Supplementary Table-I: Chickpea Varieties used as experimental material

| S. No. | Genotype | Major Characteristics | Origin / Source |
|--------|----------|-----------------------|-----------------|
| 1.     | PUSA-362 | Desi, developed through hybridization (BG-303 x P-179), released in 1995, tall, maturity (145-150 days), wilt resistant, bold seeded, seed yield (23-24 q/ha) and suitable for north-west plain zone. | Indian Agricultural Research Institute, New Delhi, India |
| 2.     | K-850    | Desi, developed through hybridization (Banda Local x Etah bold), released in 1982, medium tall, erect, maturity (145-150 days), large dark greenish foliage, seeds reddish brown, round, smooth, bold (24 g / 100 seeds), seed yield (25-28 q/ha) and suitable for northern plain zone. | C.S.A. University of Agriculture and Technology, Kanpur, Uttar Pradesh, India |
| 3.     | PUSA 1105| Kabuli, released in 2004, developed through hybridization / pedigree method ((C-104 x BG-1003) x (ICC-88503 x BG-1048), maturity (145 days in north & 118 days in central), yield (25-30 q/ha) and suitable for Delhi region. | Indian Agricultural Research Institute, New Delhi, India |
| 4.     | PUSA 1108| Kabuli, released in 2005, developed through hybridization / selected bulk method ((BG-315 x ILC) x (ICC-13 x Flip-85-11) x (ICC-32 x Surutoto-77), bold seeded (29 g /100 seeds), moderate resistant to root diseases, tolerant to pod borer, maturity (145-150 days), yield (29 q/ha) and suitable for Delhi region. | Indian Agricultural Research Institute, New Delhi, India |
| 5.     | PUSA-1103| Desi, released in 2004, developed through hybridization from pedigree method {F1 (Pusa-256 x Cicer reticulatum) x Pusa-362), maturity (117-135 days), moderately resistant to soil borne diseases, tolerant to pod borer and bruchid, yield (19-23 q/ha) and suitable for Delhi region. | Indian Agricultural Research Institute, New Delhi, India |
| 6.     | JG-62    | Desi, released in 1972, seeds medium, yellowish brown, double seeded, early maturity (about 120 days), yield (16-20 q/ha) and best for short dry growing seasons in Karnataka, Maharashtra, Orissa and western parts of Madhya Pradesh. | J.N.K.V.V., Jabalpur, India |
| 7.     | PUSA 1053| Kabuli, developed through hybridization (ICCV-3x FLIPP 88-20), released in 1999, tall, semi erect, white seeds, bold seed size, test weight (27 gm / 100 seeds), seed yield (17-19 q/ha), wilt tolerant and suitable for north west plain zone. | Indian Agricultural Research Institute, New Delhi, India |
| 8.     | JG-74    | Desi, composite from genetic stock lines released in | J.N.K.V.V., Jabalpur, India |
1976, seed coat puckered, wilt resistant, seed yield (13-15 q/ha) and suitable for Madhya Pradesh.  

