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Morphometric-Based Investigation of Genetic Diversity Among Mango (*Mangifera indica L.*) Populations in the Ecosystems of Lagos and Ogun States, Southwestern Nigeria

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Abstract

Mango (*Mangifera indica L.*), regarded as the "king of fruits," holds a critical position in the Nigerian diet, ranking second only to banana in terms of consumption. This study was conducted to assess the morphometric diversity of mango in Lagos and Ogun States, located in Southwest Nigeria. A total of forty mango varieties were analyzed, comprising twenty accessions collected from different locations within each state. Morphological evaluation was based on the International Plant Genetic Resources Institute (IPGRI) descriptors for mango. Both qualitative and quantitative morphological traits, including leaf, inflorescence, and fruit characteristics, were systematically assessed through field observations and laboratory analyses. Significant variability was recorded among the mango accessions, particularly in qualitative traits such as immature leaf color, leaf shape, inflorescence axis structure, flower color, flower type, fruit shape, fruit skin color, and fruit skin texture. The observed morphological diversity highlights the genetic richness present in the mango populations of

the studied regions, offering valuable insights for future breeding and conservation programs.

Keywords: Accessions**,** Genetic Diversity, Morphometric analysis, Qualitative, Quantitative, Varieties, Mango. *Mangifera indica*

INTRODUCTION

Mango (*Mangifera indica L.*) is one of the most economically significant members of the family Anacardiaceae and is commercially cultivated in many parts of the world, particularly in tropical and subtropical regions (Rajwana et al., 2008). This widespread cultivation is attributed to the fruit's outstanding qualities, including its attractive appearance, excellent flavor, pleasant aroma, and rich nutritional composition encompassing dietary fiber, essential minerals, vitamins, and a variety of antioxidant compounds (Rajwana et al., 2008). Despite its global significance, the origin of Mangifera indica, which includes all commercial cultivars, remains unresolved. The genus Mangifera, comprising approximately 70 species, is predominantly distributed across the Malay Peninsula, the Indonesian archipelago, Thailand, and the Philippines (Bompard, 2009). Several of these species bear edible fruits that are cultivated locally. Historical records suggest that mango cultivation originated several thousand years ago in India and subsequently spread across Southeast Asia, later reaching Africa, Central, and South America through Portuguese and Spanish exploration (Bompard, 2009; Mukherjee, 2009).

In Nigeria, the Guinea and Sudan savanna zones are recognized as major production areas, with Benue State being the leading producer (Olaniyan, 2004; Avav and Uza, 2002). However, the historical documentation of mango production in the state is sparse. Available reports indicate that improved mango varieties were introduced to the Yandev Farm Centre during the 1950s by early agricultural officers from Zaria and Ibadan (Nyishir, 2004). The mango tree is noted for producing fruits with considerable variation in form, size, color, and quality (Morton, 1987). Within Nigeria, mango fruits are predominantly consumed fresh. Despite being the ninth-largest mango-producing country globally, Nigeria does not rank among the top ten exporters of mango fruits (FAOSTAT, 2007). The sale of mango fruits and seedlings constitutes a significant source of income for farmers, particularly in Benue State, which serves as a major supplier of fresh mango fruits to other parts of the country (Nyishir, 2004; Ajayi and Nyishir, 2006).

