Wandering through southwestern Nigeria: An inventory of Yoruba useful angiosperm plants

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ABSTRACT

This paper is a compilation of all known uses of angiosperm plants by the Yoruba people of southwestern Nigeria. Information was gathered from the past experiences of authors and surveys of books, journal articles, dissertations (published and unpublished) and theses using online databases. The review presents 493 angiosperm species (65 monocots and 428 dicots) belonging to 99 families, of which Fabaceae contributed the highest number of useful plants (72 spp.), followed by Euphorbiaceae (31 spp.), Malvaceae (30 spp.), and Asteraceae (25 spp.). Generally, of the identified plants, 418 species are for medicinal purposes, 85 species are utilized as food and beverages, 65 species for other uses including games, food packaging, and arts and crafts while 22 species are used for magical purposes such as success charm, enhancing disappearance, protection from witches and escaping from the repercussion of an act. This study provides baseline ethnobotanical data for future quantitative analyses of useful plants in the region, as indigenous plant knowledge has not been properly explored and documented among the Yoruba people.

1. Introduction

Despite the rich cultural heritage of the Yoruba people and the floristic diversity of the southwestern region and Nigeria at large, studies focusing on indigenous use of plants in the region have suffered neglect and are underreported [1]. The Yoruba people constitute about 21% (40 million) of the total population of Nigeria and are distributed across six states, including Ekiti, Lagos (Eko), Ogun, Ondo, Osun, and Oyo [2]. Major towns and cities in the region include Abeokuta, Ede, Ibadan, Ikire, Lagos, Ogbomoso, Osogbo and Ile-Ife, with the latter generally accepted as the origin of the Yorubas [3]. It is noteworthy that, there has never been a systematic account of indigenous use of plants in the region as most of the previous studies have focused on medicinal uses of plants in towns and villages which does not encompass the whole region. For example, Abimbola [4] and Thomas and Ajani [5] reported some recipes used for the treatment of sickle cell anaemia in the region. Gbadamosi and Oloyede [6] documented plants used for the treatment of arthritis in Ibadan, while others reported plants employed in the treatment of breast cancers [7] and diabetes mellitus [8] in Abeokuta as well as sexually transmitted diseases (STDs) in Ibadan [9]. Additionally, Obata and Aigbokan [10] documented general uses of plants in Oka-Akoko, while Adediwura et al. [11] documented several plants used as cosmetics in some parts of Yoruba land.

The need for a systematic inventory of traditional uses of the plant has been reported by Van Wyk [12] and supported by Shenzhen’s proclamation that accentuates the need to document, value, and protect indigenous knowledge about plants [13]. Significant efforts are being geared towards this direction in recent times [14], with the inventory of indigenous use of plants by the Basotho people of Lesotho and Vhavenda of South Africa [15, 16] as well as food plants of southern Africa [17], being notable examples. In view of the foregoing, we hereby present, for the first time (as we are not aware of any study), a comprehensive inventory of known uses of angiosperm plants by the Yoruba people in southwestern Nigeria. This was undertaken with a view to provide invaluable data on the pristine value and indigenous knowledge systems of botanicals in the region with a focus on plants used as medicine, food, beverages, clothing, cosmetics, arts and crafts, musical and those used for magical purposes.

2. Results and discussion

Table 1 (dicots) and Table 2 (monocots) contain a comprehensive list of the angiosperm plants used by the Yoruba people of southwestern Nigeria.
Table 1. List of dicots used by the Yoruba people of southwestern Nigeria, their habits, vernacular names and uses.

