 | Teupui | Peren | Nagaland |
| 43 | P/N 4 | Tehru Shuko | Dimapur | Nagaland |
| 44 | P/N 5 | Sinya Ketki | Dimapur | Nagaland |
| 45 | P/N 6 | Sinya Kemeri | Dimapur | Nagaland |
| 46 | W/N 15 | Sinya Kekra | Dimapur | Nagaland |
| 47 | P/S 1 | Ratoh Makai | West Sikkim | Sikkim |
| 48 | W/S 2 | Safed Makai | West Sikkim | Sikkim |
| 49 | P/T 1 | Mokadan | Khowai | Tripura |
| 50 | P/T 2 | Mokadan | Khowai | Tripura |
| 51 | P/T 3 | Mokadan | Khowai | Tripura |
| 52 | P/T 4 | Mokadan | Khowai | Tripura |

Table S2. Passport data of the landraces collected from ICAR-NBPGR Regional Station-Shillong, Umiam-793103, Meghalaya

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S.No.** | **Code** | **Accession No.** | **Collector No.** | **Local Name** | **State** |
| 1 | P/AP 1 |  | AR 43 |  | Arunachal Pradesh |
| 2 | P/MI 1 | IC0526774 | SS-625 | Mimban | Mizoram |
| 3 | P/MI 2 | IC0624040 | TR 172 | Mimban | Mizoram |
| 4 | P/MI 3 | IC0624043 | TR 178 | Mimpui | Mizoram |
| 5 | P/MI 4 | IC0624044 | TR 180 | Miria | Mizoram |
| 6 | P/MI 5 | IC0624045 | TR 181 | Mimban | Mizoram |
| 7 | P/MI 6 | IC0624046 | TR 182 | Mimban | Mizoram |
| 8 | P/MI 7 | IC0624048 | TR 184 | Mimban | Mizoram |
| 9 | P/MI 8 | IC0624049 | TR 185 | Mimban | Mizoram |
| 10 | P/MI 9 |  | TR 189 | Mimban | Mizoram |
| 11 | P/MI 10 | IC0624055 | TR 195 | Tlang lao | Mizoram |
| 12 | P/MI 11 |  | TR 221 | Mimban | Mizoram |
| 13 | P/MI 12 | IC0623966 | TR 37 | Puakzo | Mizoram |
| 14 | P/MI 13 | IC0624069 | TR 222 | Mimban dum | Mizoram |
| 15 | P/MI 14 | IC0623991 | TR 98 | Mimban | Mizoram |
| 16 | P/MI 16 | IC0623993 | TR 101 | Puakzo | Mizoram |
| 17 | P/MI 17 | IC0623952 | TR 06 | Mimban | Mizoram |
| 18 | P/MI 18 | IC0623953 | TR 07 | Mimban | Mizoram |
| 19 | P/MI 19 | IC0623954 | TR 08 | Puakzo | Mizoram |
| 20 | P/MI 20 | IC0624002 | TR 117 | Puakzo | Mizoram |
| 21 | P/MI 21 |  | TR 12 | Mimban | Mizoram |
| 22 | P/MI 23 | IC0624037 | TR 169 | Mimban | Mizoram |
| 23 | P/N 1 | IC0447230 | RS-542/2004 | Suko | Nagaland |
| 24 | P/N 7 | IC0614040 | KC/S/I-55 | Tsungro | Nagaland |
| 25 | P/N 8 | IC0614045 | KC/S/I-68 | Tsungro | Nagaland |
| 26 | P/N 9 | IC0614050 | KC/S/I-75 | Tsungro | Nagaland |
| 27 | P/N 10 |  | KP/SC 1532 |  | Nagaland |
| 28 | P/N 11 |  | NLM 55 |  | Nagaland |
| 29 | P/N 12 |  | NLM 76 |  | Nagaland |
| 30 | P/N 13 |  | RSR-NSP-10 |  | Nagaland |
| 31 | P/N 14 |  | RSR-NSP-18-4 |  | Nagaland |

Table S3. Details of the SSR markers used for genotypying the accessions for colour diversity studies