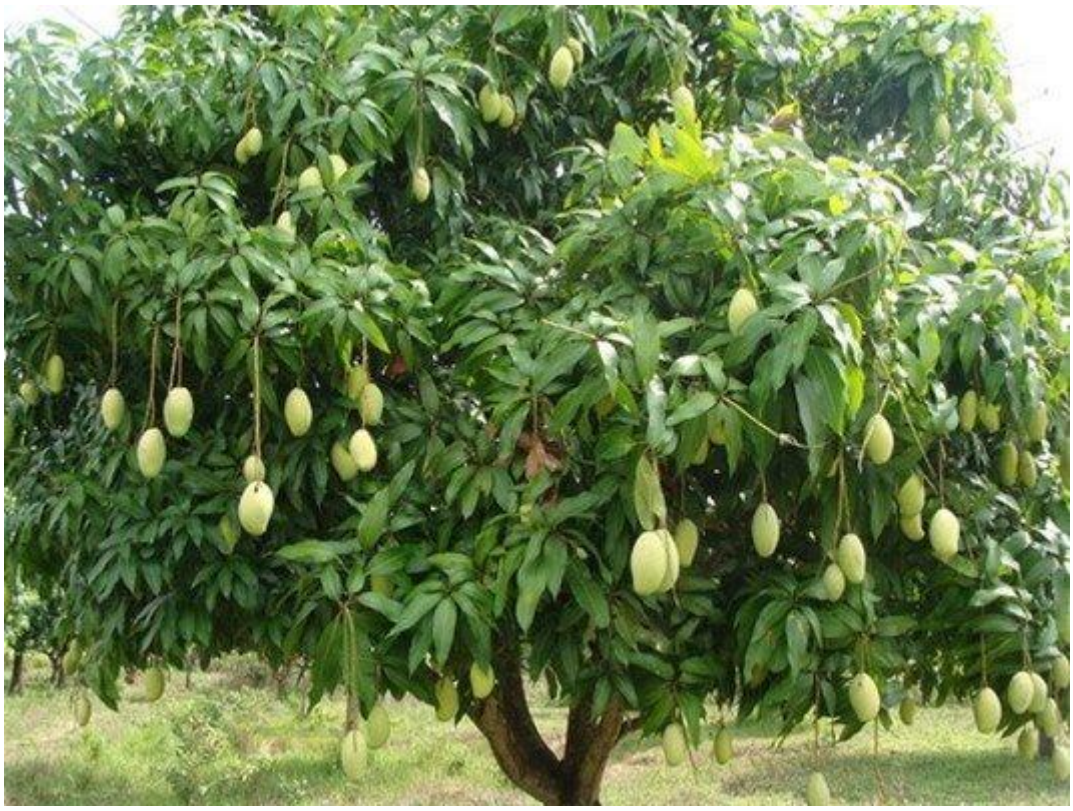
Mango consumption in Nigeria is widespread, with mango fruits ranking above citrus fruits and only second to bananas in terms of popularity (Onyeani et al., 2012). The economic importance of mango to rural households cannot be overstated, as many families rely heavily on the income generated from mango cultivation and sales (Onyeani et al., 2012). Over recent decades, mango cultivation has expanded significantly across tropical and subtropical regions. India remains the principal center of mango production, although extensive cultivation is also found in Southeast Asia (Mukherjee, 2009). Numerous cultivars have been developed, mainly in India and the Pacific islands, over the past few centuries (Mukherjee, 2009). A secondary center of diversity emerged in Florida during the late nineteenth and early twentieth centuries, resulting in the development of cultivars with attributes favored by Western consumers, such as a red blush, mild flavor, and subdued aroma (Olano et al., 2005).

The importance of genetic diversity information is critical for designing effective breeding programs aimed at sustaining and improving mango production (Ravishankar et al., 2004). Understanding phylogenetic relationships among mango cultivars also facilitates hybrid development; however, the phylogenetic relationships among many cultivars remain poorly understood due to synonymy and misidentification issues (Ravishankar et al., 2004; Nishiyama et al., 2006). This lack of clarity hampers breeding efforts and the strategic conservation of genetic resources.

Despite the economic importance of mango cultivation in Nigeria, particularly in regions such as Lagos and Ogun States in Southwest Nigeria, the genetic diversity of mango germplasm has been poorly studied. There is a significant paucity of information regarding the identification of important cultivars, the production practices employed, and the constraints limiting genetic diversity. Addressing these gaps is critical, as the success of mango breeding and crop improvement programs depends heavily on the availability and characterization of diverse germplasm resources (Singh et al., 2015).

The present study aims to explore the genetic diversity of mango (*Mangifera indica L.*) populations within Lagos and Ogun States, situated in Southwest Nigeria. Specifically, the objectives are to determine the extent of genetic diversity among mango accessions, assess the level of polymorphism, discover new and improved cultivars exhibiting desirable traits, and characterize diversity through morphometric analysis. Through this investigation, it is

anticipated that valuable insights will be generated to guide future mango breeding and improvement initiatives in Nigeria and similar tropical environments.



Mango (*Mangifera indica*) tree.
Source: Amazon.in

Taxonomy and Botanical Description of Mango (*Mangifera indica*).

Kingdom:	Plantae
Subkingdom:	Tracheobionta
Superdivision:	Spermatophyta
Division:	Magnoliophyta
Class:	Magnoliopsida
Subclass:	Rosidae
Order:	Sapindales
Family:	Anacardiaceae
Genus:	*Mangifera L.*
Species:	*indica L.*

MATERIALS AND METHODS

Fresh leaves samples of Mango (*magnifera indica* L), was collected in different places in Ogun state and Lagos state, 20 samples was collected in each population from different locations. The descriptor *of Mangifera indica,* was useful for the collections of the samples.

While collecting the sample GPS was used to track the locations with longitude and latitude. Morphological parameters was taken according to descriptor of Mango *Mangifera indica* based on: leaf length, leaf breadth, petiole length, flower diameter, canopy length and seed length in the two populations.

RESULTS

The most frequent fruit colour observed was green (70%), followed by greenish-yellow (17.5%), light green (7.5%), and pale green (5%). During development, the fruit initially displays a dark green background colour, which gradually changes to lighter green or yellow upon ripening (Bompard, 2009). The predominant transversal shape of the fruit was large and ovoid (42.55%), without considering uniformity among accessions of the same origin. Other fruit shapes recorded included oblong (42.5%), round (7.5%), and elliptic (7.5%). Crown shapes were distributed as follows: oblong (52.5%), spherical (27.5%), semicircular (10%), and pyramidal (10%). Leaf shape characterization showed 42% oblong, 25% elliptic, 15% lanceolate, and 17% ovate forms. For leaf colour, dark green (52%) was the most prevalent, followed by green (20%), pale green (15%), and light green (12.5%). In terms of tree growth habit, spreading trees were predominant (75%) compared to erect forms (25%) as summarized in Table 1.