| Plant Families, species and their habits | Vernacular names (Yoruba) | Uses | References |
|-----------------------------------------|--------------------------|------|------------|
| **Acanthaceae** | | | |
| Acanthus montanus (Nees) T. Anderson; H | Iru mmu arugbo | Medicinal (syphilis, boils, emetic, anthelmintic, female infertility, menstrual cramps, arthritis, and urinary disorder) | [23, 24, 25] |
| Asystasia gangetica (L.) T. Anderson; H | Lobari | Medicinal (pile, astringent) | [26] |
| Erythrina senegalensis Vahl.; H | Eso | Medicinal (Stomach ache, chest pain, wounds, and measles) | [26, 27] |
| Hygrophila auriculata (Schumach) Heine; H | Ogbigho | Cosmetics (body cream) | [11] |
| Pseudopopsis ciliata (Willd.) Hepper; H | Apa Ogbe | Medicinal (wounds and laxatives) | [26] |
| **Amaranthaceae** | | | |
| Achyranthes aspera L.; H | Akeroro | Cosmetics (body cream) | [11] |
| Aerva lanata (L.) Juss. ex Schult.; H | Efun ile尽头 | Medicinal (ulcer, wound, snake bites, diuretic, diabetes) | [9, 23, 28] |
| Alternanthera sessilis (L.) R.Br. ex DC.; H | Reku-reku Daganro | Medicinal (boil, snakebite, astringent, headache) | [23, 26] |
| Amarantus spinosus L.; H | Daganro | Medicinal (snake bite, gonorrhea, hemorrhoid, diabetes, female infertility) | [10, 24, 28, 31] |
| Amarantus viridis L. | Tete abalaye | Food (vegetable); medicinal (hemorrhoid, blood tonic) | [30, 31] |
| Celosia argentea (L.) T. Ajefawo Sokoyoko | Food (vegetable); medicinal (diuretic, gonorrhea, diarrhea, hemorrhoid, blood tonic), and cosmetics (body cream) | [11, 26, 30, 31, 32] |
| Chenopodium ambrosioides L.; H | Arunpale | Medicinal (anticancer, diabetes, Guinea worm infections) | [28, 33, 34] |
| Cyathula achyranthes (Kunth) Moq.; H | Opopara Esaapa | Medicinal (female infertility) | [24] |
| Cyathula prostrata (L.) Blume; H | Saverespepe | Medicinal (diabetes) | [28] |
| Papilaya lappacea (L.) A. Juss; H | Ima agbo | Medicinal (headache); cosmetics (body cream) | [10, 11] |
| **Anacardiaceae** | | | |
| Anacardium occidentale L.; T | Kashi | Food (fruit and nut); medicinal (malaria, elephantiasis, ringworms, warts, typhoid fever, cough, fresh severe wounds, hemorrhoid, female infertility, ulcer) | [10, 23, 24, 26, 31, 32, 35, 37] |
| Lannea acida A. Juss.; T | Aghelopota | Medicinal (stomach upset) | [10] |
| Lannea barteri (Oliv.) Engl.; T | Eksa | Veterinary uses | [38] |
| Lannea egregis (Hiern) Engl.; T | Ekudan | Medicinal (anticancer) | [33] |
| Lannea nigritana (Scott-Elliot) Mongoro | Oginyin | Cosmetics (body cream) | [11] |
| Lannea welwitschii (Oliv.) T. Reku-reku | Food (vegetable); medicinal (laxative, blood tonic), and cosmetics (body cream) | [26, 30, 31, 32] |
| Mangifera indica L.; T | Mongoro | Food (fruit); medicinal (malaria, asthma, yellow fever, jaundice, cough, insanity, purgative, typhoid fever, hemorrhoid, anticancer, diabetes, female infertility, antiscare); cosmetics (face cleanser); firewood | [10, 11, 23, 24, 27, 28, 31, 32, 37, 39, 40] (unpublished) |
| Spondias mombin L.; T | Iyeye | Food (fruit); medicinal (fibroid, cataract, diuretic, fever, cold, gonorrhea, hemorrhoid, aphrodisiac, ulcer, diabetes, female infertility); forage | [24, 25, 26, 28, 31, 41] |
| Psittacodas microcarpa (A. Juss) Engl.; T | Okitan | Medicinal (chest pain); miscellaneous (used for coronation) | [10] |
| **Annonaceae** | | | |
| Annona mammee Oliv.; T | Esoro Igho | Local dye | [41] |
| Annona muricata L. | Ako | Food (fruit); medicinal (skin diseases, dysentery, female infertility, anticancer, diabetes), anti snake venom | [10, 28, 32, 42] |
| Annona senegalensis L.; T | Ako Epon oyinbo Shap-shap | Food (fruit); medicinal (malaria, elephantiasis, ringworms, warts, typhoid fever, cough, fresh severe wounds, hemorrhoid, female infertility, ulcer) | [10, 23, 24, 28, 32, 42] |
| Annona squamosa L.; T | Shap-shap | Food (Fruit) and mosquito repellant | [43] |
| Entonia chlorantha Oliv.; T | Awopa Osopa Dokita Igho | Medicinal (typhoid fever, ulcer, jaundice, hemorrhoid, diabetes, malaria) | [23, 28, 31, 37] |
| Monodora myristica (Garetn.) Dunal; T | Sasangbaku | Medicinal (constipation, arthritis, hemorrhoid) | [26, 31] |
| Uvaria afzelii SC. Elliot.; S | Gbogbonse Awogbe-arun Gbogame | Medicinal (bladder infection, fever, cough, hemorrhoid, anticancer, female infertility, antiscare), skin diseases); cosmetics (body cream) | [11, 23, 24, 35, 39] |
| Uvaria chamae P. Beaux; S | Esoho Gbogame | Medicinal (jaundice, yellow fever, sores, febrifuge, anticancer, diabetes, antiscare, ulcer) | [23, 28, 33, 36, 39] |
| Xylopia aethiopica (Dunal.) A. Rich; T | Eru alamo | Medicinal (stomach ache, breast cancer, cough, neuralgia, mental disorder, amenorrhoea, boil mix with white chalk, skin infections, hemorrhoid, scalp infection of children, abscess, cold shivers, menstrual disorders, diabetes, snake bite, female infertility, malaria, antiscare); cosmetics (hair growth); chewing stick; | [7, 11, 23, 24, 28, 31, 33, 35, 37, 39, 42, 44, 45] (continued on next page)
| Plant Families, species and their habits | Vernacular names (Yoruba) | Uses | References |
|----------------------------------------|--------------------------|------|------------|
| Apiales | Melanthera scandens | [31] |
| Apocynaceae | A. barteri Oliv.; S | Agbari etu | Medicinal (antiscratching, rheumatism, diabetes, toothache, anticancer) | [7, 23, 26, 31] |
| Alstonia boonei De Wild.; T | Ahun Alatapara | Medicinal (toothache, malaria, tuberculosis, astringent, fever, candidiasis, gonorrea, anticancer, skin infections, mental disorder, hemorrhoid, diabetes, female infertility, antiscratching, anticancer, ulcer); timber | [7, 9, 10, 23, 24, 26, 28, 33, 36, 37, 39, 40, 44, 45, 46] |
| Calotropis procera R.B.; S | Bomubumo | Medicinal (elephantiasis, leprosy, ringworm, diaphoretic, convulsion, anti-pyretic, anticancer, hemorrhoid, insomnia, diabetes, female infertility, Guinea worm infections); cheese making (leaf juice) | [10, 23, 24, 26, 33, 34, 44] |
| Catharanthus roseus | Apahida papa | Medicinal (diabetes, menorrhagia, antitumour) | [23] |
| Funtumia elastica (Preuss) Stagg.; T | Iru | Medicinal (pil, hemorrhoid, jaundice, malaria); timber | [26, 31, 37, 40] |
| Gongronema latifolium Benth.; S | Madumaru | Medicinal (candidiasis, vaginitis, hemorrhoid, diabetes, female infertility, antiscrkinling) | [9, 24, 28, 31, 39] |
| Holarrheca floribunda T. Durand & Schinz; T | Irena | Medicinal (malaria, gonorrea, dysentery, jaundice) | [26] |
| Hunteria umbellata (K. Schum) Haller; F.; S | Erin | Medicinal (hemorrhoid) | [31] |
| Landolphia owaramia P. Beauv.; S | Panakuru | Food (the pulp is eaten directly, also used as spice); medicinal (stimulant) | [32] |
| Monarda whitei (Hook. F.) Skeels; C | Isirung | Food (spice); Medicinal (hemorrhoid, antiscrilling, malaria) | [9, 31, 37, 39] |
| Nerium oleander L.; S | Adodo | Cosmetics (body cream) | [11] |
| Pergularia daemia (Forssk.) Chiov.; C | Kaleri-aga | Medicinal (fever, diabetes, female infertility, malaria), anti-snake venom | [24, 27, 28, 37, 47] |
| Picralima nitida ( Stapf) T Dur & H. Dur.; T | Eso Abere | Medicinal (hemorrhoid, scalp infection in children, diabetes, psychosis) | [26, 31, 35, 48] |
| Rauvolfia vomitoria Afxel.; S | Ayaguye | Medicinal (pimples, convulsion, jaundice, measles, herpes, mental disorder, yellow fever, hemorrhoid, diabetes, antiscrilling, malaria); fish poison | [10, 26, 28, 31, 37, 39, 41, 44] |
| Secamone afzelii (Schult.) K. Schum; S | Apiu | Medicinal (measles, anticancer, cough, fibroids, female infertility) | [24, 27, 33, 42] |
| Stephania hispidula DC.; S | Saghere | Medicinal (hemorrhoid, anticancer, diabetes, ulcer) | [9, 28, 33, 36] |
| Tylophora sylvatica Decne.; C | Igian | Medicinal (female infertility) | [24] |
| Tylophora urceolata Meve; C | Ohobara | Medicinal (anticancer, diabetes) | [28, 33] |
| Viocanga africana Stapf.; S | Ako-dodo | Medicinal (toothache, sores, hypertension) | [23] |
| Aristolochiaceae | Aristolochia albida Duch.; C | Paran funfun | Medicinal (diabetes) | [28] |
| Aristolochia bracteolata Lam.; C | Agogan | Medicinal (gonorrhoea, vaginitis, candidiasis, hemorrhoid, Scalp infection of children, female infertility, cancer); cosmetics (body cream) | [9, 11, 24, 33, 35] |
| Asteraceae | Acanthopanax hispidum D.C.; H | Dagaran-googo Egan aragho | Medicinal (yellow fever, tuberculosis, cough, migraine, hemorrhoid, malaria) | [25, 31, 37] |
| Acmelea alpinosa (Sw.) Cass.; H | Awerepape | Medicinal (diabetes) | [28] |
| Adesta ghabra (Klat) O. Hoffm.; H | Ope-kaa | Medicinal (female infertility) | [24] |
| Agaratum conyoides (L.) L.; H | Imi esu Pakududu | Medicinal (wounds, skin diseases, eye wash, emetic, skin infections, gonorrhoea, vaginitis, diabetes, conjunctivitis, diarrhea, syphilis, abortifacients, astringent, HIV/AIDS, ulcer); magical (fortification against spiritual attack); cosmetics (body cream); mosquito repellent | [9, 10, 11, 23, 28, 36, 42, 43, 44] |
| Agapitha africana (Pers.) C.D. Adams; H | Yanyan | Medicinal (hemostatic, cleaning sores, stomach disorders, tuberculosis, nervous disorders, skin diseases, dysentery, hemorrhoid, abortifacients, ulcer) | [10, 23, 26, 31, 36, 42] |
| Bident pilosa L.; H | Ewe abere Abere oloko | Medicinal (epilepsy and hemorrhoid) | [10, 31] |
| Calendula officinalis L.; H | Ododo-maria | Medicinal (ulcer, astringent) | [23] |
| Centaurea perforata D.C.; H | Danyi | Cosmetics (body cream) | [11] |
| Chromolaena odorata (L.) R.M. King & H. Rob.; H | Akinola Ominara | Medicinal (malaria, toothache, skin disease, hemostatic, diarrhoea, headache, hemorrhoid, and fresh wounds); cosmetics (body cream) | [10, 23, 26, 31, 37, 44] |
| Crassocephalum rubens (Juss) S. Moore | Ebolo | Food (vegetables) | [29] |
| Crassocephalum crepidioides (Benth). S. Moore; H | | | |
| Echinops longifolius A. Rich.; T | Agbe | Timber; firewood | [40] |
| Eclipta prostrata L.; H | Abikole Abikolo | Cosmetics (body cream) | [11] |
| Lactuca capensis Thuinb.; H | Yarin | Food (vegetables); medicinal (diuretic, anticonstipation) | [23] |
| Melanthera scandens (Schumach. & Thonn.) Robert; H | Abo yanrin Aghogho | Medicinal (inflammation, skin irritations, purgative, cough); rabbit food | [26] |
| Plant Families, species and their habits | Vernacular names (Yoruba) | Uses | References |
|----------------------------------------|---------------------------|------|------------|
| Senecio abyssinicus Sch. Bip.; H       | Amunumuye                 | Magical (charm used to paralyse enemy's memory); medicinal (Guinea worm infections) | [34, 50] |
| Senecio biafrae Oliv. & Hiern.; H      | Woorowo Bologi            | Cosmetics (body cream); Food (vegetable); medicinal (blood supplement) | [11, 30] |
| Spilanthes filicaulis (Schum & Thonn.) C. D. Adams; H | Awererepe                | Medicinal (Guinea worm infections) | [34] |
| Strachium sparganophorum (L.) Kuntze; H | Ewuro-odo                | Medicinal (headache, gonorrhea) | [26] |
| Synedrella nodiflora (L.) Gaertn.; H   | Apawofa                   | Medicinal (sores, skin infections) | [26] |
| Tarraxacum officinale (L.) Weber ex F. H. Wigg; H | Ejo yaran   | Food (vegetable); medicinal (blood tonic) | [30, 32] |
| Tibonia diversifolia (Hems1.) A. Gray; S | Jogbo Agaie              | Medicinal (malaria; wound dressing) | [27, 48] |
| Tridax procumbens L.; H                | Iyalode Mayungan         | Food (vegetables); medicinal (measles, hypertension, stomachache, hepatoprotection diabetes, ringworm, malaria, gonorrhea, vaginitis, candidiasis, fever, hemorrhoid, anticancer, menstrual disorders, joints inflammation, antiscickling); cosmetics (body cream); chewing stick | [9, 10, 11, 23, 27, 28, 33, 37, 39, 42, 44] |
| Vernonia amygdalina Delile; H          | Ewuro                    | Medicinal (antipyretic, hemostatic, backache, stomachache); mosquito repellant | [23, 26, 43] |
| Vernonia colorata (willd.) Drake; H    | Erro ijebu               | Medicinal (antipyretic, astringent, anemia, poison antidote) | [23] |
| Vernonia guineensis Benth.; T          | Olpua kan                | Timber | [40] |
| Basellaceae                            |                          |      |            |
| Basella alba L.; H                     | Amunatuto Toromoganna    | Food (vegetables); medicinal (blood tonic) | [29, 30] |
| Bignoniaceae                           |                          |      |            |
| Cordia millenii Bak.; T                | Omo Erinemo              | Timber and Craft (for making drums) | [40, 51] |
| Crescentia cujete L.; T                | Igí igba                 | Craft (for making calabash) | [41] |
| Kigelia africana (Lam.) Benth.; T       | Pandoro                  | Medicinal (anticancer, syphilis, gonorrhea, chest pain, diabetes, female infertility); magical (to increase breast size) | [7, 10, 24, 28, 33, 44] |
| Markhamia tomentosa Schum (Benth.) K; H | Oruru                    | Medicinal (diabetes, female infertility) | [24, 28] |
| Newbouldia laevis (P. Beauv.) Seem. ex Bureau; S | Akoko                   | Cultural (to decorate the head of a newly installed chief); medicinal (cough, hemorrhoid, hypertension, yellow fever, jaundice, eye defect, antiscickling, measles, diabetes); magical (protection against witches and evil spirits); forage | [10, 26, 27, 28, 31, 39, 40, 44] |
| Spathodea campanulata P.beauv.; T      | Orulu                   | Medicinal (anticancer) | [33] |
| Bixaceae                               |                          |      |            |
| Bixa orellana L.; S                    | Osun buke Aje            | Cosmetics (body cream); local dye | [11, 41] |
| Cochlospermum tinctorum A. Rich.; H    | Sewuru Rapo              | Medicinal (ulcer) | [36] |
| Bombacaceae                            |                          |      |            |
| Bombax buonopozense P. Beauv.; T       | Pongola Ewe eso          | Medicinal (skin infections, stomachache, hemorrhoid, scalp infection of children, abscess, diabetes); cosmetics (shiny skin) | [11, 26, 28, 31, 35] |
| Ceiba pentandra (L.) Gaertn.; T        | Arabe                   | Medicinal (diabetes, asthma, gonorrhea, menorrhagia, emetic, emollient, laxative, rheumatism, headache, fever, malaria); timber and fire wood; forage | [10, 23, 26, 37, 40, 41] |
| Boraginaceae                           |                          |      |            |
| Heliotropium indicum L.; H             | Origun Ogberi-akoko     | Medicinal (hemorrhoid, malaria, ulcer) | [31, 36, 37] |
| Brassicaceae                           |                          |      |            |
| Brassica oleracea L.; H                | Gbogbi                   | Food (vegetable); medicinal (ulcer) | [36] |
| Burseraceae                            |                          |      |            |
| Canarium schweinfurthii Engl.; T       | Origho Pogpo Awogbaarin  | Medicinal (black tongue, round worm, gonorrhea, diabetes) | [23, 28] |
| Dacryodes edulis (G. Don) H.J. Lam; T  | Pia kerekere            | Food (fruit) | [32] |
| Calophyllaceae                         |                          |      |            |
| Mammee africana Sah.; T                | Ologbojo                 | Medicinal (Guinea worm infections) | [34] |
| Cannabaceae                            |                          |      |            |
| Cannabis sativa L.; H                  | Igbo                     | Social (Stimulant) | [53] |
| Capparaceae                            |                          |      |            |
| Cleome gymandra L.; H                  | Epaya                    | Cosmetics (body cream) | [11] |
| Cretea adansonii DC.; T                | Taniya ewe              | Medicinal (diabetes) | [28] |

