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Genetic diversity assessment of indigenous mango (*Mangifera indica* L.) germplasm

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Supplementary Data

Supplementary Table S1 — DUS Characterization of Traditional Mango Genotypes

Varieties	Tukhmi Heera	Safeda Amin	Matka Gola	Aamin	Munjjar Aamin	Deshi Gola	August	Jamun	Taimuriya	Gol Bhadaiyaan	Aamin Khurd
Inflorescence: Time of flowering 50% of the tree	Medium	Medium	Early	Medium	Medium	Early	Medium	Medium	Medium	Medium	Medium
Inflorescence: Length (Primary branch)	Short	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Long	Short	Medium
Inflorescence: Width (Secondary branch)	Medium	Medium	Medium	Medium	Medium	Medium	Long	Medium	Long	Short	Medium
Inflorescence: Anthocyanin coloration of axis and branches	Medium	Absent or Weak	Medium	Absent or Weak	Absent or Weak	Medium	Medium	Medium	Medium	Absent or Weak	Absent or Weak
Mature fruit: Length	Medium	Medium	Medium	Long	Long	Medium	Long	Medium	Medium	Long	Long
Mature fruit: Width	Medium	Medium	Broad	Broad	Broad	Broad	Medium	Medium	Medium	Broad	Broad
Mature fruit: Shape in Cross section	Broad elliptic	Broad elliptic	Broad elliptic	Broad elliptic	Broad elliptic	Broad elliptic	Broad elliptic	Broad elliptic	Broad elliptic	Circular	Broad elliptic
Mature fruit: Colour	Only green	Only green	Only green	Only green	Only green	Only green	Only green	Green and yellow	Only green	Only green	Only green
Mature fruit: Density of lenticels	Medium	Sparse	Medium	Medium	Sparse	Medium	Dense	Sparse	Medium	Medium	Dense
Mature fruit: Roughness of surface	Absent	Absent	Absent	Present	Absent	Absent	Absent	Present	Absent	Absent	Absent
Mature fruit: Presence of cavity at stalk	Present	Absent	Present	Absent	Present	Present	Present	Present	Present	Present	Present
Mature fruit: Depth of cavity at stalk	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow
Mature fruit: Presence of neck	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent
Mature fruit: Shape of ventral shoulder	Rounded upward	Rounded upward	Rounded upward	Rounded outward	Rounded upward	Rounded upward	Rounded upward	Rounded outward	Rounded upward	Rounded outward	Rounded outward
Mature fruit: Presence of sinus	Present	Absent	Present	Absent	Absent	Present	Present	Present	Absent	Absent	Present
Mature fruit: Depth of sinus	Medium	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow
Mature fruit: Bulging proximal of stylar scar	Absent or weak	Absent or weak	Absent or weak	Absent or weak	Absent or weak	Absent or weak	Absent or weak	Absent or weak	Absent or weak	Absent or weak	Absent or weak
Maturity: Fruits ready to harvest	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium
Ripe fruit: Predominant colour of skin	Green, Yellow	Green, Yellow	Green, Yellow	Green, Yellow	Green, Yellow	Green, Yellow	Green, Yellow	Green, Yellow	Green, Yellow	Green, Yellow	Green, Yellow
Ripe fruit: Main colour of flesh	Light Orange	Light Orange	Medium Orange	Medium Orange	Light Orange	Medium Orange	Light Orange	Medium Orange	Medium Yellow	Medium Yellow	Medium Orange
Seed: Kernel in lateral view	Reniform	Reniform	Reniform	Reniform	Reniform	Reniform	Reniform	Reniform	Reniform	Reniform	Reniform
Seed: Embryony	Monoembryonic	Monoembryonic	Monoembryonic	Monoembryonic	Monoembryonic	Monoembryonic	Monoembryonic	Monoembryonic	Monoembryonic	Monoembryonic	Monoembryonic