Table 1: *Qualitative characteristics of sampled mango evaluated in the study of Fruit colour*

Colour	**Green**	**Greenish-Yellow**	**Pale green**	**Light green**
Ogunp	**15**	**3**	**0**	**2**
Percentage	**75%**	**15%**	**0**	**10%**
Lagos	**13**	**5**	**2**	**1**
Percentage	**65%**	**25%**	**10%**	**5%**

Table2: *Qualitative characteristics of sampled mango evaluated in the study of Fruit colour Fruit Shape*

Shape	Ovoid	Round	Elliptic	Oblong
Ogun	**9**	**3**	**3**	**5**
Percentage	**45%**	**15%**	**15%**	**25%**
Lagos	**8**	**2**	**2**	**8**
Percentage	**40%**	**10%**	**10%**	**40%**

Table 3: *Qualitative characteristics of sampled mango evaluated in the study of Fruit colour Crown Shape*

Colour	Oblong	Semi-Circular	Spherical	Pyramidal
Ogun	**10**	**2**	**5**	**2**
Percentage	**50%**	**10%**	**25%**	**10%**
Lagos	**11**	**1**	**7**	**2**
Percentage	**55%**	**5%**	**35%**	**10%**

Table 4: *Qualitative characteristics of sampled mango evaluated in the study of Fruit colour Leaf shape*

Colour	Oblong	Elliptic	**Lanceleote**	**Ovate**
Ogun	**7**	**7**	**5**	**1**
Percentage	**35%**	**35%**	**25%**	**5%**
Percentage	**12**	**3**	**3**	**2**
Lagos	**60%**	**15%**	**15%**	**10%**

Table 5: *Qualitative characteristics of sampled mango evaluated in the study of Fruit colour Leaf colour*

Colour	Light green	Darkgreen	Pale green	**Green**
Ogun	**3**	**8**	**3**	**5**
Percentage	**15%**	**40%**	**15%**	**25%**
Lagos	**2**	**13**	**3**	**3**
Percentage	**10%**	**65%**	**15%**	**15%**

Table 6: *Qualitative characteristics of sampled mango evaluated in the study of Fruit colour Tree Growth*

Tree Growth	**Spreading**	**Erect**
Ogun	**14**	**6**
Percentage	**70%**	**30%**
Lagos	**16**	**4**
Percentage	**80%**	**20%**

Table 7: *Qualitative characteristics of sampled mango evaluated in the study*

Sample	Fruit Colour	Fruit Shape	Crown Shape	Leaf Shape	Leaf Colour	Tree Growth
Og01	Green	Ovoid	Oblong	Oblong	Light Green	Spreading
Og02	Green	Round	Semi-Circular	Oblong	Dark- Green	Erect
Og03	Greenish Brown	Round	Spherical	Oblong	Dark-Green	Spreading
Og04	Green	Elliptic	Pyramidal	Elliptic	Pale-Green	Spreading
Og05	Green	Oblong	Oblong	Elliptic	Dark-Green	Erect
Og06	Green	Oblong	Oblong	Oblong	Green	Spreading
Og07	Greenish Yellow	Ovoid	Spherical	Oblong	Green	Spreading
Og08	Green	Roundish	Oblong	Elliptic	Pale Green	Spreading
Og09	Green	Ovoid	Spherical	Ovule	Dark-Green	Spreading
Og10	Green	Ovoid	Oblong	Oblong	Green	Erect
Og11	Green	Oblong	Pyramidal	Ovule	Green	Spreading
Og12	Green	Oblong	Oblong	Lancelate	Green	Spreading
Og13	Greenish-Yellow	Ovoid	Spherical	Oblong	Dark-Green	Spreading
Og14	Green	Oblong	Oblong	Oblong	Light- Green	Spreading
Og15	Greenish-Yellow	Elliptic	Spherical	Oblong	Dark- Green	Erect
Og16	Green	Ovoid	Oblong	Elliptic	Light-Green	Erect
Og17	Greenish-Yellow	Oblong	Spherical	Elliptic	Dark-Green	Spreading
Og18	Green	Ovoid	Oblong	Elliptic	Pale-Green	Erect
Og19	Green	Ovoid	Spherical	Oblong	Dark-Green	Spreading
Og20	Green	Ovoid	Oblong	Elliptic	Dark-Green	Spreading
La01	Green	Ovoid	Oblong	Elliptic	Pale- Green	Spreading
La02	Green	Oblong	Oblong	Oblong	Dark-Green	Spreading
La03	Green	Ovoid	Oblong	Oblong	Dark-Green	Erect
La04	Greenish-Yellow	Ovoid	Pyramidal	Oblong	Light- Green	Spreading
La05	Green	Oblong	Oblong	Oblong	Dark-Green	Spreading
La06	Green	Oblong	Semi-Circular	Ovate	Dark-Green	Spreading
La07	Light- Green	Ovoid	Spherical	Oblong	Dark-Green	Spreading
La08	Green	Oblong	Oblong	Ovate	Pale-Green	Erect
La09	Green	Oblong	Oblong	Oblong	Dark-Green	Spreading
La10	Greenish-Yellow	Oblong	Elliptic	Oblong	Dark-Green	Spreading
La11	Green	Oblong	Oblong	Lancelate	Light- Green	Erect
La12	Greenish-Yellow	Ovoid	Spherical	Ovate	Dark-Green	Spreading
La13	Greenish-Yellow	Oblong	Spherical	Oblong	Pale-Green	Spreading