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Table 1 (continued)

| Plant Families, species and their habits | Vernacular names (Yoruba) | Uses | References |
|----------------------------------------|--------------------------|------|------------|
| Caricaceae                             |                          |      |            |
| Carica papaya L.; T                    | Ibepe                    | Food (fruit); medicinal (malaria, syphilis, convulsion, mental disorder, asthma, hypertension, typhoid, purgative, hemorrhoid, gonorrhea, diabetes, ulcer); cosmetics (body cream); cigarette and snuff | [10, 11, 23, 26, 28, 31, 32, 36, 37, 42, 44] |
| Celastraceae                           |                          |      |            |
| Celastrus indica L.; T                 | Ponju-esiwi              | Medicinal (asthma, malaria, anesthmimtic, anticancer) | [23, 33] |
| Salacia pallenec Oliv.; S              | Elewekan                 | Medicinal (scalp infection of children) | [35] |
| Chrysobalanaceae                       |                          |      |            |
| Partinari congensis F. Did.; T         | Epo papa                 | Medicinal (Guinea worm infections) | [34] |
| Partinari excelsa Sabine; T            | Yininyin nla             | Medicinal (candidiasis, vaginitis) | [9] |
| Partinari macrophylla Sabine; T        | Abere                    | Medicinal (gonorrhea, diabetes) | [28, 52] |
| Clusiaceae                             |                          |      |            |
| Alkinibucks floribunda Oliv.; T        | Eku                      | Medicinal (malaria, dysentery, small pox, chickenpox) | [23] |
| Garcinia kola Heckel; T                | Orogbo                   | Food, medicinal (dysentery, headache, stimulant, cough, sore throat, anti asthma, cancer, tuberculosis, rheumatism, malaria, cancer, fever, diabetes, infertility, antisickling) | [23, 24, 26, 28, 33, 39, 42, 44, 47] |
| Psorospermum (Ourfagam) Spach.; T      | Legan-oko                | Medicinal (anticancer); cosmetics (body cream) | [11, 33] |
| Symphonia globulifera (L.) F.; T       | Ogolo                    | Medicinal (aphrodisiac, watery sperm) | [52] |
| Combretaceae                           |                          |      |            |
| Anogeissus leiocarpus (DC.) Guill. &  | Aayin                    | Miscellaneous (chewing stick); medicinal (antisickling, hemorrhoid); timber; firewood; forage | [31, 39, 40, 41, 54, 55] |
| Perr.; T                               |                          |      |            |
| Combretum bracteatum (Hochst.) Brandis; S | Ogan dude               | Medicinal (rheumatism, scalp infection in children) | [35, 44] |
| Combretum hupitum Laws.; S             | Ogan                     | Medicinal (eye defects) | [10] |
| Combretum platypterum (Welv.) Hutch. & | Ogenbule                 | Medicinal (febrifuge) | [26] |
| Dalziel; S                             |                          |      |            |
| Combretum sorolidum Exell.; S          | Apoka papa               | Medicinal (scalp infection of children) | [35] |
| Combretum tomentosum G. Don; T         | Ayoka                    | Medicinal (scalp infection of children) | [35] |
| Pretilopsis suberosa Engl. & Diels; T  | Okaku                    | Medicinal (hemorrhoid) | [31] |
| Terminalia avicennoides Gull et        | Idin                     | Medicinal (anticancer, female infertility) | [24, 33] |
| Perr.; T                               |                          |      |            |
| Terminalia catappa L.; T               | Purutu                   | Food (fruit); medicinal (diabetes, hemorrhoid, antiscikiling) | [28, 31, 39, 44] |
| Terminalia macropera Guill. & Perr.; T | Pongola                  | Medicinal (skin infections) | [11] |
| Terminalia schimperiana Hochst. ex    | Idi                      | Medicinal (candidiasis, vaginitis); miscellaneous (chewing stick) | [9, 54] |
| Engl. & Diels; T                        |                          |      |            |
| Terminalia superba L.; T               | Afara                    | Medicinal (scalp infection of children, antiscikiling); timber | [35, 39, 40] |
| Connaraceae                            |                          |      |            |
| Byrsocarpus coccineus (Schumach. &    | Amuji wewe               | Medicinal (jaundice, pile, gonorrhea, impotence, tumors, hemorrhoids, malaria, anticancer) | [23, 26, 31, 35, 37] |
| Thomn.) Benth; S                       |                          |      |            |
| Conostegia ferruginea D.G.; S          | Omu-aja                  | Medicinal (laxative, toothache, hemorrhoids, diabetes) | [26, 28, 31] |
| Convolvulaceae                         |                          |      |            |
| Cucumis afruta R.Br.; C                | Omiafeetim                | Cosmetics (body cream) | [11] |
| Ipomea batatas L.; C                   | Odunkun                  | Food, medicinal (severe headache, hypertension, diabetes, blood supplement) | [10, 28, 32] |
| Ipomea involucrata P. Beauv.; C        | Ododo-odo                | Medicinal (asthma) | [26] |
| Ipomea pileata Roxb.; C                | Aliakere                   | Medicinal (female infertility) | [24] |
| Ipomea surifolia; C                    | Odoko                    | Veterinary uses | [38] |
| Merrillia tridentata (L.) Hallier f.; H| Asewogbare               | Medicinal (gonorrhea) | [26] |
| Crassulaceae                           |                          |      |            |
| Bryophyllum pinatum (Lam.) Oken; H     | Abamuda                  | Medicinal (epilepsy, cough, to heal babies' navel and other wounds, hemorrhoid, Guinea worm infections, anticancer, ulcer, psychosis) | [10, 23, 33, 34, 36, 44, 48] |
| Kalanche pinzana (Lam.) Pers; H         | Odunrde                  | Medicinal (diuretic) | [26] |
| Cucurbitaceae                          |                          |      |            |
| Aitonopus breviflorus Benth; C         | Taagiri                  | Medicinal (diabetes); Magical (To bring fortune to the house) | [28] |
| Citrullus colocynthus (L.) Schard; C   | Taagiri                  | Medicinal (purgative, bladder stone, contraceptive, head lice, hemorrhoid, measles, diabetes, female infertility) | [23, 24, 27, 28, 31] |
| Citrullus lanatus (Thunb.) Matsum. & Nakai; C | Egiwe Bawa | Food (fruit); medicinal (gonorrhea, vaginitis, candidiasis, syphilis, malaria, stomach disorders, diabetes) | [9, 28, 42] |