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S.No.** | **SSR** | **Gene** | **Bin** | **Function** | PIC values |
|  | *p-umc1269* | *bhlh35 bHLH-transcription factor 35* | 1.01 | Anthocyanin pathway | 0.375 |
|  | *p-phi095* | *p1 pericarp color1* | [1.03](https://www.maizegdb.org/bin_viewer) | Anthocyanin and phlobaphene pigmentation | 0.372 |
|  | *p-umc2096* | *p2 pericarp color2* | [1.03](https://www.maizegdb.org/bin_viewer) | Anther and silk pigmentation | 0.375 |
|  | *p-umc2097* | *p2 pericarp color2* | [1.03](https://www.maizegdb.org/bin_viewer) | Anther and silk pigmentation | 0.375 |
|  | *p-umc1358* | *myb38 myb transcription factor38* | 1.07 | Anthocyanin pathway | 0.375 |
|  | *p-umc1776* | *b1 coloured plant1* | 2.03 | Vegetative tissue pigmentation | 0.375 |
|  | *p-umc1024* | *b1 gene* | 2.04 | Vegetative tissue colour | 0.375 |
|  | *p-umc2174* | *a1 anthocyaninless1* | 3.08 | Colourless aleurone | 0.375 |
|  | *p-Orp1* | *orp1 orange pericarp1* | 4.05 | Orange pericarp pigmentation, manifesting metaxenia | 0.000 |
|  | *p-bnlg1136* | *pl1 purple plant1* | 6.07 | Vegetative tissue pigmentation | 0.350 |
|  | *p-nc009* | *pl1 purple plant1* | 6.04 | Vegetative tissue pigmentation | 0.363 |
|  | *p-phi031* | *pl1 purple plant1* | 6.04 | Vegetative tissue pigmentation | 0.110 |
|  | *p-umc1014* | *pl1 purple plant1* | 6.04 | Vegetative tissue pigmentation | 0.373 |
|  | *p-nc010* | *pl1 purple plant1* | 6.04 | Vegetative tissue pigmentation | 0.375 |
|  | *p-y1SSR* | *y1 yellow endosperm1* | 6.01 | Reduced carotenoid pigments in endosperm | 0.353 |
|  | *p-bnlg155* | *psy3 phytoene synthase3* | 7.03 | Carotenoid pathway | 0.374 |
|  | *p-umc1213* | *in1 intensifier1* | 7.02 | Anthocyanin pathway | 0.375 |
|  | *p-umc1809* | *c1 coloured aleurone1* | 9.01 | Anthocyanin pigmentation in aleurone | 0.375 |
|  | *p-phi017* | *bz1 bronze1* | 9.02 | Modifies purple aleurone and plant colour to pale or reddish brown | 0.373 |
|  | *p-bnlg1028* | *r1 gene* | 10.06 | Anthocyanin pathway | 0.375 |
|  | *p-umc2528* | *r1 gene* | 10.06 | Anthocyanin pathway | 0.375 |



**Figure S1** Map depicting the seven different hill states of North East India from where the different accessions were collected for the present study



Days to tasselling (DT, days), Days to silking (DS, days), Anthesis Silking Interval (ASI, days), Plant height (PH, cm), Tassel length (TL, cm), Ear height (EH, cm), total number of cobs (TNC, number), Ear weight (EW, g), Seed index (SI, g), Total grain weight (TGW, g), Total number of kernels (TNK, number), Ear length (EL, cm), Ear diameter (ED, cm) Number of grain kernel rows (NGKR, number)

**Figure S2** Comparison of mean values of the performance of the accessions for cropping season 1 and the pooled analysis of cropping seasons 1 and 2. The variability appears to have reduced slightly as reflected from error bars depicting ± standard deviation. TNK and TL were dropped from the second season of study and therefore not included in the pooled analysis. The yield traits contributing to variation in PC1 and PC2 also are comparable for the adjusted means of cropping season 1 and pooled analysis of cropping seasons 1 and 2 respectively.



**Figure S3** A density gradient comparing the anthocyanin content (AC) and phlobaphene content (PC) for the means of cropping season 1 and pooled analysis of cropping seasons 1, 2 and 3 respectively.



**Figure** **S4** For the colour diversity studies a. the observed and expected heterozygosity, fixation index and Shannon’s information index for the three populations as determined by STRUCTURE.