La14	Green	Ovoid	Oblong	Elliptic	Dark-Green	Spreading
La15	Pale-Green	Oblong	Oblong	Oblong	Dark-Green	Spreading
La16	Greenish-Yellow	Ovoid	Spherical	Oblong	Green	Erect
La17	Green	Oblong	Oblong	Oblong	Green	Spreading
La18	Pale-Green	Ovoid	Pyramidal	Elliptic	Dark-Green	Spreading
La19	Green	Elliptic	Spherical	Elliptic	Dark-Green	Spreading
La20	Green	Oblong	Oblong	Oblong	Dark-Green	Spreading

Og: Ogun state sample code; **La**: Lagos state sample code

Table 8. *Quantitative characteristics of sampled mangoes evaluated in the study*

Sample	LL	LB	PL	CDNS	CDSE	FL	FW	FLN
Og01	23.56	3.70	2.00	1.80	2.50	14.18	8.52	6.76
Og02	27.78	4.96	2.76	1.60	2.10	14.10	8.10	6.42
Og03	33.78	5.18	2.82	1.70	1.80	14.84	7.94	6.86
Og04	23.52	4.56	3.10	0.90	1.20	22.22	9.16	5.83
Og05	26.32	5.04	2.94	1.80	1.86	23.36	7.56	5.96
Og06	25.03	4.68	2.48	2.50	2.30	18.30	7.20	5.58
Og07	19.80	4.50	2.32	1.70	1.76	15.90	7.08	9.20
Og08	23.58	4.18	2.14	2.60	2.30	19.06	8.46	7.94
Og09	20.76	4.92	3.06	1.75	1.72	15.32	7.26	8.02
Og10	31.44	4.60	2.54	2.62	2.05	19.72	8.68	7.58
Og11	20.24	5.34	3.10	2.70	2.80	13.24	12.04	9.00
Og12	20.70	4.40	2.08	2.73	2.70	12.86	6.56	11.84
Og13	25.28	4.84	2.74	1.95	1.77	16.36	7.16	6.18
Og14	21.48	4.16	2.12	2.60	2.50	21.48	5.88	8.62
Og15	21.82	5.04	2.64	1.70	1.65	13.62	7.72	6.78
Og16	18.04	4.76	2.68	1.85	0.67	20.56	5.36	4.74
Og17	22.22	5.84	3.00	3.60	3.70	19.10	4.56	4.36
Og18	18.52	3.80	1.94	3.75	3.56	17.28	6.24	6.10
Og19	20.96	4.54	2.24	3.30	3.40	16.40	6.60	7.04
Og20	24.00	4.64	2.30	2.10	2.40	18.28	5.76	6.48
La01	24.62	4.22	2.10	3.20	3.35	19.98	7.30	6.72
La02	24.66	4.96	2.76	4.24	4.32	18.84	8.28	6.38
La03	26.54	5.18	2.82	2.50	2.58	22.84	7.26	7.32
La04	33.14	4.56	3.10	3.50	2.98	24.12	11.08	6.92
La05	25.24	5.06	2.50	3.50	3.50	15.52	4.92	6.28
La06	26.32	4.94	3.20	2.30	2.00	17.60	10.58	5.14
La07	18.74	4.50	2.86	4.24	4.11	17.82	9.22	6.94
La08	31.68	4.18	3.26	3.50	3.23	23.46	7.10	6.78
La09	28.52	4.92	2.46	1.86	1.73	21.34	9.86	6.58
La10	37.16	4.60	2.94	4.10	4.11	23.52	9.04	5.86
La11	31.62	5.34	3.12	1.58	1.68	23.62	12.02	8.00
La12	24.80	4.40	2.56	1.95	2.10	20.08	10.20	6.22
La13	28.46	4.84	2.76	2.35	2.42	21.54	8.72	5.58

La14	23.18	4.16	2.40	3.52	3.66	22.26	8.50	6.78
La15	32.44	5.04	2.94	2.97	2.88	25.52	13.54	6.20
La16	25.82	4.76	2.94	2.10	1.98	18.10	7.98	5.70
La17	36.02	5.84	2.78	3.07	3.12	23.92	10.64	6.84
La18	24.96	5.84	2.58	2.82	2.70	17.52	7.32	5.70
La19	31.90	5.32	2.92	2.96	3.10	27.94	8.54	6.20
La20	20.72	4.24	2.52	3.15	2.98	12.94	8.16	6.02
Mean	25.64	4.76	2.66	2.62	2.58	19.12	8.21	6.75
Std	5.76	0.73	0.57	0.83	0.84	4.44	2.47	1.64
CV (%)	22.46	15.28	21.45	31.75	32.52	23.21	30.08	24.31