continued on next page
**Table 1 (continued)**

| Plant Families, species and their habits | Vernacular names (Yoruba) | Uses | References |
|-----------------------------------------|--------------------------|------|------------|
| Cocculina grandis L. (Voigt); C        | Ewe ero                  | Cosmetics (body cream) | [11] |
| Cocculina barteri (Hook. f.) Keay; C   | Ewe oju                  | Medicinal (venereal diseases); cosmetics (body cream) | [27] |
| Cucumis melo L. Var. catalaenus; C     | Egusi                   | Food, medicinal (diabetes, female infertility, Guinea worm infections) | [24, 28, 32, 34] |
| Cucumis sativus L.; C                  | Cucumber                | Food (fruit) | [33] |
| Curcurbita pepo L. pumpkins; C         | Igede                   | Food (fruit); medicinal (blood supplement) | [30, 32] |
| Lagenaria brefovia (Benth.) Roberty; C | Taagiri                 | Medicinal (gonorrhea, syphilis, female infertility) | [9, 24] |
| Lagenaria sicarica (Molina) Standl.; C | Ikanu ado                | Craft (gourd for water and medicines) | [33] |
| Luffa cylindrical (L.) M.J. Roem; C    | Kankan ayaba Ara ayibo   | Medicinal (hemorrhoid, Guinea worm infections, blood supplement); sponge for bathing and washing dishes | [30, 31, 34, 56] |
| Momordica augustispala L.; C           | Kankan                  | Medicinal (measles) | [27] |
| Momordica balusimina L.; C             | Ejirin igbo              | Medicinal (blood tonic) | [30] |
| Momordica charantia L.; C              | Ejirin iwee igbale aja  | Medicinal (malaria, diabetes, pile, ringworm, ulcer, burns, skin infections, anthelmintics, candidiasis, vaginitis, diarrhea, abscess, measles, diabetes, infertility); cosmetics (body cream) | [9, 10, 24, 26, 27, 28, 35, 42, 44] |
| Momordica foetida Schum. And Thorn; C  | Ako ejirin              | Medicinal (blood tonic) | [30] |
| Telfarica occidentalis Hook. F.; C     | Apiroko                 | Food (vegetables); medicinal (blood tonic, anemia, gastrointestinal disorders, convulsion, infertility) | [10, 23, 24, 26, 30] |
| Dilleniaceae                           |                          |      |            |
| Tetraera sisalifolia Willd.; C         | Opon                    | Medicinal (arthritis, anticancer); cosmetics (hair growth) | [6, 7, 11] |
| Ebenaceae                              |                          |      |            |
| Diospyros mespiferaea Hochst. Ex A. DC.; T | Igi duda              | Medicinal (malaria) | [37] |
| Diospyros suaveolens Gürke; T          | Esuunu                  | Medicinal (female infertility) | [24] |
| Euphorbiaceae                          |                          |      |            |
| Acalypha fimbriata Schum. & Thonn.; H  | Jiwotinu                | Medicinal (ulcer, rheumatism, asthma) | [57] |
| Acalypha wilkesiana Mull. Arg; S       | Jiwotun                 | Medicinal (flatulence, constipation); cosmetics (skin rashes, body cream) | [11, 23] |
| Alchornea cordifolia (Schumach. & Thonn.) Müll. Arg.; S | Ipa Epo Eresin igi pepe | Medicinal (fever, rheumatism, toothache, hemorrhoid, diabetes, Guinea worm infections, blood supplement) | [23, 26, 28, 30, 31] |
| Alchornea laxiflora (Benth.) Pax & K. Hoffm.; S | Iyan Ewe yia Ejo     | Medicinal (typhoid fever, venereal diseases, female infertility) | [24, 26, 42] |
| Bridelia ferruginea Benth; T           | Ira Ira odan            | Medicinal (hemorrhoid, cancer, diabetes, malaria); cosmetics (body wash when mixed with soap) | [11, 28, 33, 37] |
| Bridelia micrantha (Hochst.) Baill.; T | Ija                     | Medicinal (headache, migraine) | [26] |
| Cradoscolus acanthophyllus (Mill.) L.M.Johnst.; S | Iyana iyaja         | Medicinal (blood tonic) | [30] |
| Crotos lobatus L.; S                   | Eru                     | Medicinal (diabetes); cosmetics (body cream) | [11, 26] |
| Crotos penduliflorus Hutch.; T         | Awooroso                | Magical (thunderbolt) | [9] |
| Crotos zumbesicus Müll. Arg.; T        | Ajekofole Ajekobale     | Magical (strength and agility, to chase away evil spirits and witches); medicinal (hemorrhoid) | [3, 9, 10, 31] |
| Euphorbia convolvuloides Hochst. ex Benth.; H | Emile                  | Medicinal (female infertility) | [24] |
| Euphorbia drupifera Stapf.; S          | Oronsoyi Orosi          | Cosmetics (body cream) | [13] |
| Euphorbia heirophylla L.; H            | Egele                   | Medicinal (skin infections, purgative); cosmetics (body cream) | [26, 44] |
| Euphorbia hirta L.; H                  | Ewe emile               | Medicinal (cough, constipation, scorpion sting, dysentery, anti asthma, antibiotics, improve lactation in nursing mothers) | [10, 25, 44] |
| Euphorbia lateriflora Schum. & Thonn.; H | Ewu opiri              | Medicinal (gonorrhea, syphilis, candidiasis, abscess, antisklicking, Guinea worm infections) | [9, 34, 35, 39] |
| Euphorbia unispina N.E.Br.              |                         |      |            |
| Euphorbia poissonii Pax; S             | Oro adaete              | Medicinal (anticancer); cosmetics (body cream) | [11, 33] |
| Plaguea virous (Roxb. ex Willd.) Voigt; S | Iranje                 | Medicinal (anticancer, psychosis dysentery) | [26] |
| Hevea brasiliensis Mull. Arg.; T       | Ewe roba                | Medicinal (diabetes) | [28] |
| Jarophyca curcas L.; S                 |                         |      |            |

(continued on next page)
Table 1 (continued)

| Plant Families, species and their habits | Vernacular names (Yoruba) | Uses | References |
|----------------------------------------|--------------------------|------|------------|
| **Botuje lapalapa**                     | funfun                   | Medicinal (small pox, ring worm, eczema, irregular menses, syphilis, antidote for snake poison, hemorrhoid, menstrual disorders, fever, diabetes, ulcer) | [23, 24, 31] |
| Jatropha gossypifolia L.; S             | Botuje Lapalapa papa     | Medicinal (ringworm, ascariasis, dysentery, hemorrhoid, infertility) | [23, 24, 31] |
| Jatropha multifida L.; S                | Ogege                    | Medicinal (coated tongue, hemorrhoid) | [23, 31] |
| Macaranga barteri Mull. Arg.; T        | Asasa                    | Medicinal (breast cancer, diabetes) | [7, 28] |
| Mallotus oppositifolius (Geiseler)     | Orakoro                  | Medicinal (astringent, ringworm, scalp infection of children) | [26, 35] |
| Manihot esculenta Crantz.; S           | Paki                     | Food (Starch); medicinal (hemorrhoid, diabetes) | [28, 31, 32] |
| Opuntia sp Mill.; H                    | Oro agogo                | Medicinal (abscess) | [38] |
| Phyllanthus amarus Schum. & Thonn.; H  | Eyis obole               | Medicinal (fever, diabetes, gonorrhea, arthritis, hypotension, dysentery) | [6, 10, 23, 57] |
| Phyllanthus floribundus L.; S          | Oghara                   | Medicinal (dysentery) | [10] |
| Phyllanthus mollerianus (Kuntze)       | Igangan eja              | Cosmetics (body cream) | [11] |
| Phyllanthus niruri L.; H               | Fehinowo                 | Medicinal (diabetes) | [28] |
| Ricinodendron heudelotii (Baill.) Pierre; T | Patu            | Timber | [40] |
| Ricinus communis L.; H                 | Laa                      | Medicinal (hemorrhoid, female infertility) | [24, 31] |
| Tetracarpidium conophorum (Mull.-Arg.) Hutch. & Dalz.; S | Awusa | Food (fruit); medicinal (masticatory, giddiness, snake bite antidote, dysentery, diabetes) | [23, 28, 32] |

**Fabaceae**

| Abrus precatorius L.; C                | Oju ologbo               | Medicinal (cold, cough, convulsion, tuberculosis, conjunctivitis, jaundice, yellow fever, hemorrhoid, diabetes) | [23, 28, 31, 44] |
| Afzelia africana Pers.; T              | Apa-igbo                 | Medicinal (stomach disorders, hernia, febrifuge, skin infections, psychosis); forage | [23, 41, 45, 46] |
| Albizia adanuifolia (Schumach.) W. Wight.; T | Bonabona         | Medicinal (diabetes) | [28] |
| Albizia ferruginea (Guill. & Perr.) Benth.; T | Ayiriere         | Medicinal (dysentery, constipation); fish poison | [28, 41] |
| Albizia lebbeck L.; T                 | Ighagbo                  | Medicinal (hemorrhoid) | [31] |
| Albizia syag (DC.) J.F. Macbr.; T      | Ayiriere                 | Medicinal (astringent); forage; timber and firewood | [26, 40, 41] |
| Andira inermis (Wright) DC.; T         | Cosmetics (body cream) | [11] |
| Archis hypogae L.; H                   | Epa                      | Food; oil; beverage (groundnut milk); medicinal (insomnia, tuberculosis) | [23, 32, 44] |
| Baphia nitida Lodd.; T                | Irosun osun             | Medicinal (constipation, skin diseases, venereal diseases, small pox, flatulence, abortifacients); cosmetics (body cream); dye | [10, 11, 13, 26, 41] |
| Berlinia grandiflora (Vahl) Hutch. & Dalziel; S | Apado              | Medicinal (anticancer) | [33] |
| Brachystegia eurycoma Harms; T         | Itipase eku nla         | Medicinal (diabetes) | [28] |
| Caesalpinia bonduc (L.) Roxb.; C       | Ayoo                     | Medicinal (hemorrhoid, measles, diabetes); miscellaneous (seeds are used as counters board game) | [27, 28, 31] |
| Caesalpinia pulcherrima L.; S          | Eko omode               | Medicinal (purgative, emollient, abortifacient, emenagogue, poisoning, malaria fever) | [10, 13] |
| Cajanus cajan (L.) Millip.; H          | Sea                      | Medicinal (yellow fever, Hemorrhoid); food (Seed) | [10, 13] |
| Calliandra haematocarpa Hamk.; S       | Apalofa                  | Cosmetics (body cream) | [11] |
| Canavalia enigma(L.) DC.; H            | Sese nla                 | Medicinal (used to deter snakes around homes) | [23] |
| Cassia fistula L.; T                   | Asunvon                  | Medicinal (female infertility, antistickling, ulcer) | [24, 36, 39] |
| Cassia minosoides L.; T                | Kinshemise              | Medicinal (Guinea worm infections) | [34] |
| Cassia siamea Lam.; T                  | Kinshia                 | Medicinal (malaria fever) | [10, 37] |
| Centrosema pubescens Benth.; H         | Ewa-ahun                 | Medicinal (skin disease); Food for rabbit and goat | [26] |
| Crotalaria retusa L.; H                | Kopo                    | Medicinal (hemorrhoid, diabetes) | [28, 31] |
| Cylicodiscus gabanenus Harms.; T       | Olosun                   | Medicinal (diabetes) | [28] |
| Delborgia lactea Varke; S              | Ojiji                    | Cosmetics (face cleanser) | [11] |
| Delbergella wehwichischii (Baker) Baker f.; T | Paran           | Medicinal (purgatives, anthelmintics, menstrual disorder, hemorrhoid, diabetes) | [26, 28, 31] |
| Daniella oliveri Hutch & Dalz.; T      | Uya                     | Medicinal (convulsions); forage | [10, 41] |
| Delonix regia (Bojer) Raf; T           | Sekemene                 | Cosmetics (smooth/fresh skin) | [11] |
| Desmodium adenounc G. Don.; H          | Epakun                   | Medicinal (Guinea worm infections) | [34] |
| Detarium microcarpum Guill. & Perr.; T | Ogboho                  | Medicinal (hemorrhoid, antiscickling) | [31, 39] |