Supplementary Table S1 — DUS Characterization of Traditional Mango Genotypes

Varieties	Markeara	Heere Hayat	Nayab	Gilas	Aamin Tehsil	Johri Safeda	Aamin Abbasi	Aamin Abdul Ahad Khan	Lakhnawwa Safeda	Surraiya
Inflorescence: Time of flowering 50% of the tree	Medium	Medium	Medium	Medium	Early	Late	Medium	Early	Medium	Medium
Inflorescence: Length (Primary branch)	Short	Medium	Short	Short	Medium	Medium	Medium	Medium	Short	Short
Inflorescence: Width (Secondary branch)	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Short	Medium
Inflorescence: Anthocyanin coloration of axis and branches	Absent or Weak	Absent or Weak	Medium	Absent or Weak	Medium	Absent or Weak	Medium	Absent or Weak	Medium	Medium
Mature fruit: Length	Medium	Medium	Medium	Medium	Long	Medium	Medium	Long	Medium	Long
Mature fruit: Width	Medium	Broad	Medium	Narrow	Medium	Narrow	Medium	Medium	Narrow	Narrow
Mature fruit: Shape in Cross section	Broad elliptic	Broad elliptic	Broad elliptic	Broad elliptic	Broad elliptic	Broad elliptic	Broad elliptic	Broad elliptic	Medium elliptic	Medium elliptic
Mature fruit: Colour	Only green	Only green	Only green	Only green	Only green	Only green	Only green	Only green	Only green	Only green
Mature fruit: Density of lenticels	Medium	Dense	Medium	Medium	Medium	Dense	Medium	Sparse	Sparse	Medium
Mature fruit: Roughness of surface	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Present	Absent	Absent
Mature fruit: Presence of cavity at stalk	Present	Present	Present	Present	Present	Present	Present	Absent	Present	Present
Mature fruit: Depth of cavity at stalk	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow
Mature fruit: Presence of neck	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent
Mature fruit: Shape of ventral shoulder	Rounded upward	Rounded upward	Rounded outward	Rounded upward	Rounded upward	Rounded upward	Rounded outward	Rounded outward	Rounded outward	Rounded outward
Mature fruit: Presence of sinus	Absent	Absent	Absent	Absent	Absent	Absent	Present	Present	Absent	Present
Mature fruit: Depth of sinus	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Medium	Shallow	Shallow	Shallow
Mature fruit: Bulging proximal of stylar scar	Absent or weak	Absent or weak	Absent or weak	Absent or weak	Absent or weak	Absent or weak	Absent or weak	Absent or weak	Absent or weak	Absent or weak
Maturity : Fruits ready to harvest	Medium	Early	Early	Medium	Medium	Medium	Medium	Medium	Medium	Late
Ripe fruit: Predominant colour of skin	Green, Yellow	Green, Yellow	Green, Yellow	Green, Yellow	Green, Yellow	Green, Yellow	Green, Yellow	Green, Yellow	Green, Yellow	Green, Yellow
Ripe fruit: Main colour of flesh	Medium Yellow	Light Orange	Medium Orange	Medium Orange	Medium Yellow	Medium Orange	Medium Yellow	Medium Yellow	Medium Yellow	Medium Orange
Seed: Kernel in lateral view	Reniform	Reniform	Reniform	Reniform	Reniform	Reniform	Reniform	Reniform	Reniform	Oblong
Seed: Embryony	Monoembryonic	Monoembryonic	Monoembryonic	Monoembryonic	Monoembryonic	Monoembryonic	Monoembryonic	Monoembryonic	Monoembryonic	Monoembryonic

Supplementary Table S2 — Principal components analysis for physico-chemical traits for 21 genotypes