Std: standard deviation; **CV**: coefficient of variation; **LL**: leaf length (cm); **LB:**leaf breadth (cm); **PL**: petiole length (cm); **CDNS**: crown diameter N.S.; **CDSE**: crown diameter S.E.; **FL**: flowe length (cm); **FW**: flower width (cm); **FLN**: fruit length

Fig 8*: Quantitative characteristics of sampled mangoes evaluated in the study for fruit length*

The qualitative trait cluster analysis grouped the samples into three major groups, each with distinct subgroups, as presented in the dendrogram (Figure 1).

- **Group 1**:
    - **Subgroup 1A**: Og01, Og14, Og06, La17, Og12, La02, La05, La09, La20, La15, Og11, La06
    - **Subgroup 1B**: Og05, La08, La11, Og08, La01, Og16, Og20, La14
    - **Subgroup 1C**: Og02, Og10, La14
- **Group 2**:
    - **Subgroup 2A**: Og04, La19
    - **Subgroup 2B**: La18
- **Group 3**:
    - **Subgroup 3A**: Og03, Og09, Og19, La07, La12, Og17
    - **Subgroup 3B**: Og07, La16, La04, La13
    - **Subgroup 3C**: Og13, La10
    - **Subgroup 3D**: Og15

This clustering highlights the morphological variability among the accessions based on qualitative traits.

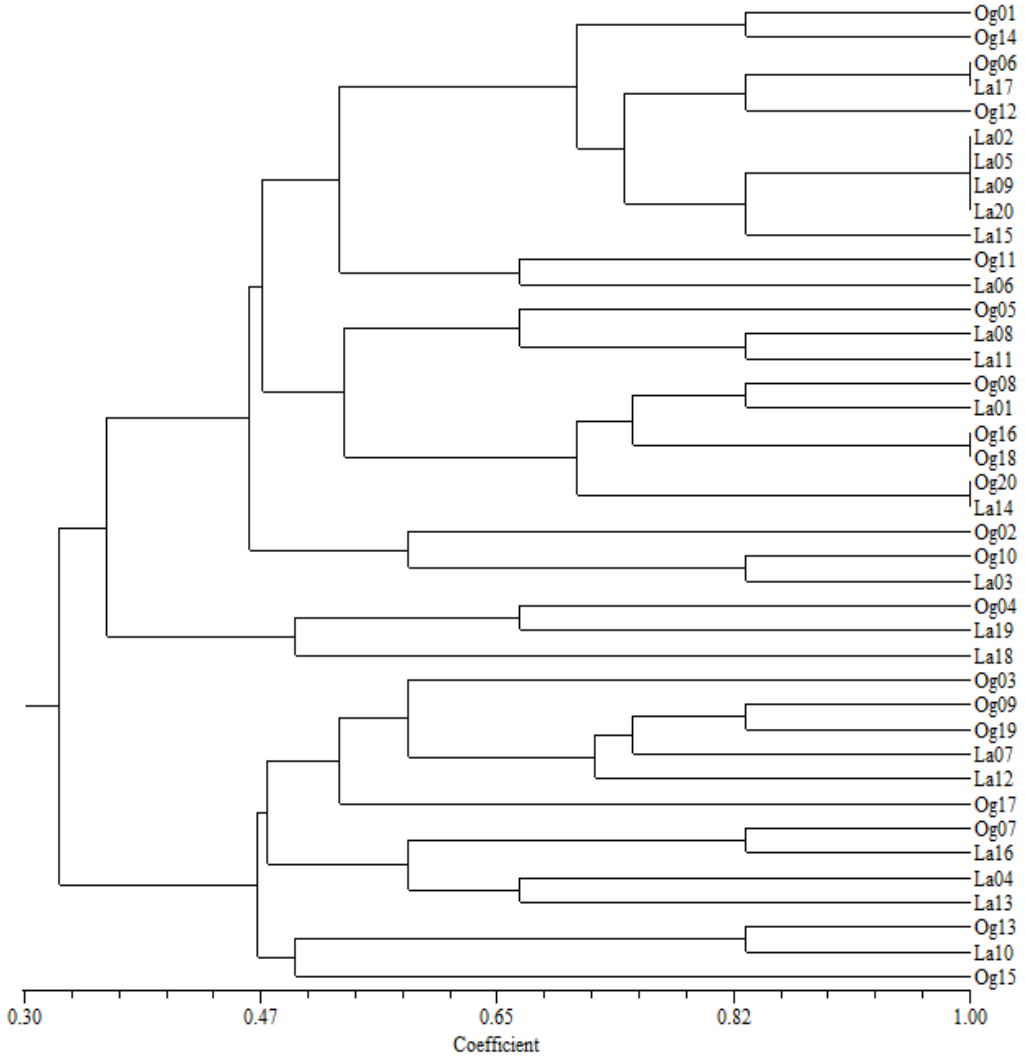


Fig. 1: *Qualitative trait clustering of sample mangoes*

The cluster analysis based on quantitative traits separated the accessions into six major groups and four distinct out-groups, as illustrated in the dendrogram (Figure 2).

