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Taxonomic Revision and Health Assessment of Avenue Tree Species on the University of Ibadan Campus

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Abstract

This study provided the checklist and health status of the avenue trees within the University of Ibadan, Oyo State, Nigeria. The study identified and enumerated avenue trees on major roads within the University campus. The presence of epiphytes and knots or bulge, insect attack, presence of holes, climbers, and decolorized leaves were assessed to ascertain the health status of the trees. A total of 1446 individual trees belonging to 113 and 35 species and families respectively were encountered in the study area. Out of the 113 species, 81.4% of the were exotic, while 18.6% were indigenous to Nigeria. Moraceae (2.16) was the most diverse family in the study area. Among all the defects assessed, result showed that the most common was decolorized leaves with 23.3%, then knot/bulge with 16.5%, followed by holes 13.9%, debarking 13.0%, climbers 11.3%, and epiphytes 9.9%. The prevalence of these defects on the trees has been one of the reasons for increasing toppling of avenue trees, and for the increase of unhealthy trees within the University of Ibadan. The study revealed high degradation of avenue trees due to deterioration in tree health as a result of the increase in the defect leading to concurrent cutting of affected trees. It is suggested that proper management activities should be implemented, such as thinning, pruning, planting of indigenous trees that are more adapted to the climatic condition of the study area, among others.

Keywords: Avenue Trees, Taxonomy, Tree Health, Tree Management, University of Ibadan

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INTRODUCTION

Trees in urban areas are now recognized as more than just pleasant features, they are the backbone of urban forest and ecosystems. Their benefits and uses ranges from psychological and aesthetic benefits to amelioration of urban climate and mitigation of air pollution (Onefeli, 2011; Oyerinde *et al*., 2018; Onefeli *et al.,* 2021). Urban trees help in sequestration of carbon-dioxide, which is one of the gases responsible for global warming. Avenue trees are grown or intentionally planted along public roads (high-of-ways) and are controlled by the relevant authority. Such trees are located on city streets, walkways, parks, gardens, among others (Heimlich *et al*, 2008, Onefeli *et al*., 2012). The populations of avenue trees have their own structure, tending to be less diverse, having more large-stature tree species, and exhibiting higher levels of spatial continuity than other components (Jim and Liu, 2001, Oyerinde *et al* 2018).

Tejashri *et al*. (2012) opined that avenue trees will be most effective in providing true shade and a commanding visual contrast between dense landscaping and open space when planted

in groups. Their shade keeps pedestrian walkways, parked car and nearby buildings cool in summer. The beneficial roles of avenue trees are numerous, including: watershed protection, provision of shade around public spaces (walkways, structures, parks, gardens, etc), thereby improving energy efficiency for local buildings, reduction of air pollution, absorption of greenhouse gases, improving the aesthetic beauty and reduction of ambient air temperature (Onefeli, 2016; Banani *et al.,* 2017). Contrary to these importance and positive impact of avenue trees to the urban areas, they also have negative impacts on their surroundings if they are not properly managed. Onefeli *et al*. (2012) stated that errant branches can block roadways, sidewalks, utility lines, signs and building while roots can heave pavement and infiltrate sewer lines. Falling of big dead street tree branches on busy road can cause accident and could lead to death. An unhealthy tree if left unchecked, may fall at any time, which may damage nearby buildings and fall on people taking walks. Unmanaged avenue trees will distort alignment of the trees and invariably spoil the sense of appeal needed from the trees. To avoid some problems and negative impact the avenue trees may cause, there is a need for proper management and assessment of the trees. Trees assessment helps in measuring, monitoring, and improving tree cover time, and combat threats that can lead to tree canopy loss (Ogidigan *et al*., 2021). The goal of urban tree assessment is to provide decision-makers with detailed metrics regarding the tree canopy cover that exists in the urban forest.

University of Ibadan is among the tertiary institutions in Nigeria with a good number of urban indigenous tree species (Borokini *et al.,* 2013), however holistic taxonomic revisions of the avenue trees within the campus are limited. Borokini *et al.* (2013) recorded 45 stands of indigenous trees but only focused on the Moraceae family. Onefeli *et al*. (2012) published 98 avenue trees belonging to 28 species but only evaluated the trees in the Faculty of Agriculture and forestry, which is just one out of the 12 faculties existing in the University of Ibadan. Therefore, this study was designed to provide the checklist and health status of the avenue trees within the University of Ibadan campus with a view to providing information necessary for the management of the trees in the institution.

