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| **Table S1: Details of 40 chickpea genotypes used during the present study.** |
| **S. No.** | **Code of genotype** | **Genotype** | **Seed type****(Desi *vs* Kabuli *vs* Pea shaped)** | **Seed colour** | **Gene pool****(Wild *vs* cultivated)** |
| 1 | S-21 | Shalimar chickpea-1 | Kabuli | Beige | Cultivated |
| 2 | CP-23 | GSC7/ICC-13077 | Desi | Green | Cultivated |
| 3 | CP-16 | ICC-13077 | Desi | Green | Cultivated |
| 4 | CP-Y14 | AGBL-D-170012 | Desi | brown  | Cultivated |
| 5 | CP-Y8 | AGBL-P-S-170007 | Pea shaped | Beige | Cultivated |
| 6 | CP-27 | ICC-96029 | Desi | Brown  | Cultivated |
| 7 | CP-19 | ICC-7537 | Desi | Green  | Cultivated |
| 8 | CP-28 | ICC-16207 | Desi | Brown  | Cultivated |
| 9 | CP-22 | ICC-17661 | Desi | Green  | Cultivated |
| 10 | CP-Y3 | AGBL-G-170002 | Desi | Green  | Cultivated |
| 11 | CP-Y1 | RVSSG-32 | Desi | Green  | Cultivated |
| 12 | CP-Y7 | AGBL-P-S-170006 | Pea shaped | Beige | Cultivated |
| 13 | CP-3 | ICC-8244 | Desi | Green  | Cultivated |
| 14 | CP-H13 | ICC-5810 | Desi | Black  | Cultivated |
| 15 | CP-H14 | ICC-6306 | Desi | Black  | Cultivated |
| 16 | CP-Y17 | RVSSG-37 | Kabuli | Beige | Cultivated |
| 17 | CP-2 | ICC-8245 | Desi | Green | Cultivated |
| 18 | CP-Y5 | AGBL-G-170004 | Desi | Green | Cultivated |
| 19 | CP-30 | ICC-17505 | Desi | Green | Cultivated |
| 20 | CP-25 | ICC-4958 | Desi | brown | Cultivated |
| 21 | CP-Y15 | AGBL-D-170013 | Kabuli | Beige | Cultivated |
| 22 | CP-7 | ICC-6426 | Desi | Brown | Cultivated |
| 23 | CP-Y10 | AGBL-P-S-170008 | Pea shaped | Beige | Cultivated |
| 24 | CP-29 | ICC-17660 | Desi | Green | Cultivated |
| 25 | CP-Y19 | RVSSG-46 | Kabuli | Beige | Cultivated |
| 26 | CP-5 | ICC-6814 | Desi | Green | Cultivated |
| 27 | CP-9 | ICC-4969 | Desi | Green | Cultivated |
| 28 | CP-H10 | ICC-96030 | Desi | Brown | Cultivated |
| 29 | CP-Y18 | RVSSG-47 | Kabuli | Beige | Cultivated |
| 30 | CP-24 | GSC-5 | Desi | Green | Cultivated |
| 31 | CP-H5 | KAK-2 | Kabuli | Beige | Cultivated |
| 32 | CP-H8 | ICC-16349 | Desi | Brown | Cultivated |
| 33 | CP-15 | ICC-1346 | Desi | Green | Cultivated |
| 34 | CP-20 | ICC-13044 | Desi | Green | Cultivated |
| 35 | CP 14 | ICC-11911 | Desi | Green | Cultivated |
| 36 | R-10 | Derei-070 | Desi | Dark-Brown | Wild (10 gene pool) |
| 37 | R-12 | Egil-065 | Desi | Dark-Brown | Wild (10 gene pool) |
| 38 | R-25 | Gunus-062 | Desi |  Dark-Brown | Wild (20 gene pool) |
| 39 | R-26 | Ortan-066 | Desi | Dark-Brown | Wild (20 gene pool) |
| 40 | R-32 | Microp-001 | Desi | Blackish brown | Wild (30 gene pool) |

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| **Table S2: Promising genotypes/ candidate lines for different seed micro- and macro-nutrients identified during the present study.** The table highlights the three genotypes possessing highest seed micro and macro-nutrients along with their nutrient concentration and seed types.  |
| **Nutrient** | **Concentration (ppm)** | **Genotype** | **Seed type** |
| **Zn** | 46.43, 46.89,45.69 | RVSSG-32, ICC-7537, AGBL-P-S-170006 | Desi |
| **Fe** | 143.5, 131.8, 128.4 | AGBL-D-170013, RVSSG-32, Ortan- | Kabuli, Desi, Wild |
| **Cu** | 10.2, 9.9, 9.2 | ICC-11911, AGBL-G-170002, RVSSG- | Desi |
| **Mn** | 3780, 3730, 3390 | RVSSG-32, AGBL-P-S-170006, AGBL-P-S-170007 | Desi |
| **K** | 15417, 15000, 14979 | Shalimar chickpea-1, Egil-065, ICC-6306 | Kabuli, Wild, Desi |
| **Ca** | 8740, 6740, 6100 | ICC-16349, AGBL-G-170004, ICC-96030 | Desi |
| **Mg** | 33264, 26594, 25761 | AGBL-P-S-170008, ICC-11911, ICC-17661 | Desi |