| S.No. | Primers   | Allele Numbers | No. of genotypes sharing alleles | Frequency of SSR alleles | No. of genotypes showing amplification | PIC |
|-------|------------|----------------|----------------------------------|--------------------------|----------------------------------------|-----|
| 1     | ICCeM001   | a5             | 9                                | 1.00                     | 9                                      | 0.00|
| 2     | ICCeM003   | a8             | 9                                | 1.00                     | 9                                      | 0.00|
| 3     | ICCeM007   | a6             | 9                                | 1.00                     | 9                                      | 0.00|
| 4     | ICCeM009   | a1             | 9                                | 1.00                     | 9                                      | 0.00|
| 5     | ICCeM0012  | a1, a7         | 7, 3                             | 0.78, 0.21              | 7                                      | 0.34|
| 6     | ICCeM0025  | a1             | 4                                | 1.00                     | 4                                      | 0.00|
| 7     | ICCeM0026  | a6             | 9                                | 1.00                     | 9                                      | 0.00|
| 8     | ICCeM0030  | 0              | 0                                | 0.00                     | 0                                      | 0.00|
| 9     | ICCeM0031  | 0              | 0                                | 0.00                     | 0                                      | 0.00|
| 10    | ICCeM0032  | a5             | 9                                | 1.00                     | 9                                      | 0.00|
| 11    | ICCeM0033  | a7             | 9                                | 1.00                     | 9                                      | 0.00|
| 12    | ICCeM0035  | a7             | 9                                | 1.00                     | 9                                      | 0.00|
| 13    | ICCeM0036  | a5             | 8                                | 1.00                     | 8                                      | 0.00|
| 14    | ICCeM0037  | 0              | 0                                | 0.00                     | 0                                      | 0.00|
| 15    | ICCeM0038  | a7             | 9                                | 1.00                     | 9                                      | 0.00|
| 16    | ICCeM0039  | a6             | 9                                | 1.00                     | 9                                      | 0.00|
|   | ICCeM0040  | a5 | 9 | 1.00 | 9 | 0.00 |
|---|------------|----|---|------|---|------|
| 17|            |    |   |      |   |      |
| 18| ICCeM0042  | 0  | 0 | 0.00 | 0 | 0.00 |
| 19| ICCeM0046  | a1 | 9 | 1.00 | 9 | 0.00 |
| 20| ICCeM0049  | a2 | 6 | 0.75 | 6 | 0.37 |
|   | a4         |    | 3 | 0.25 |   |      |
| 21| ICCeM0050  | a6 | 9 | 1.00 | 9 | 0.00 |
| 22| ICCeM0051  | a4 | 9 | 1.00 | 9 | 0.00 |
| 23| ICCeM0054  | a8 | 9 | 1.00 | 9 | 0.00 |
| 24| ICCeM0056  | 0  | 0 | 0.00 | 0 | 0.00 |
| 25| ICCeM0059  | a6 | 9 | 0.33 | 9 | 0.676|
|   | a7         |    | 9 | 0.33 |   |      |