(continued on next page)
Table 1 (continued)

| Plant Families, species and their habits | Vernacular names (Yoruba) | Uses | References |
|-----------------------------------------|---------------------------|------|------------|
| **Dialium guineense Willd.; T** | Awin | Food (Fruits); medicinal (hemorrhoid, Guinea worm infections); wood for mortar pestle | [31, 32, 34, 41] |
| **Dioecia reflexa Hook. f.; C** | Agbarin Epe aarin | Medicinal (dandruff, headlice, stimulant) | [23, 35] |
| **Dioecia scamdens Kuntl.; C** | Dasa | Medicinal (fever) | [23] |
| **Dodonanthus benthamianus Baill.; T** | Eyan Ayan | Miscellaneous (chewing stick); for making drums | [51, 54] |
| **Erythrina senegalensis DC.; T** | Ologosere | Cosmetics (body cream) | [1] |
| **Erythrina suavolens (Guill. & Perr.) Brenn.; T** | Ero obo | Cosmetics (body cream) | [1] |
| **Erythrophleum suaveolens (Guill. & Perr.) Brenn.; T** | Eran obo Obo | Medicinal (chickenpox, snake bites, skin diseases, wounds, anticancer, abscess, Guinea worm infections); for carving mortar and pestle; magical (chase away witchcrafts) | [3, 7, 9, 23, 34, 35, 41] |
| **Gleocidia sepium (Jacq.) Kunth ex Walp.; T** | Ewe re Aganmariye | For darkening boards | [23] |
| **Glycyrrhiza glabra Baill.; H Medicinal (ulcer)** | | | [36] |
| **Gliricidia sepium Walp.; T** | Agbarin | Medicinal (dandruff, dysentery) | [36] |
| **Hymenostegia afzelii** | | Cosmetics (body cream) | [1, 35] |
| **Indigofera macrophylla (Oliv.) Harms; T** | | Medicinal (hemorrhoid) | [31] |
| **Indigofera macrophylla Schumach; S** | Enisara | Cosmetics (body cream) | [1] |
| **Lonchocarpus cyanescens (Schum. & Thonn.) Benth.; S** | Elu Talaaki | Local dye | [41] |
| **Lonchocarpus serratus (Poir.) Kunth ex DC.; S** | Ipapo | Cosmetics (body cream) | [1] |
| **Mezoneuron benthamianum (Baillii) Her. and Zec. C** | Amaranju | Medicinal (breast cancer) | [42] |
| **Momax padica L.; H Medicinal (fibroid, deworming, hemorrhoid)** | Patanmo Padimo | Medicinal (fibroid, deworming, hemorrhoid) | [10, 31] |
| **Mucuna pruriens (L.) DC.; H Medicinal (intestinal worms, genito-urinary problems, female infertility, anti snake venom); roots for darkening black boards** | Ewe ina Yerepe | Medicinal (intestinal worms, genito-urinary problems, female infertility, anti snake venom); roots for darkening black boards | [23, 24] |
| **Mucuna sloanei Fawcett & Rendle; H** | Eesi | Medicinal (hemorrhoids, skin disease, diuretics) | [23] |
| **Parkia biglobosa (Jacq.) R.Br. ex G.Don.; T** | Iru Irugbagba | Food (The seed can be licked like sweet or used as spices for vegetables); medicinal (hemorrhoid, abscess, diabetes, blood supplement); cosmetics (skin infections and burns) | [10, 30, 31, 32, 35, 42] |
| **Phaseolus vulgaris L.; C** | Ewe | Food (seed); cosmetics (body cream) | [11, 32] |
| **Piliostigma thonningii (Oliv.) Harms; T** | Abiye | Medicinal (jaundice, yellow fever, diabetes, malaria) | [28, 44, 46] |
| **Prosopis africana (Guill. & Perr.) Taub.; T** | Ayan | Medicinal (diarrhoea); (chewing stick) | [44, 54] |
| **Pterocarpus erosus Poir.; T** | Aghelasan Apep | Medicinal (insomnia, dysentery, diarrhoea); dye | [28, 41] |
| **Pterocarpus midribeedi Harms; T** | Ure Ure | Medicinal (anemia) | [30] |
| **Pterocarpus osun W. G. Craib; T** | Osun | Medicinal (asthma, candidiasis, antipyretic, eczema, skin infections, blood supplement, anti-sickling) | [11, 23, 26, 30, 41] |
| **Pterocarpus santalinoides DC.; T** | Ghenge | Medicinal (skin disease, astringent) | [23] |
| **Pterocarpus soyauxii Taub.; T** | Osun papa Ursan | Local dye, medicinal (blood supplement) | [30, 41] |
| **Senna abia L.; T** | Akoreere | Medicinal (hemorrhoid) | [31] |
| **Senna alata (L.) Roxb.; T** | Opoko Aseun ayinbo Aseun egbe | Medicinal (dysentery, skin diseases, anthelmintics, eye problems, skin infections, gonorrhea, anticancer, vaginal discharge, painful menstruation, diabetes, Guinea worm infections); cosmetics (body cream) | [9, 10, 11, 26, 28, 33, 34, 42, 44, 45] |
| **Senna fistula L.; T** | Aidan tooro | Medicinal (diabetes, liver disorders, purgatives, rheumatism, hemorrhoid, cancer, fever, fibroid, dysentery) | [23, 33, 42, 44] |
| **Senna hirsuta(L.) H.S. Irwin & Barneby; S** | Sese oris | Medicinal (skin infection, purgative) | [10, 20] |
| **Senna obtusifolia(L.) H.S. Irwin & Barneby; H** | Epe aisan | Cosmetics (body cream) | [11] |
| **Senna occidentalis (L.) Link.; T** | Uyan Rare | Medicinal (typhoid fever, hemorrhoid, hypertension, measles); timber | [10, 27, 31, 40] |
| **Senna podocarpa Guill. & Perr.; T** | Asunwon ibile | Medicinal (hemorrhoid, malaria, venereal diseases, vaginal discharge) | [31, 37, 42] |
| **Senna tora L.; H** | Eru aisan-adege | Medicinal (hemorrhoid) | [31] |
| **Tamarindus indica L.; T** | Ajagbon Awin | Food (fruits) | [9, 32] |
| **Tephrosia vogelii L.; S** | Oronhoe | Medicinal (breast cancer) | [7] |

(continued on next page)
Table 1 (continued)

| Plant Families, species and their habits | Vernacular names (Yoruba) | Uses | References |
|----------------------------------------|--------------------------|------|------------|
| Tetrapleura tetraptera (Schum & Thonn; Taub.; T) | Aidan | Medicinal (convulsion, poison antidotes, stomach problems, skin infections, insomnia, hemorrhoid, abscess, scalp infection of children, cancer, bone inflammation, female infertility, diabetes, antitickling, breast cancer, Guinea worm infections); magical (chase away witches, evil spirits and snakes); cosmetics (body cream) | [7, 10, 11, 23, 24, 28, 33, 34, 35, 39, 42] |
| Uraria picta (Jacq.) DC.; H | Alapayida | Medicinal (snakebite antidote, repositioning foetus, aphrodisiac, fibroid, female infertility); magical (whatever one says will come to pass) | [10, 23, 24, 42] |
| Vachellia ataxacantha DC.; T | Biu | Medicinal (dysentery, backache); miscellaneous (rope) | [23] |
| Vachellia nilotica (L.) Wild ex. Del.; T | Baani | Medicinal (skin diseases, insomnia, enoliment, female infertility, hemorrhoid, scalp infection of children, abscess); cosmetics (body cream); forage | [11, 23, 24, 31, 35, 41] |
| Vachellia sieberiana DC.; T | Sie | Medicinal (hemorrhoid) | [34] |
| Vigna unguiculata (L.) Walp; C | Ebere | Food; medicinal (Guinea worm infections) | [34] |
| Zapoteca portoricensis (Jacq.) H.M.Hern. | Tude | Medicinal (candidiasis, vaginitis, anticancer, arthritis, hemorrhoid, antistickling) | [6, 7, 9, 33, 39] |
| Gentianaceae | | | |
| Anthocleista vogelii Planch. | Sapo-sapo | Medicinal (rashes, eczema, impotence, abdominal pain purgative, anticancer, hemorrhoid, diabetes, infertility, breast cancer, ulcer); cosmetics (body cream) | [7, 11, 23, 24, 26, 28, 33, 36] |
| Hypericaceae | | | |
| Harungana madagascariensis Lam. ex Poiret.; T | Asoje | Medicinal (candidiasis, vaginitis, hemorrhoid, anticancer, dysentery, easy delivery); dye | [9, 33, 41, 42] |
| Icacinaceae | | | |
| Icacinus triaunchara Oliv; S | Gbegbe | Medicinal (rheumatism, toothache, abortifacent, purgative, abscess, diabetes) | [26, 28, 35] |
| Pyrenacantha staudiana Engl; C | Arukuza | Medicinal (anticancer) | [33] |
| Lamiaceae | | | |
| Celtis integrifolia Lam.; T | Lita | Timber | [40] |
| Hostandra opposita L.; H | Efiran odo | Medicinal (diabetes, scalp infection of children) | [11, 28, 35] |
| Huperia suaveolens Poit.; H | Sanmurin | Medicinal (malaria); mosquito repellant | [10, 37, 43] |
| Leonotis nepetifolia (L.) R. Br; H | Agberulori | Cosmetics (body cream) | [11] |
| Ocimum basilicum L.; H | Arunbaba | Medicinal (fever, cough, hemorrhoid, anticancer, diabetes, epistasis, ulcer) | [10, 28, 33, 36] |
| Ocimum gratissimum L.; H | Efiran nla | Food (Spices); medicinal (malaria, diabetes, antibacterial, pile, diabetes, typhoid, convulsion, diarrhoea, cold, gonorrhea, vaginitis,emia, female infertility, malaria), mosquito repellent | [9, 23, 24, 27, 28, 31, 36, 45, 44] |
| Solenostemon monostachys (P. Beauc.) Briq.; H | Olunjogbedu | Medicinal (convulsion, stomachache, diabetes) | [26, 28] |
| Tectona grandis L. F.; T | Igi oha | Timber; firewood; for wrapping food | [40] |
| Lauraceae | | | |
| Casyhra filiformis L.; H | Omonigbigi | Medicinal (hypertension) | [43] |
| Persea americana Mill.; T | Pia nla | Food (fruit, oil); medicinal (blood tonic, ulcer) | [30, 36] |
| Lecytiidaceae | | | |
| Napoleonae vogelii Bak.f; S | Ito | Medicinal (anticancer) | [33] |
| Loranthaceae | | | |
| Loranthus l. sp.; H | Etu | Medicinal (measles) | [27] |
| Viscum album L.; C | Afomo | Medicinal (anaemia, HBP, stroke, hemorrhoid, diabetes) | [23, 28, 31] |
| Viscum rotundifolium L.F.; C | Afomo oou | Medicinal (diabetes) | [28] |
| Lytheraceae | | | |
| Lagerstroemia speciosa (L.) Pers.; T | Abere | Medicinal (diabetes, stimulant) | [26, 28] |
| Lawsonia inermis L.; S | Laali | Medicinal (jaundice, gonorrhea, ulcer, astringent, hemorrhoid, diabetes, infertility); cosmetics (temporary tattoo, nail coloring, henna); dye | [11, 23, 24, 28, 31, 41] |
| Malvaeeae | | | |
| Abelmoschus esculentus (L.) Moench; H | Ilu | Food (vegetable); medicinal (antispasmodic, fever, gonorrhea, diabetes, anti snake venom) | [23, 28, 32] |
| Abutilon mauritianum (Jacq.) Medic.; S | Puru | Medicinal (pne, diarrhoea, cough, hemorrhoid) | [23, 31] |
| Adamsonia digitata (L.) Gaertn.; T | Igi ose | | [10, 11, 23, 28, 31, 32, 41, 46] |