Methodology

Study area

This assessment was carried out within the campus of the University of Ibadan, Ibadan, Oyo State, Nigeria. University of Ibadan is situated 6 km to the North of Ibadan city at latitudes 7.44°N to 7.46°N and longitudes 3.88°E to 3.91°E with an elevation of 204 m above sea level, and occupies approximately 2,500 acres of land area (Figure 1). University of Ibadan falls between two Local Government Areas (LGA): Ibadan North and Akinyele LGAs. It lies in a transitional zone between the rainforest and the derived savannah zones. Mean annual rainfall (April to October) is approximately 1220 mm with double peak in June and August. The dry season spans November to March. The University is bounded to the East by Ibadan–Oyo Road, North by Ajibode, and West by Ibadan polytechnic. The University is located at the Northern part of the lowland rainforest zone. The relative humidity of the study area ranges from 49% – 93%, while the annual mean temperature is 25.9 ^{o}C. The texture of the soils of the study area ranges from sandy loam to loamy sand, with pH of 6.36 – 6.58.

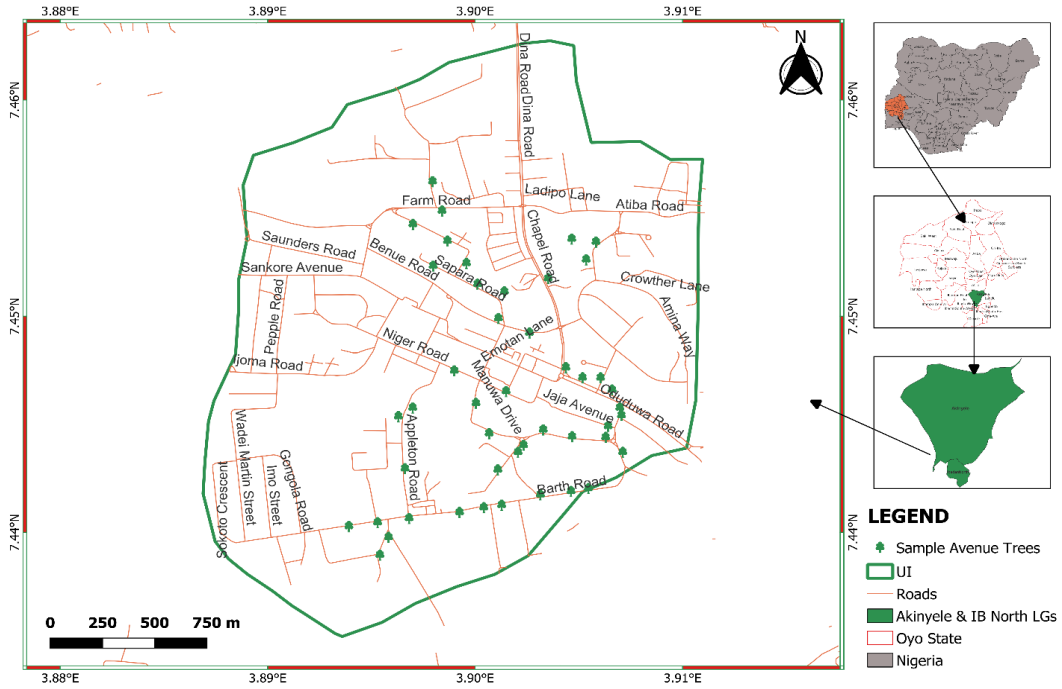

Figure 1. Map of the Study area

Data Collection and Statistical Analysis

For easy assessment, the study focused on the major roads within the University of Ibadan, which included Oduduwa road, Barth Road, Jaja Avenue, Chapel Road, Sapara Road, Appleton road, Manuwa drive, Emotan Lane, Kashim Ibrahim road, Niger road, Farm road. These roads were selected because of their easy accessibility, and because they are busy areas within the school community. Avenue trees assessment method by Onefeli *et al.* (2012) was adopted with little modifications. Hence, Avenue trees within 10 m distance from the edge of the selected roads were identified, authenticated by expert taxonomist and enumerated up to the species level. Health assessment of the trees was done through visual assessment by determining the presence of epiphytes, knots or bulge, insect attack, presence of holes, climbers, and discoloration of leaves according to Onefeli *et al.* (2012). The tree species encountered were categorized as exotic or indigenous using repository data from Plants of the World Online (Royal Botanic Gardens, 2025). The conservation status of the avenue tree species was also assessed using International Union for Conservation of Nature and Natural Resources (IUCN, 2023) database. Data were analysed with descriptive statistics while Shannon-Wiener diversity index formula was used to calculate the diversity of the avenue trees (equation 1). The Shannon-Weiner index takes into account the species richness and species evenness, the formula below was used (Motz et al. 2010; Chandrashekara and Sankar 1998).