|   | a8         |    | 9 | 0.33 |   |      |
| 26| ICCeM0063  | 0  | 0 | 0.00 | 0 | 0.00 |
| 27| ICCeM0064  | a8 | 9 | 1.00 | 9 | 0.00 |
| 28| ICCeM0065  | 0  | 0 | 0.00 | 0 | 0.00 |
| 29| ICCeM0066  | 0  | 0 | 0.00 | 0 | 0.00 |
| 30| ICCeM0067  | a1 | 6 | 0.50 | 6 | 0.50 |
|   | a5         |    | 6 | 0.50 |   |      |
| 31| ICCeM0070  | a5 | 6 | 0.33 | 9 | 0.45 |
|   | a8         |    | 9 | 0.67 |   |      |
| 32| ICCeM0072  | 0  | 0 | 0.00 | 0 | 0.00 |
| 33| ICCeM0073  | a1 | 9 | 1.00 | 9 | 0.00 |
| 34| ICCeM0074  | 0  | 0 | 0.00 | 0 | 0.00 |
| 35| ICCeM0078  | a5 | 4 | 0.22 | 9 | 0.35 |
|   | a8         |    | 9 | 0.78 |   |      |
| 36| ICCeM0089  | a5 | 6 | 1.00 | 6 | 0.00 |
| 37| ICCeM0096  | 0  | 0 | 0.00 | 0 | 0.00 |
| ID | Sample Code | Phase | Heat 1 | Heat 2 | Heat 3 | Heat 4 |
|----|-------------|-------|--------|--------|--------|--------|
| 38 | ICCeM0098   | a7    | 9      | 1.00   | 9      | 0.00   |
| 39 | ICCeM0099   | 0     | 0      | 0.00   | 0      | 0.00   |
| 40 | SVP2        | a5    | 9      | 1.00   | 9      | 0.00   |
| 41 | SVP3        | a5    | 9      | 1.00   | 9      | 0.00   |
| 42 | SVP6        | a5    | 9      | 1.00   | 9      | 0.00   |
| 43 | SVP11       | a5    | 9      | 1.00   | 9      | 0.00   |
| 44 | SVP16       | a5    | 9      | 1.00   | 9      | 0.00   |
| 45 | SVP40       | a5    | 9      | 1.00   | 9      | 0.00   |
| 46 | SVP55       | a5    | 9      | 0.55   | 9      | 0.50   |
|     | a8          | 8      | 0.45   |        |        |        |
| 47 | SVP59       | a7    | 9      | 1.00   | 9      | 0.00   |
| 48 | SVP62       | a7    | 9      | 1.00   | 9      | 0.00   |
| 49 | SVP64       | a7    | 9      | 1.00   | 9      | 0.00   |
| 50 | SVP66       | a7    | 7      | 1.00   | 7      | 0.00   |
| 51 | SVP68       | 0     | 0      | 0.00   | 0      | 0.00   |
| 52 | SVP76       | a7    | 8      | 1.00   | 8      | 0.00   |
| 53 | SVP77       | a5    | 9      | 1.00   | 9      | 0.00   |
| 54 | SVP82       | a8    | 9      | 1.00   | 9      | 0.00   |
| 55 | SVP95       | a1    | 8      | 0.48   | 9      | 0.48   |
|     | a2          | 1      | 0.04   |        |        |        |
|     | a3          | 9      | 0.52   |        |        |        |
| 56 | SVP96       | a4    | 7      | 0.44   | 8      | 0.50   |
|     | a6          | 8      | 0.56   |        |        |        |
| 57 | SVP118      | a5    | 9      | 1.00   | 9      | 0.00   |
| 58 | SVP134      | a3    | 9      | 1.00   | 9      | 0.00   |
| 59 | SVP146      | a6    | 9      | 0.61   | 9      | 0.48   |
|     | a8          | 7      | 0.39   |        |        |        |
|   |          |   |   |   |   |   |
|---|----------|---|---|---|---|---|
| 60| SVP147   | 0 | 0 | 0.00 | 0 | 0.00 |
| 61| SVP162   | a5 | 8 | 1.00 | 8 | 0.00 |
| 62| SVP180   | 0 | 0 | 0.00 | 0 | 0.00 |
| 63| SVP181   | a6 | 9 | 1.00 | 9 | 0.00 |
| 64| SVP194   | a5 | 9 | 1.00 | 9 | 0.00 |
| 65| SVP204   | a5 | 9 | 1.00 | 9 | 0.00 |
| 66| SVP213   | A5 | 3 | 0.16 | 9 | 0.28 |
|   | a8       |   | 9 | 0.83 |   |   |
| 67| SVP217   | a2 | 9 | 0.50 | 9 | 0.50 |
|   | a7       |   | 9 | 0.50 |   |   |
| 68| SVP219   | a5 | 9 | 1.00 | 9 | 0.00 |
| 69| SVP221   | a5 | 9 | 1.00 | 9 | 0.00 |
| 70| SVP254   | a5 | 9 | 1.00 | 9 | 0.00 |
| 71| SVP285   | a5 | 9 | 1.00 | 9 | 0.00 |