(continued on next page)
Table 1 (continued)

| Plant Families, species and their habits | Vernacular names (Yoruba) | Uses | References |
|----------------------------------------|--------------------------|------|------------|
| **Cola acuminata (P. Beauv.) Shott and Endl.; T** | Obi abata | Stimulant; medicinal (wounds, hemorrhoid, fever, breast cancer, diabetes, anemia); magical (to appease the gods so leaves could be active, used for divination) | [10, 28, 30, 32, 33, 42] |
| **Cola millenii K.Schum.; T** | Obi edan | Food (fruit); timber; firewood | [32, 40] |
| **Cola nitida (Vent.) Schott. & Endl.; T** | Obi gbanja | Stimulant; medicinal (hemorrhoid, anemia); timber, firewood, for wrapping food | [30, 31, 32, 40, 41] |
| **Corchorus olitorius L.; H** | Ewedu | Food (vegetable); medicinal (safe delivery, asthma, diarrhea, fever, measles, diabetes, female infertility, blood supplement); magical (to curb infant killer diseases) | [10, 24, 26, 27, 28, 30, 32, 34, 44] |
| **Glycinia rhizoma var. brevis Juss.; H** | Gossypium hirsutum | Medicinal (gonorrhoea, vaginitis, diabetes, fever, diarrhoea, toothache, female infertility); magical (a woman who desires a male child) | [9, 10, 24, 26, 28] |
| **Gossypium hirsutum** | Grewia mollis | Medicinal (female infertility, malaria, wound dressing, ulcer) | [24, 37] |
| **Gossypium hirsutum** | Grewia pubescens | Medicinal (dyshentery, gonorrhoea, hemorrhoid, scalp infection of children, asthma, ulcer, dysentery, menstrual disorders, malaria); miscellaneous (used for adornment, for lighting) | [10, 31, 35, 37, 42] |
| **Grewia flavesccens Juss.; S** | Okere | Medicinal (anticancer) | [7] |
| **Grewia mollis Juss.; S** | Ogbo | Medicinal (scalp infection of children) | [35] |
| **Grewia pubescens P. Beauv.; S** | Afgoro igbo | Medicinal (hemorrhoid, diabetes) | [28, 31] |
| **Grewia venusta Fresen; S** | Ora ogbo | Cosmetics (toilet soap) | [11] |
| **Hibiscus cannabinus L.; S** | Ojo koko | Medicinal (Guinea worm infections) | [34] |
| **Hibiscus rosae-sinensis L.; S** | Ododo papa | Medicinal (stomach upsets, boils, keloids) | [10] |
| **Hibiscus sabdariffa L.; S** | Isepa | Medicinal (hemorrhoid, hypertension); beverage (zobo) | [31, 58] |
| **Hibiscus surattensis L.; C** | Alofinmora | Medicinal (blood tonic) | [30] |
| **Khaya senegalensis A. Chev.; T** | Owu | Timber | [40] |
| **Khaya senegalensis A. Chev.; T** | Ilasa-agborin | Timber | [40] |
| **Khaya senegalensis A. Chev.; T** | Timber | Timber | [40] |
| **Khaya senegalensis A. Chev.; T** | Timber | Timber | [40] |
| **Khaya senegalensis A. Chev.; T** | Timber | Timber | [40] |

**Meliaceae**

| **Azadirachta indica A. Juss.; T** | Dogonyaro | Medicinal (malaria, eczema, jaundice, laxative, sore throat, hemorrhoid, diabetes, skin infections, ulcers); cosmetics (body cream); mosquito repellent; chewing stick | [10, 11, 23, 26, 28, 31, 36, 37, 43, 44, 45] |
| **Carapa procera DC.; T** | Abo-ogunwo | Medicinal (carminative, purgative, ringworm, boils) | [23] |
| **Entandrophragma angolense D.C.** | Jebo | Medicinal (scalp infection of children, diabetes, black tongue, cough, blood tonic); fish poison | [28, 35, 41, 42] |
| **Entandrophragma angolense D.C.** | Ebo | Medicinal (hemorrhoid, diabetes, blood supplement, ulcer) | [28, 31, 36] |
| **Entandrophragma angolense D.C.** | Ebo | Medicinal (hemorrhoid, diabetes, blood supplement, ulcer) | [28, 31, 36] |
| **Entandrophragma angolense D.C.** | Arunje | Medicinal (hemorrhoid, diabetes, blood supplement, ulcer) | [28, 31, 36] |
| **Khaya angolensis A.Juss.; T** | Mullus | Medicinal (venereal diseases, cough) | [26] |
| **Khaya angolensis A.Juss.; T** | Dogarain | Medicinal (venereal diseases, cough) | [57] |

(continued on next page)
| Plant Families, species and their habits | Vernacular names (Yoruba) | Uses | References |
|----------------------------------------|---------------------------|------|------------|
| Khaya grandifolia C. DC. | Ogoowo | Medicinal (convulsion, rheumatism, hemorrhoid, breast cancer, malaria, yellow fever, scalp infection of children, abscess, diabetes, female infertility, antiscickling, skin infections); cosmetics (body cream); forage | [7, 10, 11, 23, 24, 26, 28, 33, 35, 37, 39, 41, 45, 46, 60] |
| Khaya senegalensis (Desr.) A. Juss; T | Aivo | Medicinal (hemorrhoids, diuretics, convulsion, abscess, female infertility, antiscickling, diabetes, ulcer) | [9, 11, 23, 26, 30, 31, 35, 36, 39] |
| Chausmanthera dependens Hochst; C | Ato | Medicinal (hemorrhoids, diuretics, convulsion, abscess, female infertility, antiscickling, diabetes, ulcer) | [23, 26, 28, 31, 36, 39] |
| Cissampelos moronmensis A. Rich; C | Jenjoko | Medicinal (hemorrhoid) | [31] |
| Chausmanthera palmata (Lam.) Miers; C | Ewe jokoko | Medicinal (blood tonic, lung disease, skin disease, diuretic, emmenagogue, tuberculosis, female infertility) | [23, 24, 44] |
| Cheilocarya racemifera Miers; C | Lagho-lagho | Medicinal (Sedative, insomnia, aphrodisiac) | [26] |
| Sphenocentrum jollyanum | Akerejupon | Medicinal (HBP, breast swelling related to menstrual cycle, cough, fever, jaundice, aphrodisiac, aphrodisiac, cancer, infertility, malaria) | [23, 24, 26, 33, 37] |
| Stephania abyssinica (Quart.-Dill. & A.Rich.) Walp.; C | Gbejedi | Medicinal (hemorrhoid, female infertility) | [24, 31] |
| Triclysia subcordata Oliv.; C | Alagbonrun | Medicinal (breast cancer) | [7] |
| *Moraceae* | | | |
| Artocarpus altilis (Parkinson) Fosberg; T | Berejusu | Food, medicinal (fever, astringent, insomnia, sedative) | [23, 32] |
| Ficus carica | Ipin | Medicinal (wounds, cough, diabetes) | [23, 28] |
| Ficus capensis | Opeya | Medicinal (Skin irritations, gonorrhoea, urinary ailments, hemorrhoids, bone fracture) | [26] |
| Ficus sycomorus L.; S | Sikamore | Medicinal (Sedative, insomnia, aphrodisiac, cancer, infertility, malaria) | [10] |
| Ficus thorntingii Blume; T | Odan abaa | Medicinal (wounds, fever, dysentery, female infertility); magical (goodwill, success, promotion and seduction); firewood | [10, 23, 40] |
| Ficus vallii-choudrie Del.; T | Ogarro | Medicinal (gastro-intestinal disorders, skin disease) | [23] |
| Milicia excelsa (Welw.) C.C. Berg; T | Iroko | Medicinal (nausea, malaria, abdominal pain, insomnia, diabetes, leprosy, malaria); Magical (protection against evil spirit); timber and firewood | [10, 26, 28, 37, 40] |
| Musanga cecropioides K. Br. ex Todd; T | Aghagha | Medicinal (Sedative, insomnia) | [26] |
| Myrianthus arborescens P. Beauv.; T | Agbagba | Medicinal (Sedative, cough, anthelmintics, hypertension) | [36, 58] |
| Tricalysia macrophylla | Obitare | Medicinal (Sedative, cough, anthelmintics) | [26] |
| *Nympheaeceae* | | | |
| Borrhavia diffusa L.; H | Aliso ebe | Medicinal (skin diseases, smallpox, cough, scabies, antipyretic, hemorrhoid, ulcer) | [23, 31, 36] |