$$H' = -\sum_{i=1}^{S} Pi\ In\ (Pi) \qquad (1)$$

Where; H' is the Shannon-Wiener diversity index; S in the total number of species in the community; Pi is the proportion of S made up of the ith species; In is the natural logarithm.

RESULTS AND DISCUSSION

Distribution of the Avenue trees in University of Ibadan into species and Families

The frequencies of the avenue tree species encountered within University of Ibadan were categorized into various families (Table 1). A total of 1446 individual avenue trees were found in the study area, which were distributed into 113 species. Among the species, *Terminalia mantaly was* most represented, with a total of

207 individuals. The dominance by *Terminalia mantaly* in the tree composition in the University's green space may be ascribed to the popularity of this species in urban landscaping due to its fast growth rate and unique physiognomic feature like symmetric canopy that provides good measure of shade. Many tree species (e.g. *Alstonia boonei*, *Annona reticulata, Blighia sapida, Butea monosperma, Caesalpinia echinata, Celastrus paniculatus, Cordia africana, Erythrina variegata, Eucalyptus globulus, Irvingia gabonensi*, *Triplochiton scleoxylon,* etc*)* were represented by only one individual tree (Table 1).

Table 1. Avenue tree species within University of Ibadan, their common names, and Frequency

S/N	Species	Family	Common Name	Freq.
1	*Acacia muricata* L.	Fabaceae	Spinelless wattle	3
2	*Adansonia digitata* L.	Malvaceae	African Baobab	4
3	*Albizia lebbeck* (L.) Benth.	Fabaceae	Indian siris	9
4	*Albizia saman*	Fabaceae	Monkey pod tree	37
5	*Albizia zygia* (DC.) J.F. Macbr.	Fabaceae	okuru,atanza,siris	9
6	*Alstonia boonei* De. Wild.	Apocynaceae	Cheese wood	1
7	*Alstonia scholaris* (L.) R. Br.	Apocynaceae	Devil's tree	1
8	*Anacardium occidentale* L.	Anacardiaceae	Cashew nut	1
9	*Annona cherimola* L.	Annonaceae	Custard Apple	3
10	*Annona muricata* L.	Annonaceae	Soursop	10
11	*Annona reticulata* L.	Annonaceae	Custard Apple	1
12	*Antiaris toxicaria* Lesch.	Moraceae	Upas tree	2
13	*Araucaria columnaris* (J.R.Forst.) Hook.	Araucariaceae	Cook pine	6
14	*Araucaria heterophylla* Salisb.	Arecaceae	Norfolk Pine	2
15	*Azadirachta indica* A. Juss.	Meliaceae	Neem	49
16	*Blighia sapida* K.D. Koeng	Sapindaceae	Ackee	1
17	*Butea monosperma* Lam.	Fabaceae	Bastard teak	1
18	*Caesalpinia echinata* Lam.	Fabaceae	Brazil wood	1
19	*Caesalpinia pulcherrima* (L.) Sw.	Fabaceae	Pride of Barbados	7
20	*Caesalpinia sappan* L.	Fabaceae	Sappan wood	50
21	*Carica papaya* Linn.	Caricaceae	Pawpaw	14
22	*Caryota mitis* L.	Arecaceae	2 Fish tailed Palm	5
23	*Cascabela thevetia* K.Schum	Apocynaceae	Yellow Oleander	16
24	*Cassia fistula* L.	Fabaceae	Golden Shower	3
25	*Cassuarina equisetifolia* L.	Cassuarinaceae	Whistling Pine	44
26	*Celastrus paniculatus Willd.*	Celastraceae	Black oil plant	1
27	*Cettis bungeana Carl. L. Blume*	Cannabaceae	Bunge's hackberry	2
28	*Citrus limon* (L.) Burm.	Rutaceae	Lemon	1
29	*Citrus sinensis* (L.) Osbeck	Rutaceae	Orange Tree	2
30	*Cocos nucifera* L.	Arecaceae	Coconut tree	10
31	*Commersonia bartramia* L.	Malvaceae	Brown kurrajong	1
32	*Cordia africana* L.	Boraginaceae	Wanza	1
33	*Cordia sabestena* L.	Boraginaceae	Geiger Tree	7
34	*Delonix regia* (Bojer ex Hook.) Raf.	Fabaceae	Flamboyant	89
35	*Dimocarpus longan* Lour.	Sapindaceae	Longan, dragon's eye	2
36	*Duranta repens* L.	Verbenaceae	Golden dewberry	3
37	*Elaeis guineensis* Jacq.	Arecaceae	African Oil Palm	4
38	*Eribotryna japonica* Lindl.	Rosaceae	Loquat	1
39	*Erythrina variegata* L.	Fabaceae	Tiger's claw	1
40	*Eucalyptus camaldulensis* Dehnhardt	Myrtaceae	Red gum	14
41	*Eucalyptus globulus* Labill.	Myrtaceae	Tasmanian Blue Gum	1
42	*Eucalyptus tereticornis* Sm.	Myrtaceae	Forest Red Gum	8
43	*Ficus benghalensis* Carl. L.	Moraceae	Bayan Fig	2
44	*Ficus benjamina* Carl. L.	Moraceae	Weeping Fig	2