| 72| SVP291   | a5 | 9 | 1.00 | 9 | 0.00 |
| 73| SVP329   | a6 | 7 | 1.00 | 7 | 0.00 |
| S.No. | Primers | Primer Sequence | Repeat Motif     | Product range (bp) | Tm Value (°C) |
|-------|---------|-----------------|-----------------|-------------------|---------------|
| 1.    | SVP2    | F TGAATAAGGTCGTACTGGCT  
R CTTCTCTCATATAATGGCAC | (AAGCCA)2   | 200               | 56             |
| 2.    | SVP3    | F GTGGGTGAAGGTATTGAAA  
R AGCACAGTGGAGTAAGCAG | (TAG)(TCA)4 | 200               | 56             |
| 3.    | SVP6    | F GCCTGTTTGTATTCTGATTTC  
R TCCCTGTGTGTAATTTTTCTG | (CCAC)3    | 200               | 55             |
| 4.    | SVP16   | F TCTCAGTCCCCCTCATCAAC  
R ATTTCTCCACAGTCTTTT | (ACC)(ACC)5  
(AATTCC)3 | 200-600 | 55             |
| 5.    | SVP40   | F GCCGAGGTACTATACTGCAAT  
R TGGTTCTACAAAAGCTCGTGG | (G)10       | 100               | 62             |
| 6.    | SVP55   | F AGAGCGCTTCAGTCATAATC  
R GAAAGTGGAAGATGAGGTTG | (TCCTC)3   | _                 | 56             |
| 7.    | SVP59   | F CTTGCACACAAAAAGCAATAG  
R GCACCATCTTTGACCTTAAC | (TAA)5      | 400               | 55             |
| 8.    | SVP62   | F GTCAATCTCTTACTATGTCTGG  
R GGACAAAAATCCAAATGTGAAC | (TTAAA)3   | _                 | 57             |
| 9.    | SVP66   | F GTGATGGAATACTGTGGGTGGT  
R CAAAATCCCCCTAGCTTGACATC | (TGAGAT)2  | _                 | 60             |
|   |   |   |   |   |   |
|---|---|---|---|---|---|
| 10. | SVP68 | F GCAGGAGTTTTGATTGATCC<br>R CTGAAGGAGTGGGAGAAGCTA | (TGCTT)2 | 200 | 62 |
| 11. | SVP76 | FAATTTAGAGCCTGAGAGCGTGA<br>R CTGTGAAACTTAATCGTGGGGTT | (GATTCAT)2 | 200 | 60 |
| 12. | SVP77 | F TAGCTTGTGGTCTCCATTCT<br>R CTGCATACGAACCTTGATTA | (CCAC) 3 | 300 | 55 |
| 13. | SVP82 | F AACGCAATTCCTATTGAGC<br>R AGGGTTTTGTTAGGGTTTTTC | (CT)6 | 100 | 53 |
| 14. | SVP95 | F AGTACATGAGTGAGCTGCT<br>R CTAGCTGGTTGGTGCAAGT | (ATC)5 | _ | 54 |
| 15. | SVP96 | F AATTCGTACCGGATGAGGG<br>R TAATGTCACTCGACGGAACA | (AT)20 | 150 | 57 |
| 16. | SVP118 | F CAATCCTGCACATGAATCT<br>R ACCTCGGCTCTCTCATTTA | (TAAT)3 | 100 | 53 |
| 17. | SVP134 | F TTGCCTAGTTTCTCATTTCC<br>R TCTCTTCTGCTTCCATGATT | (ATTC)3 | 300 | 56 |
| 18. | SVP146 | F GTTTCAACATAGCAACAGCA<br>R CTCCCTTCTTATGAGCATT | (TCTTCA)3 | 100-200 | 54 |
| 19. | SVP147 | F TGTTTTTACCTTATACGAGC<br>R ATGTAAGTTTGGATGATGG | (AT)6 | _ | 51 |
|   |   |   |   |   |   |
|---|---|---|---|---|---|
| 20. | SVP194 | F CAATAAGAACAGCAGCATCA  | R ATTTGAGAAGGTTAGGACCC | (CTTT)5 | 200 | 55 |
| 21. | SVP204 | F CACAAGGTGTAATTGCTGAA  | R AATTTGAGAATGTGTTGAGG | (TAT)4  | 200 | 54 |
| 22. | SVP213 | F GGTATCATCGGTTGTTCCAAA | R CACACAGGTAGTGGTGGTGG | (TAT)5  | 150 | 53 |
| 23. | SVP217 | F AGGTTTTTGTGAAGGAGGCA  | R ATGGAAGTTTTCTCGGTGGTTG | (CAC)3  | 200 | 56 |
| 24. | SVP254 | F TGTTGGTCCCATAACTACCT  | R AGCCACATAAACATGGGAGAT | (TAT)4  | 300 | 58 |
|     |       | R TGGTGTCCTCCATAACTACCT  | (CCA)5                |       |   |   |
| 25. | SVP285 | F AGCCACATAAACATGGGAGAT  | R TGTTGGTCCCATAACTACCT | (ATCATA)2 | 150 | 56 |
|     |       | R TGGTGTCCTCCATAACTACCT  |                |       |   |   |
| 26. | SVP291 | F TTATGCGCTGTATGTCTTCC  | R AAGAGGCAGGTTTATGA   | (GTG) 5 (TA)5 | 900 | 55 |
|     |       | R AAGAGGCAGGTTTATGA      |                |       |   |   |
| 27. | SVP329 | FGGTCGAAAAACGATGTGAC    | R TAGGGACAGTGGGAATCTCG | (AT)8  |    | 59 |