(continued on next page)
| Plant Families, species and their habits | Vernacular names (Yoruba) | Uses | References |
|----------------------------------------|--------------------------|------|------------|
| Nymphaea lotus L.; H | Osibata | Medicinal (anticancer, arthritis, diabetes, female infertility, Guinea worm infections) | [6, 24, 28, 33, 34, 44] |
| Ochnaceae | | | |
| Lophira alata Banks ex C.F. Gaertn.; T | Owu Pahan | Medicinal (breast cancer, antisickling); cosmetics (body cream) | [7, 9, 11, 39] |
| Olacaceae | | | |
| Olax gambinoa Baill.; T | Ifan Ifan | Medicinal (yellow fever, jaundice, mental disorders, breast cancer, hemorrhoid, scalp infection of children, abscess, diabetes, antisickling) | [7, 23, 28, 31, 35, 39] |
| Olax subscorpioidea Oliv.; T | Ifan Ifan | Medicinal (yellow fever, jaundice, mental disorders, breast cancer, hemorrhoid, scalp infection of children, abscess, diabetes, antisickling) | [7, 23, 28, 31, 35, 39] |
| Schrebera arborea A. Chev.; T | Opele | Medicinal (scalp infection of children) | [35] |
| Pandaceae | | | |
| Microdeism keayana J. Leonard; T | Egun aragbo Ban-olu Mafowo kan one mi | Medicinal (jaundice, gonorrhea, diuretic, blenorrhea, abscesses, taeniacide, Fresh wounds, measles, diabetes) | [10, 23, 27, 28] |
| Microdeism puberula (H.) ex Planch.; T | Apata Aringo | Medicinal (dysentery, impotence, diarrhea, wound, female infertility) | [24, 26] |
| Papaveraceae | | | |
| Argemone mexicana L.; S | Ikan-ekun Mafowo kan omo mi | Medicinal (jaundice, gonorrhea, diuretic, blenorrhea, abscesses, taeniacide, Fresh wounds, measles, diabetes) | [10, 23, 27, 28] |
| Passifloraceae | | | |
| Barteria nigritiana Hook. F.; T | Oka ofe | Medicinal (abscess) | [35] |
| Pedaliaceae | | | |
| Ceratotheca sesamoides Endl; H | Ekaku ile | Medicinal (to relief pains after circumcision) | [57] |
| Sesamum indicum L.; H | Ehuru | Medicinal (female infertility) | [24] |
| Periploccaceae | | | |
| Parquetina nigrescens (Aff.) Bullock; C | Ogbo | Medicinal (anticancer, blood tonic, hemorrhoids, malaria, ulcer) | [26, 30, 33, 36, 37, 44] |
| Petiveriaceae | | | |
| Petiveria alliacea L.; H | Awegba | Medicinal (anticancer, Guinea worm infections) | [31, 34] |
| Phyllanthaceae | | | |
| Margaritaria discoidea (Baill.) G.L.Webster; T | Awe arunkuna | Medicinal (ulcer) | [36] |
| Piperaceae | | | |
| Piper ofum (L.) H.B & K.; H | Ede Ede | Medicinal (boils, keloid, hemorrhoid, measles, diabetes, hypertension, convulsion, bone fracture, Guinea worm infections) | [10, 26, 27, 28, 31, 34] |
| Plumbaginaceae | | | |
| Scoparia dulcis L.; H | Ipa | Medicinal (Keloids) | [10] |
| Plumbago zeylanica L.; H | Inabiri | Medicinal (gonorrhea, candidiasis, vaginitis, breast cancer, infertility, antisickling, anti snake venom) | [7, 9, 24, 33, 39] |
| Polygalaceae | | | |
| Carpenteria hookeriana G. Don; H | Orun ави | Medicinal (rheumatism, toothache, arthritis, aphrodisiac, hemorrhoid) | [6, 23, 26, 31] |
| Polygala arnottiana Oliv.; H | Ose | Medicinal (female infertility) | [24] |
| Securidaca longipedunculata Fresen.; T | Ipena | Medicinal (candidiasis, vaginitis, gonorrhea, hemorrhoid, abscess, anticancer, diabetes, antisickling) | [9, 28, 33, 35, 39] |
| Portulaceae | | | |
| Portulaca oleracea L.; H | Papisam | Medicinal (fever, skin disease, astringent, diabetes) | [26, 28] |
| Talinum triangulare (Jacq.) Willd.; H | Gbore | Food (vegetable); medicinal (boil, high fever, hemorrhoid, HBP; blood supplement) | [10, 31, 42, 44] |
| Rubiaceae | | | |
| Canthium subcordatum D.C; T | Ipi-olere | Medicinal (hemorrhoid) | [31] |
| Chassalia kolly (Schumach.) Hepper; S | Ispe ege | Medicinal (gonorrhea, vaginitis) | [9] |
| Coffea canephora Pierre ex A. Froehner; T | Kafi igbo | Stimulation | [47, 62] |
| Fleroya stipulosa (DC.) Y.F.Deng; T | Opepe | Timber | [40] |
| Gardenia ternifolia Schumach; S | Oruwon | Cosmetics (body cream) | [11] |
| Macropocephalum longistyla (DC.) Hook.F.; S | Efue | Medicinal (ulcer) | [36] |
| Mucuna pruriens (G. Don) Bullock ex Hylot; T | Orin ijobu Pako-ijebu | Chewing stick | [64] |
| Mitracarpus villosus (S.W.J.D.C.; H | Ewe ifo | Medicinal (skin infections especially eczema) | [10] |

(continued on next page)
| Plant Families, species and their habits | Vernacular names (Yoruba) | Uses | References |
|----------------------------------------|--------------------------|------|------------|
| Mitragyna ciliata Aubrev. & Pellegr.; T | Thatching and wrapping food | | [41] |
| Morinda lucida Benth.; T | Osaro | Medicinal (anticancer, malaria, candidiasis, vaginitis, diabetes, female infertility) | [9, 24, 28, 33, 37, 44, 46] |
| Nauclea diderrichii (De Wild.) Merr.; T | Opepe | Medicinal (Gonorrhea, malaria, dysentery, pyle, Guinea worm infections) | [26, 34] |
| Nauclea orientalis (L.) L.; T | Ejegeri | Zep. | Medicinal (cough, measles, menstrual disorders, stomach aches, jaundice, hemorrhoid, yellow fever, scalp infection of children, abscess, anticancer, diabetes, female infertility, malaria); forage | [23, 24, 26, 35, 37, 41, 44] |
| Rothmannia hispida (K. Schum.) Fagerl.; S | Buje | Local dye | [41] |
| Spermacoce verticillata (L.) G. Mey. | Irewa | Medicinal (gonorrhea, antibilharzia, antileprosy, abortifacient, diuretic); cosmetics (body cream) | [11, 23] |

**Rutaceae**

| Citrus aurantifolia (Christm.) Swingle. | Oranbo weve, Osan weve | Food (fruit); Medicinal (whitlow, anticancer, toothache, ulcer, fever, diabetes, female infertility, malaria, vomiting); mosquito repellant, cosmetics (body cream) | [10, 11, 14, 26, 32, 33, 37, 42] |
| Citrus sinensis L.; T | Osan | Food (fruit); medicinal (cough, sore throat, malaria, carminative, typhoid fever, mosquito repellant, anticancer, diabetes); firewood | [10, 23, 26, 32, 33, 37, 40, 43, 47] |
| Citrus limon L.; T | Oranbo | Food (fruit); medicinal (boil, cancer, pain relief, abortion, hemorrhoid, diabetes, antisickling, malaria); mosquito repellant | [10, 25, 26, 34, 36, 41] |
| Citrus paradisi Macfad.; T | Osan paya | Food (fruit); medicinal (malaria); mosquito repellant | [37, 47] |
| Clausena anisata (Willd) Hook f. ex Benth.; T | Atapari oboku | Medicinal (anticancer, hemorrhoid, scalp infection of children); firewood | [7, 30, 35, 40] |
| Harrisonia abyssinica Oliv.; T | Arunje eran | Medicinal (scalp infection of children) | [35] |
| Zanthoxylum gillettii (De Wild.) P.G. Waterman | Igi ata | Medicinal (antisickling) | [30] |
| Zanthoxylum leprieurii Guill and Perr. | Zern. & Timler.; T | Medicinal (tuberculosis, arthritis, urinary disorders, antisickling, rheumatism); miscellaneous (chewing stick) | [23, 39, 53] |

**Salicaceae**

| Oncoa spinosa Forstk.; T | Gbonaere | Medicinal (arthritis, ulcer) | [6, 36] |
| Okouba aubrevillei Pellegr and Normand; T | Asorin | Medicinal (blood tonic); for making drums | [33, 51] |
| Blighia sapida K.D. Koenig.; T | Ekan | Food, medicinal (fibroid, abnormal pregnancy, diabetes); timber | [10, 28, 32, 40] |
| Cardioperum halicacabum L.; C | Shaworo | Medicinal (skin eruption, pyle, rheumatism, syphilitic sores, amenorrhea, hemorrhoid) | [23, 31] |
| Deinbollia pinnata (Poir.) Schumach. & Thonn.; H | Ogiri | Medicinal (measles, Guinea worm infections) | [27, 34] |
| Lecomition cynthiae Panch. Ex Benth.; T | Akeka | Medicinal (fever, burn, aphrodisiac, purgative, typhoid, jaundice, arthritis, cough, scalp infection of children) | [6, 23, 26, 35, 37] |
| Paullinia pinnata L.; C | Kankunselu | Medicinal (Jaundice, leprosy, aphrodisiac, dysentery, anticancer, scalp infection in children, dysentery, stomach pains) | [10, 26, 35, 35] |

**Sapotaceae**

| Chrysochloris albidum G. Don; T | Aghalumo | Food (fruit); medicinal (stomach disorder, fever, hemorrhoid, nausea, vomiting, diabetes, malaria); timber; seed as educational aid (counter for addition and subtraction in elementary mathematics) | [23, 26, 28, 31, 32, 37, 40] |
| Synsepalum dulcificum (Radlk.) Engl.; S | Aghayan | Food (fruit), medicinal (hemorrhoid) | [31, 32] |
| Vitellaria paradoxa Gaertn. F.; T | Iggi sori | Food (oil); Medicinal (nasal congestion, anhemlinic, scalp infection of children, abscess, measles, antisickling, body pains); cosmetics (moisturiser, emollient); miscellaneous (for making mortar and pestle); soap making | [11, 23, 27, 32, 35, 38, 41] |