45	*Ficus citrofolia Mill.*	Moraceae	Shortleaf Fig	1
46	*Ficus exasperata* Vahl	Moraceae	Forest sandpaper	5
47	*Ficus hispida* L. f.	Moraceae	Hairy fig	1
48	*Ficus lutea* Vahn	Moraceae	Giant-leaved Fig	12
49	*Ficus sur* P. Forssk.	Moraceae	Cape Fig	3
50	*Ficus thonningii* Carl. Ludwig (Blume)	Moraceae	Strangular Fig	2
51	*Ficus vasta* P. Forssk	Moraceae	Strangular Fig	2
52	*Gliricidia sepium* (Jacq.) Kunth ex Walp.	Fabaceae	Quick stick	113
53	*Gmelina arborea* Roxb. Ex Sm.	Lamiaceae	White teak	11
54	*Hildegardia barteri* (Mast.) Kosterm	Malvaceae	Ufuku, Okurugbedu	23
55	*Hura crepitans* L.	Euphorbiaceae	Monkey-no-climb	18
56	*Inga ignoides* (Rich.) Willd	Mimosoidaceae	Inga tree	1
57	*Irvingia gabonensi (Aubry-leamte ex O'Rorke) Baill.*	Irvingiaceae	Wild mango	1
58	*Jacaranda mimosifolia* David Don (D.Don)	Bignoniaceae	Blue Jacaranda	1
59	*Khaya grandifoliola* C.DC.	Meliaceae	African Mahogany	2
60	*Khaya senegalensis* (Desr.) A.Juss.	Meliaceae	Large-leaved Mahogany	12
61	*Kigelia africana* (Lam.) Benth.	Bignoniaceae	Sausage tree	1
62	*Lannea welwitshii* (Hiem)	Anacardiaceae	Pon mumbu	1
63	*Leucaena leucocephala* (Lam.) de Wit	Fabaceae	White leadtree	1
64	*Magnolia acuminata* L.	Magnoliaceae	Cucumber tree	1
65	*Mangifera indica* L.	Anacardiaceae	Mango tree	47
66	*Milicia excelsa* (Welw)C.C Berg	Moraceae	Iroko tree	6
67	*Moringa oleifera* Lam.	Moringaceae	Drumstick tree	1
68	*Musa sp* L.	Musaceae	Banana	24
69	*Nauclea diderrichii* (De Wild. & T. Durand) Elmer Drew	Rubiaceae	Opepe	16
70	*Nephelium lappceum* L.	Sapindaceae	Rambutan	1
71	*Newbouldia laevis* (P.Beauv.) Seem. Ex Bureau	Bignoniaceae	Boundary tree	1
72	*Parkia biglobosa* (Jacq.) R. Br. Ex G.Don	Fabaceae	African Locust beans	1
73	*Peltophorum pterocarpum* (Dc.) K. Heyne	Fabaceae	Copper pod	2
74	*Pentaclethra macrophylla* Benth.	Fabaceae	African-oil- Bean	1
75	*Philenoptera violacea*	Fabaceae	Rain tree	1
76	*Phoenix reclinata* Jacq.	Arecaceae	Whild date palm	2
77	*Pinus caribaea* Morelet	Pinaceae	Caribbean pine	50
78	*Pithecellobium dulce* (Roxb.) Benth.	Fabaceae	Manila tamarind	1
79	*Platycladus orientalis* L.	Cupressaceae	Chinese Arborvitae	16
80	*Plumeria frangipani* L.	Apocynaceae	Red frangipani	3
81	*Plumeria obtusa* L.	Apocynaceae	Singapore Graveyard Flower	2
82	*Plumeria rubra* L.	Apocynaceae	Frangipani	26
83	*Polyalthia longifolia* (Sonn.)Thwaites	Annonaceae	False Ashoka	180
84	*Populus nigra* L.	Salicaceae	Black poplar	1
85	*Pritchardia martii* Sonnerat	Arecaceae	Loulu hiwa	41
86	*Prunus laurocerasus* L.	Rosaceae	Cherry laurel	1
87	*Prunus persica* (L.) Batsch	Rosaceae	Peach	8
88	*Prunus serotina* Jackob (Ehrh.)	Rosaceae	Black cherry	2
89	*Psidium guajava* L.	Myrtaceae	Guava	4
90	*Pterocarpus santalinoides* L'Her. ex DC.	Fabaceae	Mututi	1
91	*Quercus ilex* Carl. Linnaeus	Fagaceae	Holm oak	2
92	*Ravenala madagascariensis* Sonn.	Strelitziaceae	Traveller's palm	1
93	*Robinia pseudoacaia L.*	Fabaceae	Black Locust	1
94	*Roystonea regia* (Kunth) O.F. Cook	Arecaceae	Cuban Royal palm	20
95	*Senna siamea* (Lam.) H.S.Irwin & Barneby	Fabaceae	Ironwood	6
96	*Solanum bataceum* Cav.	Solanaceae	Tamarillo	3
97	*Spondias mombin* L.	Anacardiaceae	Yellow mombin	2
98	*Sterculia monosperma* Vent.	Malvaceae	Chinese Chestnut	1