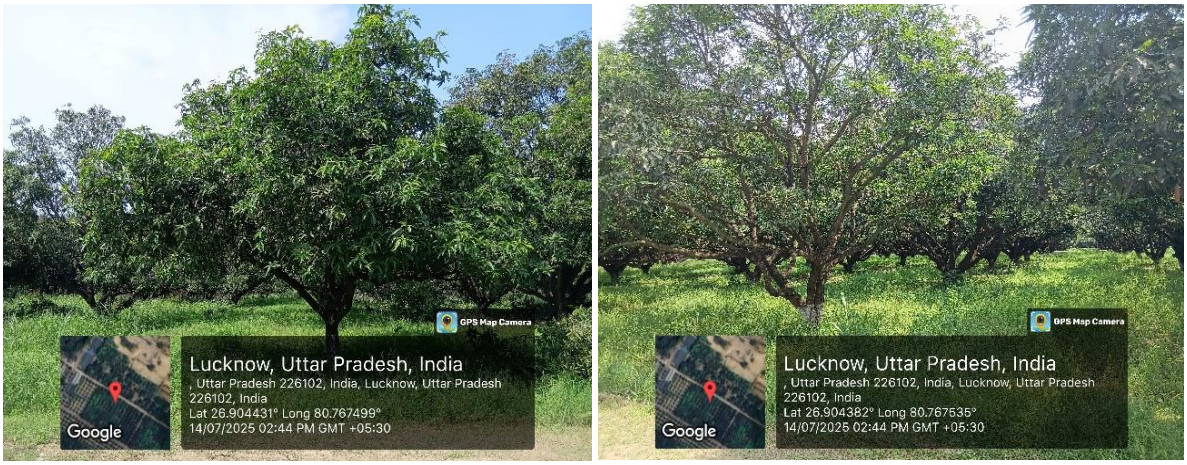
Traits	Dim. 1	Dim. 2	Dim. 3	Dim. 4	Dim. 5
Inflorescence: Length	1.601836	13.57863	0.079503	4.703047	0.542692
Inflorescence: Breadth	1.672203	14.99652	0.475057	2.21835	1.237699
Fruit weight	10.69289	1.151483	0.679858	0.022356	0.29078
Fruit volume	10.58595	0.867868	0.627004	0.014594	0.337448
Fruit length	8.84352	1.467218	0.176325	0.020866	0.296358
Fruit width	9.949669	0.027468	0.326126	0.137398	0.007279
Fruit thickness	8.678985	0.940268	0.785845	0.766213	0.142136

Supplementary Table S2 — Principal components analysis for physico-chemical traits for 21 genotypes

Peel weight	10.34924	1.10741	1.029632	0.067306	1.187714
Stone weight	9.534614	1.84171	0.116729	0.38303	0.541017
Stone length	7.530849	2.35258	0.058822	0.10302	0.134047
Stone width	4.368546	0.029929	2.45778	17.05657	5.45256
Stone thickness	0.232477	0.878375	0.043383	12.95967	0.009473
Kernel weight	1.569336	4.994341	1.617286	12.04649	20.36614
Pulp	4.427703	0.000111	0.231966	7.970219	3.924913
Fruit yield	5.974725	0.005858	0.381008	0.013349	0.246661
T.S.S.	0.053596	13.04402	9.653615	0.008117	0.409459
Acidity	0.016873	10.49705	0.615576	0.017638	11.93353
TSS acid ratio	0.108035	19.182	3.53127	0.00259	5.225897
Ascorbic acid	0.008249	0.636248	0.221299	0.233397	14.40473
Carotene	0.082782	0.000125	2.252887	16.1047	13.47007
Total phenols	0.285699	1.197775	15.01774	0.566482	13.54328
Total sugar	1.687877	4.739766	24.41691	0.053366	3.278131
Reducing sugar	0.12868	1.359552	8.342619	22.83188	0.965883
Non- reducing sugar	1.615672	5.103693	26.86175	1.699337	2.052095

Supplementary Table S3 — Eigen, variation and total variation across 21 genotypes of Mango

Component	Eigen value	Variance (%)	Cumulative variance (%)
comp 1	8.419	35.081	35.081
comp 2	3.220	13.419	48.500
comp 3	2.157	8.989	57.488
comp 4	1.778	7.408	64.896
comp 5	1.660	6.915	71.811
comp 6	1.228	5.117	76.928
comp 7	1.068	4.451	81.379
comp 8	0.871	3.630	85.008
comp 9	0.737	3.070	88.078
comp 10	0.618	2.575	90.653
comp 11	0.528	2.199	92.852
comp 12	0.408	1.702	94.554
comp 13	0.369	1.537	96.091
comp 14	0.274	1.142	97.234
comp 15	0.218	0.910	98.143
comp 16	0.133	0.552	98.696
comp 17	0.089	0.370	99.066
comp 18	0.074	0.309	99.375
comp 19	0.056	0.232	99.606
comp 20	0.043	0.180	99.786
comp 21	0.034	0.142	99.929
comp 22	0.014	0.057	99.986
comp 23	0.003	0.014	100.000
comp 24	0.000	0.000	100.000



Supplementary Fig. S1 — Indigenous mango germplasm