- **Cluster 1**: Og01, Og14, Og06, Og08, La05, La08, La14
- **Cluster 2**: Og04, La04, Og11, La20, La11
- **Cluster 3**: Og03, La03, Og09, La09
- **Cluster 4**: Og05, La15, Og15, La19, Og10, La10, Og07, La07, Og06, La16, Og20
- **Cluster 5**: Og02, La02, La13, Og12, La12, Og13
- **Cluster 6**: Og17, La17, La18

In addition, four accessions formed distinct **out-groups**, namely La06, Og18, La01, and Og19, indicating considerable divergence from the main clusters.

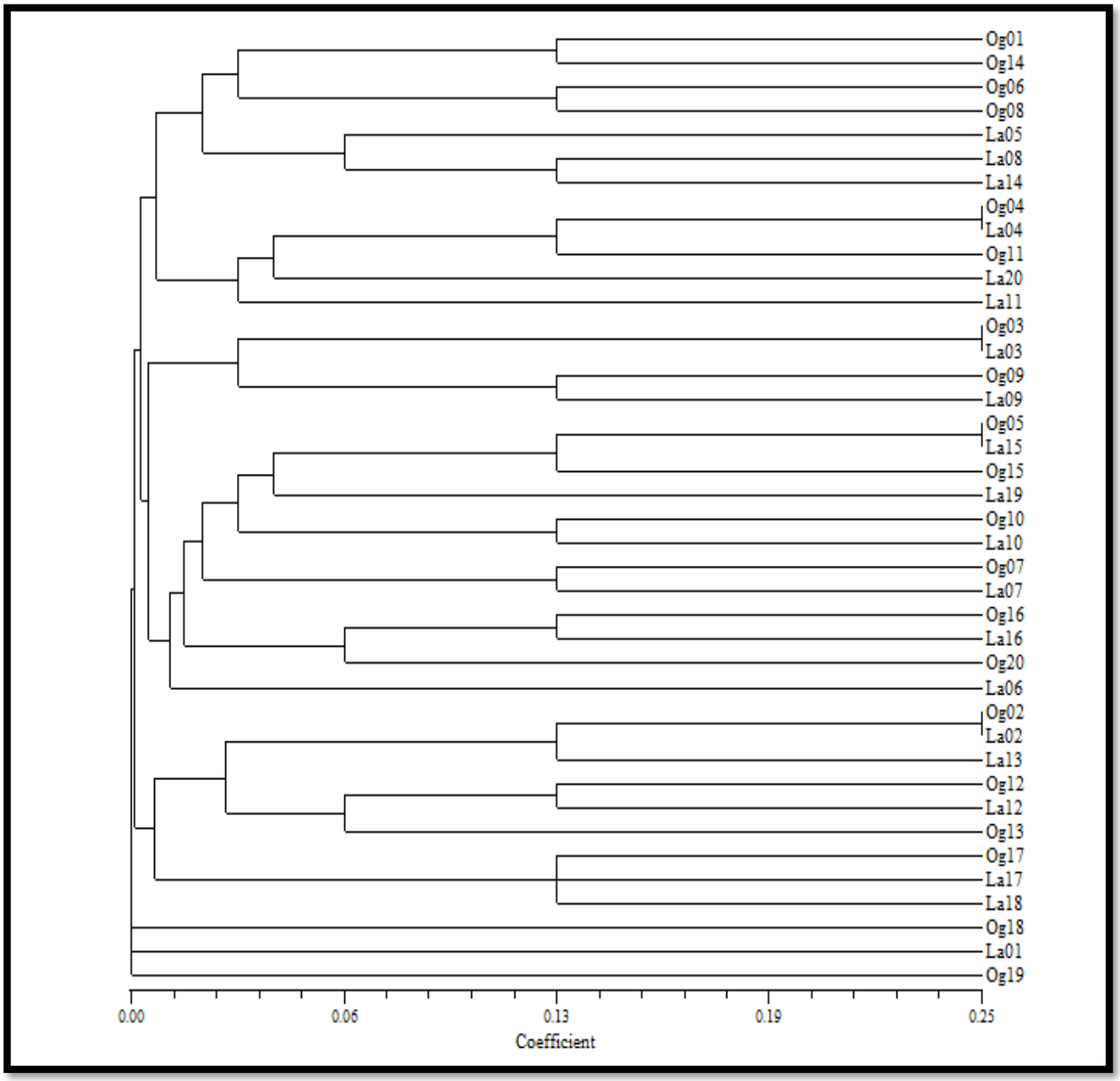


Fig. 2: *Qualitative trait clustering of sample mangoes*

The combined analysis of qualitative and quantitative traits grouped the samples into four major clusters with three subgroups within the first and third clusters. Specifically:

- **Group 1** was subdivided into:
    - **Subgroup 1A**: Og01, Og14, Og08, La01, Og20, La14, Og16, Og18, La08, and La11;

- **Subgroup 1B**: Og05, La15, Og06, La17, Og12, La02, La20, La05, La09, Og11, and La06;
- **Subgroup 1C**: Og02, Og10, and La03.