99	*Swietenia macrophyla* King.	Meliaceae	Honduras Mahogany	1
100	*Tabebuia rosea* (Bertol.) Bertero ex A. DC.	Bignoniaceae	Pink Trumpet Tree	2
101	*Tectona grandis* L. f.	Lamiaceae	Teak	3
102	*Terminalia bentzoe* l.fil.	Combretaceae	Bois benzoin	1
103	*Terminalia catappa* L.	Combretaceae	Indian Almond	74
104	*Terminalia mantaly* H. Perrier	Combretaceae	Madagascar Almond	207
105	*Terminalia superba* Adolf Engler & Ludwig Diels	Fabaceae	White Afara	3
106	*Thevetia peruviana* (Pers.) K. Schum	Apocynaceae	Yellow oleander	1
107	*Thuja occidentalis* Carl. Linnaeus	Cupressaceae	Northern white-cedar	4
108	*Thuja orientali* Carl. Linnaeus	Cupressaceae	Chinese Thuja	12
109	*Trichilia emetica* Vahl.	Meliaceae	Natal Mahogany	1
110	*Triplochiton scleoxylon* K.Schum.	Malvaceae	African whitewood	1
111	*Trophis racemosa* L.	Moraceae	White ramoon	1
112	*Veitchia merrillii* (Becc.) H.E. Moore	Arecaceae	Manila Palm	14
113	*Washingtonia robusta* H. Wendl.	Arecaceae	Mexican fan palm	2

With respect to family distribution, total of 35 trees families were encountered, with Fabaceae having the highest number of individual trees (350) in the study area, followed by Combretaceae (282), Annonaceae (184), Meliaceae had (65), Arecaceae (57), Anacardiaceae (51), amongst others. Families with the least representation (1 individual) were Celastraceae, Irvingiaceae, Magnoliaceae, Salicaceae, and Strelitziaceae.. The most diverse family in the study area was Moraceae with a Shannon-Wiener diversity index of 2.16 while the families represented by only one tree species had zero diversity Index value (Table 2). From the taxonomic point of view, Moraceae happened to be the most species-rich family. This may be attributed to the fact that many taxa in this family, especially the *Delonix* and *Albizia* genera, are usually favoured due to their nitrogen fixing attribute and tolerance to diverse site conditions (Yang *et al.,* 2023). Also, Combretaceae was prominent in the taxonomic distribution of avenue trees in the study area based on our findings. It has been established that members of this family, especially *Terminalia* species, are often considered for urban landscaping due to their structural and ornamental importance. However, *Terminalia mantaly*, a member of Combretaceae family and one of the most considered trees for urban greenery, has been observed by Adedeji *et al.* (2022) to be highly susceptible to mechanical defects, giving rise to mechanical cracks, which usually results in falling of the branches on the road during strong winds. This calls for frequent monitoring and evaluation of the health status of avenue trees for early identification and provide solution for the problem such that the trees would not cause harm to humans and properties. This study has shown that the avenue trees in University of Ibadan are rich in diversity. This may have made it difficult for diseases and defects to spread rapidly among trees. Though some tree families have been greatly affected by defects like discolored leaves and bulge/knots, it can be inferred that this is from lack of tree maintenance and care. Recently, the tree management committee of the University fell some old and seemingly unhealthy trees within the campus in an attempt to control tree diseases and stop them from infecting healthy trees. Nevertheless, if the only way to avoid hazard to trees is felling without replanting, there will eventually be low avenue tree density within the university in the coming years. Adequate tree inspection and timely remediation of defects are necessary to prevent unexpected tree falls and branch breakages, which could pose risks to the inhabitants of the University.

Table 2. Family classification of avenue tree species within University of Ibadan and their diversity

S/N	Family	Number of individual trees encountered	Shannon-Weiner diversity
1	Anacardiaceae	51	0.36
2	Annonaceae	184	0.31
3	Apocynaceae	50	1.24
4	Arecaceae	100	1.71
5	Araucariaceae	6	0.19
6	Bignoniaceae	5	1.33
7	Boraginaceae	8	0.38
8	Cannabaceae	2	0.18
9	Caricaceae	14	0.2
10	Cassuarinaceae	44	0.29
11	Celastraceae	1	0
12	Combretaceae	282	0.6
13	Cupressaceae	32	0.97
14	Euphorbiaceae	18	0.22
15	Fabaceae	350	1.93
16	Fagaceae	2	0.12
17	Irvingiaceae	1	0
18	Lamiaceae	14	0.52
19	Magnoliaceae	1	0
20	Malvaceae	30	0.81
21	Meliaceae	65	0.76
22	Mimosoidaceae	1	0
23	Moraceae	39	2.16
24	Moringaceae	1	0
25	Musaceae	24	0.29
26	Myrtaceae	24	0.23
27	Pinaceae	50	0.29
28	Rosaceae	12	0.3
29	Rubiaceae	16	0.28
30	Rutaceae	3	0.22
31	Salicaceae	1	0
32	Sapindaceae	5	0.14
33	Solanaceae	3	0.21
34	Strelitziaceae	1	0
35	Verbenaceae	3	0.31
	Total	1446	

Results revealed that avenue trees within University of Ibadan are predominantly exotic species (81.4%) compared to indigenous species (18.6%) (Figure 2). This implies that most of the tree species used for avenue trees in the University are not native to Nigeria, affirming the low population of indigenous tree species within the University. This corroborates findings from other urban forest locations in Nigeria, where exotic trees are being favoured over the indigenous ones due to their ornamental traits, relative fast growth rate and economic value (Dangulla *et al.,* 2019). However, such trend is actually problematic due to the erosion of our local floristic heritage, ecological mismatches, and potential invasiveness. The low frequency of tree species like *Triplochiton scleroxylon*, *Pentaclethra macrophylla* and *Parkia biglobosa*, suggests the need for more greening efforts using indigenous trees. This would undoubtedly

promote our own indigenous species, not only for the purpose of conservation but also for fostering ecological resilience.

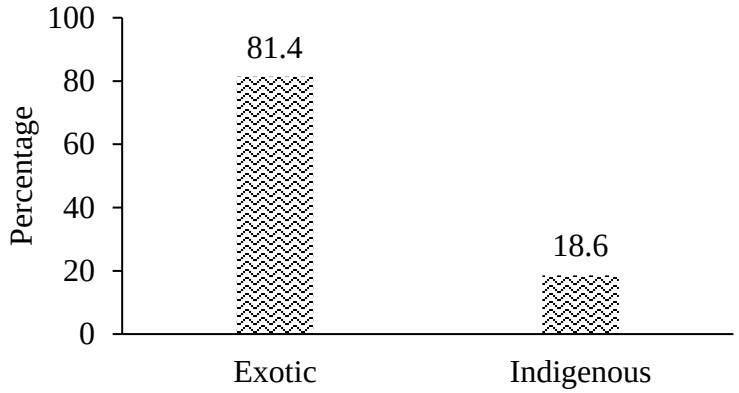

Figure 2. Exotic and indigenous tree species composition of avenue trees in University of Ibadan