- **Group 2** included: Og04 and La04.
- **Group 3** was further divided into:
  - **Subgroup 3A**: Og03, Og07, La07, Og09, Og19, and La12;
  - **Subgroup 3B**: Og15 and La16;
  - **Subgroup 3C**: Og13, La10, and La13.
- **Group 4** comprised: Og17, La19, and La18.

This clustering structure is illustrated in Figure 3.

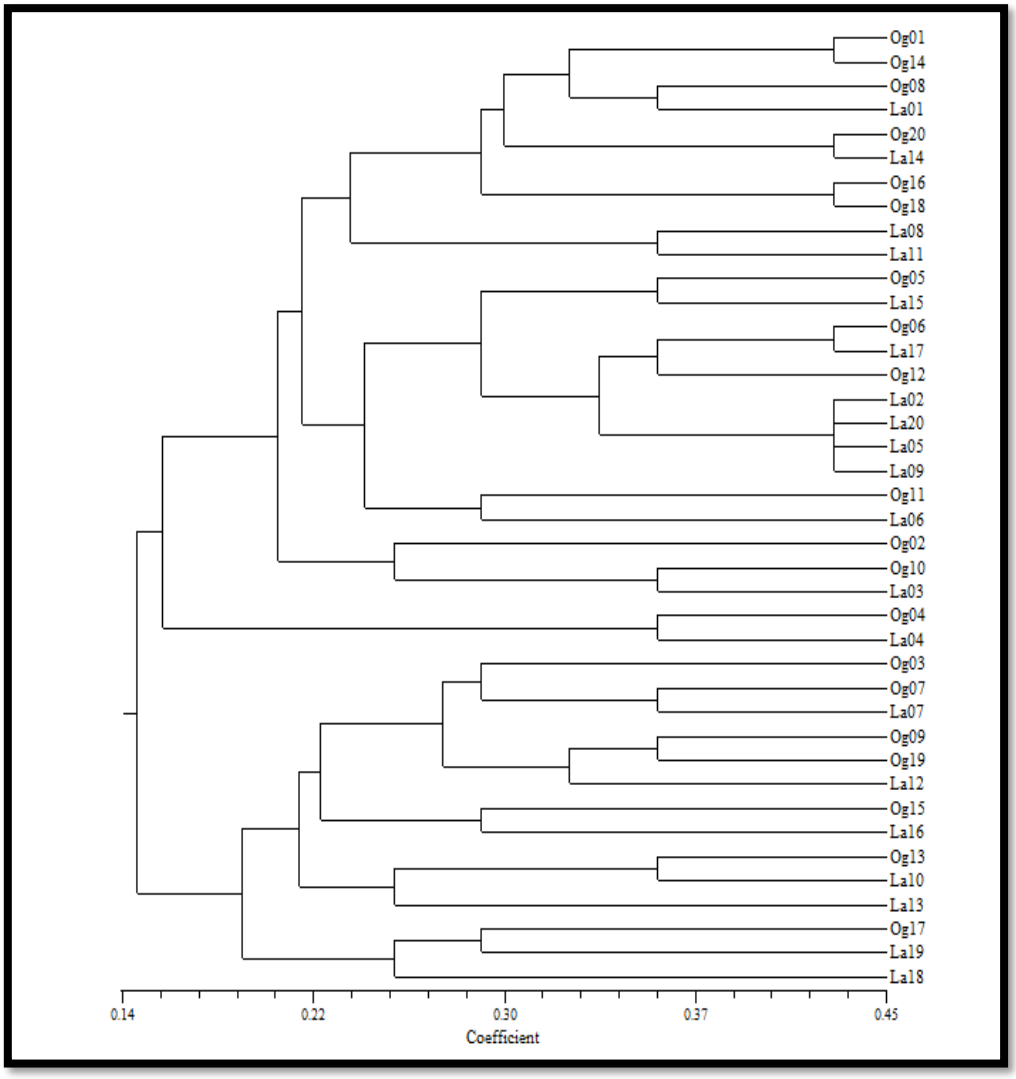


Fig. 3: *Morphological trait cluster of sample*

DISCUSSION

The morphological characterization of Mango (*Mangifera indica* L.) populations in Lagos and Ogun States, Southwestern Nigeria, revealed considerable diversity across most evaluated morphological traits. The descriptors published by Bioversity International (IPGRI, 2006) proved valuable in this study, particularly those related to leaves, petioles, crown, flowers, and tree architecture. Key qualitative traits assessed included fruit colour, leaf shape, crown shape, and tree growth form, which were found to be significant in distinguishing among mango varieties.