The conservation status of the tree species according to IUCN (2023) classification are as shown on Figure 3. The tree species categorized as Least Concerned had the highest percentage of 67.3%, while the Near Threatened and Not Evaluated species had the same frequency of (9.7%), followed by the Vulnerable species with 6.2%, Endangered and Critically endangered species with the same frequency 2.7%, while species with Data Deficiency status had the lowest frequency of 1.8%. IUCN conservation list serves the purpose of highlighting species at the risk of extinction, the list also guides the conservation response (Hoffmann *et al.*, 2008). The IUCN conservation status list is used to identify the key habitats for trees species, the area to be safeguarded, and the conservation actions needed in specific areas. Conservation Status of tree species helps to inform policy direction(s), to know rules to put in place for the protection of the forest resources and to promote priority setting for research (Vié *et al*., 2009).

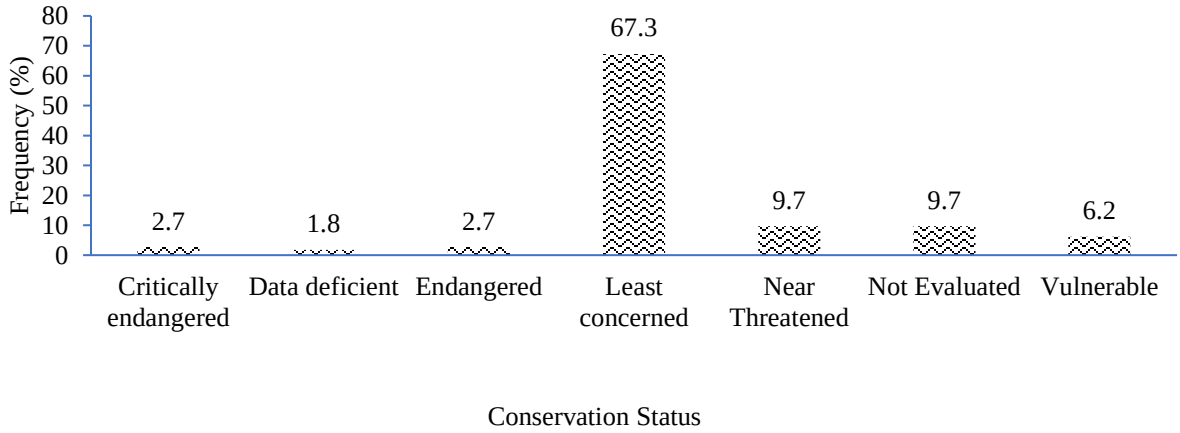

Figure 3. Conservation Status of avenue tree species within University of Ibadan

The six defects assessed on the avenue tree species are illustrated on Figure 4. It shows that the discoloured leaf defect affected 23.3% of all tree species assessed within the University. This was followed by knot/bulge (16%), holes (13.9%), debarking (13%), climbers (11.3%) and epiphytes (9.9%). This means that discoloured leaves defect is most prevalent among the tree species, while epiphytes have the least effect on the tree species

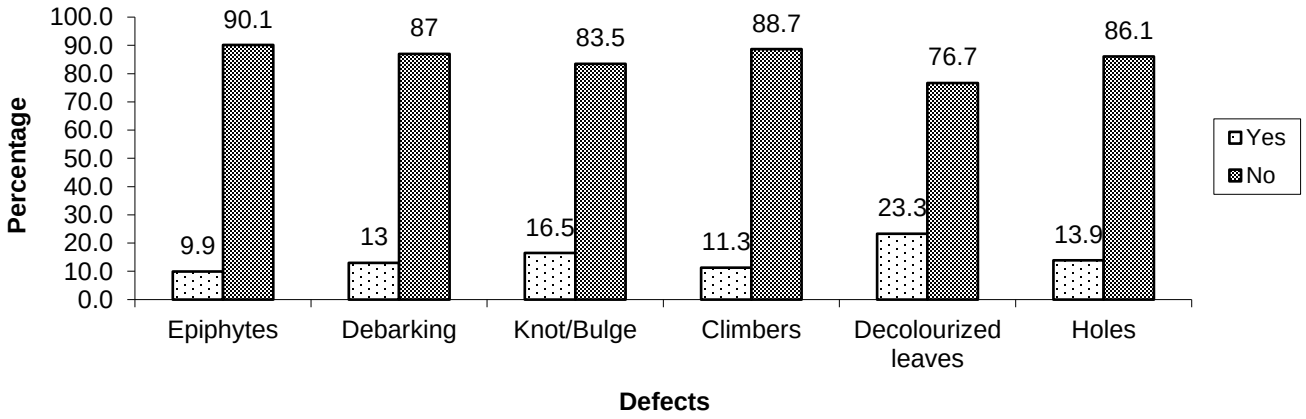

Figure 4. Defects percentages of the trees

Figure 5 shows the healthiness of tree species within tree families in the University. Based on the overall assessment, tree species in the Pinaceae family were the un-healthiest with 98 % unhealthy species and 2 % of healthy species, this was followed by the Caricaceae family which had 93.3 % and 6.7 % of healthy and unhealthy species, respectively. Tree species in a total of 16 families were 100 % healthy, the families were Araucariaceae, Cannabaceae, Celastarceae, Cupressaceae, Euphorbiceae, Fagaceae, Irvingiaceae, Magnoliaceae, Malvaceae, Mimosoidaceae, Moringaceae, Rubiaceae, Saliaceae, Solanaceae, Strelitzaceae, and Verbenaceae (Figure 5). About 50 % of the tree species within the families of Apocynaceae, Bignoniaceae and Rutaceae were found to be unhealthy.

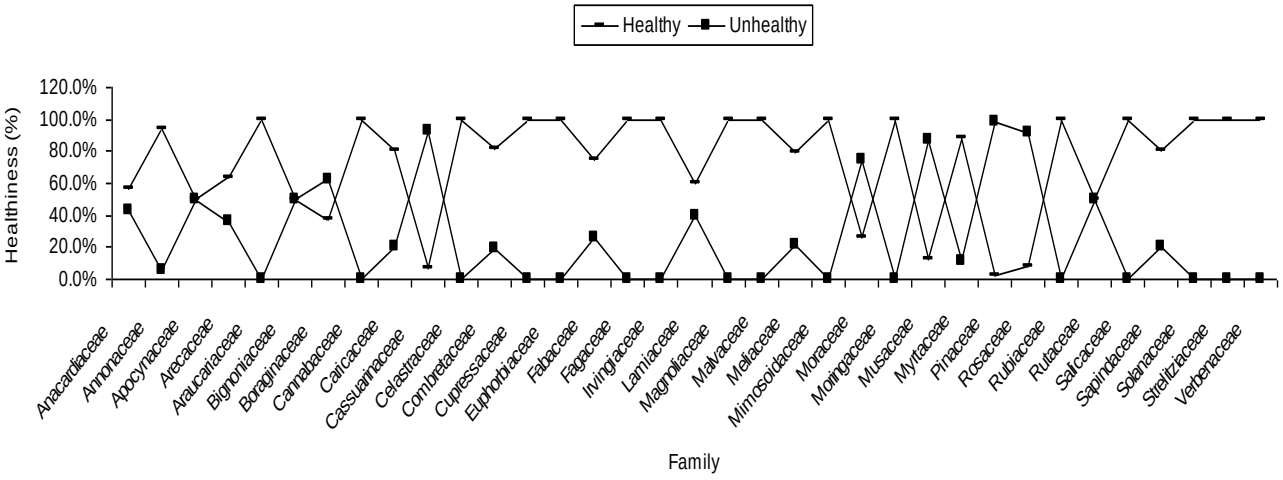

Figure 5. Healthiness of the tree species family within University of Ibadan

CONCLUSION

In this study, we have shown tree family diversity, species conservation status, and the health status of tree the avenue trees within the University of Ibadan. The population of indigenous tree species used as avenue trees within the University of Ibadan are much lower than exotic species. The most prevalent defect among the tree species in the University of Ibadan is discoloured leaves while the least common defect is the presence of epiphytes. A high percentage of tree species in the Pinaceae family (98%) and Caricaceae family (93.3%)

were observed to be unhealthy. All tree species in a total of 16 families were noted to be healthy (100%). Findings from this study has revealed that University of Ibadan is rich in different tree species, which is dominated by the exotic tree species. Therefore, this work will help researchers know the richness of avenue tree species within the University of Ibadan. Findings obtained from this study will undoubtedly help the subsequent management of the trees on the campus by the Biodiversity Management Committee.

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