Quantitative trait analysis of 40 mango accessions showed that fruit length ranged from 12.94 cm to 25.52 cm, while fruit width varied from 4.36 cm to 9.20 cm. In terms of fruit colour, green was predominant (70%), followed by greenish-yellow (17.5%), light green (7.5%), and pale green (5%). Typically, the fruits display a dark green background when immature, transitioning to lighter green or yellow upon ripening (Bompard, 2009).

Fruit shape analysis indicated that the ovoid form was most common (42.5%), followed by oblong (42.5%), round (7.5%), and elliptic (7.5%) shapes. Crown shape distribution showed 52.5% of the samples were spreading, 27.5% spherical, 10% semicircular, and 10% pyramidal. Leaf shapes recorded included oblong (42%), elliptic (25%), lanceolate (15%), and ovate (17%). For leaf colour, dark green was most frequent (52%), followed by green (20%), pale green (15%), and light green (12.5%). In terms of tree growth, spreading forms dominated (75%) compared to erect forms (25%).

Comparative analysis between populations revealed some differences: green fruit colour was more frequent in Ogun (65%) than in Lagos (75%). Greenish-yellow fruits were more common in Lagos (25%) compared to Ogun (15%). Pale green fruits were absent in Ogun but present (10%) in Lagos, while light green fruits appeared in 10% of Lagos samples and 5% of Ogun samples.

In fruit shape, ovoid fruits were slightly more frequent in Ogun (45%) than in Lagos (40%). Round-shaped fruits appeared more frequently in Ogun (15%) than in Lagos (10%), while elliptic-shaped fruits were more common in Lagos (15%) than in Ogun (10%). Oblong fruit shapes were predominant in Lagos (40%) compared to Ogun (25%).

Regarding crown shape, spherical forms were observed more in Ogun (35%) than in Lagos (25%), while semicircular shapes were slightly more frequent in Ogun (10%) than Lagos (5%). Both populations had a similar proportion of pyramidal crown shapes (10%).

Observations showed mango trees typically branch between 0.6–2 m above ground, developing an evergreen, dome-shaped canopy (Rey et al., 2004), with solitary trees displaying a more umbrella-like form.

Leaf shapes varied: Lagos had a higher proportion of oblong leaves (65%) compared to Ogun (15%), while elliptic leaves were more frequent in Ogun (35%) than in Lagos (15%). Lanceolate leaf forms were observed at 25% in Ogun and 15% in Lagos, and ovate leaves were slightly more common in Lagos (10%) than in Ogun (5%).

In leaf colour, light green leaves were more frequent in Ogun (15%) than in Lagos (10%), whereas dark green leaves predominated in Lagos (65%) compared to Ogun (40%). Pale green leaves were equally present (15%) in both states. According to Bally (2006), mature mango leaves are dark green with a shiny upper surface and a lighter glabrous underside, with new leaves initially emerging green before turning tan-brown to purple during expansion.

Regarding tree architecture, spreading trees were more frequent in both populations (80% in Lagos and 70% in Ogun), while erect forms were more frequent in Lagos (30%) compared to Ogun (20%).

Quantitative analyses showed slight differences in fruit and leaf dimensions: fruit length ranged from 18.04 cm to 33.78 cm in Ogun and from 18.74 cm to 37.16 cm in Lagos. Leaf breadth ranged from 4.16 cm to 5.85 cm in Ogun and Lagos, respectively. Petiole lengths varied between 1.9 cm and 3.0 cm across samples. Leaf lengths ranged from 18 cm to 37.6 cm, and leaf breadths from 3.70 cm to 5.84 cm.

Crown diameters were measured in two directions: North–South and North–East. In Ogun, the North–South diameter ranged from 0.9 m to 4.2 m, while in Lagos, it ranged from 1.6 m to 4.4 m, indicating wider crown spread in Lagos populations, consistent with findings by Bally (2006).

Flower length ranged from 5.36 cm to 12.04 cm in Ogun samples and from 4.92 cm to 13.54 cm in Lagos. Fruit width in Ogun ranged from 4.36 cm to 11.8 cm, while Lagos samples ranged from 5.14 cm to 8.0 cm. Overall, clear morphological diversity was observed between mango populations of Lagos and Ogun States based on traits including fruit colour, fruit shape, crown shape and diameter, leaf shape and colour, tree growth form, flower dimensions, and petiole length.

CONCLUSION

The morphological data generated in this study proved valuable for assessing the genetic diversity of *Mangifera indica* L. populations in Lagos and Ogun States, Southwestern Nigeria. Based on the descriptors established by IPGRI (2006), considerable variation was observed among the accessions, particularly in fruit colour, fruit shape, crown shape, leaf shape, and tree growth habit. When integrated with studies on genetic divergence, these morphological traits can provide critical guidance to breeders in selecting superior parental lines for the development of populations with enhanced selection potential.

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