**Simarouobaceae**

| Hannoa undulata Guill & Perr.; T | Oriji | Magical (escaping repercussions of an act) | [34] |

**Solanaeae**

| Capsicum annum L.; H | Ada ijisi | Food (spice); medicinal (hemorrhoid, female infertility) | [24, 31, 32] |
| Capsicum frutescens L.; H | Ada were | Food (spices); medicinal (fever, dysentery, stimuliants, anticancer, severe sometimes spiritual skin infection, measles, diabetes, breast cancer, antisickling) | [7, 10, 23, 27, 28, 32, 33, 37, 39] |
| Datura metel L.; H | Gegemu | Medicinal (Asthma, rheumatism); Stimulant | [47] |

(continued on next page)
with the authors’ citations. From the data gathered, 493 angiosperm species from 99 families used for a variety of purposes were identified in the region. Of these, only 65 species (13.2%) from 23 families were monocots, while 428 species (86.8%) from 76 families were dicots. The family Fabaceae provided the highest number of useful botanicals (72 species), followed by the families Arecaceae, Araceae, Dioscoreaceae, Asparagaceae and Marantaceae, which were included in 99 families used for a variety of purposes were identified in the region. Table 1 (continued)

| Plant Families, species and their habits | Vernacular names (Yoruba) | Uses | References |
|----------------------------------------|----------------------------|------|------------|
| *Nicotiana tabacum* L.; H              | 1. Taba                    | Medicinal (HIV/AIDS, gonorrhea, candidiasis, epistaxis, typhoid fever, hemorrhoid, cancer, diabetes); cosmetics (body cream and lotion or for hair growth); Local cigar and snuff (leaves); snake repellent; anti-snake venom | [9, 10, 11, 28, 31]|
| *Physalis angulata* L.; H              | 2. Koropo                  | Medicinal (fever, malaria, female infertility) | [24, 37, 42]|
| *Solanum aethiopicum* L.; H           | Igba                       | Food (fruit, vegetable, soup); medicinal (arthritis, Guinea worm infections) | [6, 32, 34]|
| *Solanum lycopersicum* Dunal.; H       | Igbagba                    | Food (vegetable) | [23]|
| *Solanum nigrum* L.; H                 | Odu                       | Food (vegetable); mosquito repellent; medicinal (eye problems, blood tonic, and malaria); anti-snake venom | [18, 30, 37, 43]|
| *Solanum scarhum* Mill.; H             | Ogoro                     | Food (vegetables) | [65]|
| *Solanum torvum* Sw.; H                | Igbayanrin-olegun          | Medicinal (hemorrhoid) | [31]|
| *Ulmaceae*                             |                           |      |            |
| *Celtis zenkeri* Engl.; T              | Inugidi                   | Medicinal (Guinea worm infections) | [34]|
| *Trema orientalis* (L.) Blume; T       | Ofe                       | Medicinal (hemorrhoid, fever, cough, dysentery, pneumonia, jaundice, malaria); magical (to make babies walk on time, for appearing and disappearing) | [10, 26, 31, 37]|
| *Urticaeae*                            |                           |      |            |
| *Laportea aetuinans* (L.) Chew; H      | Ojohbodoo                 | Medicinal (piles, burns, astringent, Guinea worm infections); Cosmetics (body cream) | [11, 26, 34]|
| *Laportea ovalifolia* (Schum.) Chew; H | Ewe esainun               | Medicinal (asthma, bleeding, kidney disorder, diarrhea) | [25]|
| *Urtica disco* L.; H                   | Paya-faya                 | Medicinal (hemorrhoid) | [31]|
| *Verbenaceae*                          |                           |      |            |
| *Clorodendrum volahle P. Beauv.; H     | Efo dagba                 | Food (vegetable); medicinal (gout rheumatism, abortifacients, pregnancy tonic, oedema, hemorrhoid) | [31, 66, 67, 68]|
| *Lantana camara* L.; H                 | Ewon-agogo                | Medicinal (epilepsy, hypertension, nervous disorder, mosquito repellant) | [25, 43]|
| *Lippia multiflora* Moldenke; H        | Efigor oko                | Medicinal (antipyretic, malaria, sleeping sickness) | [23]|
| *Stachybotrya indica* (L.) Vahl; H     | Panle                     | Medicinal (cough, malaria, low blood pressure, epilepsy, dental problem) | [28]|
| *Stachybotrya jamaicenisis* (L.) Vahl; H | Apari-igan               | Medicinal (diabetes) | [28]|
| *Vitex doniana* Sweet.; T              | Oori-ele                  | Food, Medicinal (cough, stomachache, hypertension, hemorrhoid, ringworm, bad breath, inflammatory swelling of joints, catarrh, gonorrhea) | [10, 23, 31, 32]|
| *Violaceae*                            |                           |      |            |
| *Hybanthus enneaspermus* (L.) F. Muell.; H | Ahiwere               | Medicinal (easy delivery, female infertility) | [24, 42]|
| *Rinorea weititschi* (Oliv.) Kunze; T  | Iparako                   | Medicinal (Guinea worm infections) | [34]|
| *Vitaceae*                             |                           |      |            |
| *Clusia popunee* Guill. & Perr.; C     | Oghole                    | Medicinal (female infertility, Guinea worm infections) | [24, 34]|
| *Clusia quandragularis* L.; C          | Ogbiakiiki                | Medicinal (bone fractures) | [3]|

(T: Trees; S: Shrub; H: Herb; C: Climber.)

highest (418: 71%), followed by 85 species (14%) used as food and drinks, 65 species (11%) for other uses while 22 species (4%) were used for magic and witchcraft (Figure 1).

2.1. Food and drinks

Of the recorded plants, 85 were identified as food with most of the parts eaten being leaves, roots, fruits, and seeds. Some plants are fermented and taken as intoxicants; the sap of some others are consumed directly for the same purpose. The various categories of plants used as edibles include:

2.1.1. Carbohydrate

Nine (9) of the recorded plants including Artocarpus altlis, Dioscorea dumetorum, Dioscorea alata, Ipomea batata, Manihot esculenta, Ocryza sativa, Sorghum bicolor, Xanthosoma sagittifolium and Zea mays, are important sources of carbohydrates. Species of Dioscorea and Xanthosoma...
Table 2. List of monocots used by the Yoruba people of southwestern Nigeria, their habits, vernacular names and uses.

| Plant Families, species and their habits | Vernacular names (Yoruba) | Uses | References |
|----------------------------------------|--------------------------|------|------------|
| **Amaryllidaceae**                      |                          |      |            |
| Crinum jagus (Thompson) Dandy           | Ogede odo                | Medicinal (anthelmintics, purgative, abscess, anti-cancer, ulcer) | [26, 33, 35, 36] |
| Crinum glacum A. Chev.; H               | Isu meri                 |      |            |
| **Araceae**                             |                          |      |            |
| Anchomanes differintis (Blame) Eng; H   | Isu ogrisaako            | Medicinal (cold shivers) | [31, 35] |
|                                         | Eego                     |      |            |
| Caladium bicolor                        | Eje-jesu                 | Medicinal (cold shivers) | [31, 35] |
| Caladium calus                        | Isu baka                 |      |            |
| Caladium scandens P. Beauv.; C          | Agamomaa                 | Medicinal (stomach ache, anticancer); cosmetics (body cream) | [11, 26, 33] |
| Pityia striatosa L.; H                  | Oju oro                  | Medicinal (anticancer, Guinea worm infections) | [33, 34, 44] |
| Xanthosoma sagittifolium L. Schott; H   | Koko                     | Food (leaves and tubers) | [32] |
| **Arecaceae**                           |                          |      |            |
| Arecaceae                               |                          |      |            |
| Cocos nusifera L.; T                    | Agbon                    | Food (Fruit, spice); cosmetics (body cream); medicinal (tuberculosis, liver ailments, migraine, dysentery, toothache, hemorrhoid, diabetes, blood tonic); construction (roofing) | [11, 26, 28, 30, 31, 32, 44] |
| Elaeis guineensis Jacq.; T              | Ope-eyin                 | Food (palm oil); alcoholic beverage (emu); medicinal (ulcer, hemorrhoid, menstrual pains, measles, anticancer, diabetes, female infertility, Guinea worm infections); magical (immunity against demonic and spiritual attacks, for divination); cosmetics (body cream and local soap); construction | [10, 11, 24, 27, 28, 32, 33, 34, 36] |
| Raphia mambilisensis Otedola; S         | Alaghanko               | Medicinal (female infertility) | [24] |
| Raphia regalis Becc.; S                 | Eriko                    | Thatching | [41] |
| **Asparagaceae**                        |                          |      |            |
| Asparagus africanus L.; C               | Aluki                    | Medicinal (diabetes) | [28] |
| Agave sisalana Perritine; H             | For making rope | [49] |
| **Cannaceae**                           |                          |      |            |
| Cannabis indica L.; H                   | Ido                      | Medicinal (malaria, Guinea worm infections); seeds used for children games | [34, 37] |
| **Commelinaceae**                       |                          |      |            |
| Amaranthus hypochondriacus (P. Beauv.)  | Godofo                   | Medicinal ( laxatives, skin diseases) | [26] |
| Ananas comosus (L.) Merr.; H            | Ope oyibo                | Food (fruit); beverage (adoyo); medicinal (asthma, purgative, gonorrhea, hemorrhoid, cancer, digestive problem, cough, typhoid, malaria, diabetes) | [9, 26, 28, 32, 33, 37, 44] |
| **Cyanastraceae**                       |                          |      |            |
| **Cyperaceae**                          |                          |      |            |
| Cyperus articulatus L.; H               | Eni-ooire                | Veterinary uses | [38] |
| Mariscus flagelliformis Kunth; H        | Ikeregun                 | Food (spice) | [56] |
| Scleria depressa (C.B. Clarke)          | Labe-labe                | Medicinal (pain relief) | [26] |
| **Costaceae**                           |                          |      |            |
| Costus after Ker-Gawl.; H               | Erike-omade              | Medicinal (Nausea, stomachache, aphrodisiac) | [26] |
| **Dioscoreaceae**                       |                          |      |            |
| Dioscorea alata L.; C                   | Isu                      | Food (Starch); medicinal (hemorrhoid) | [31, 32] |
| Dioscorea bulbifera L.; C               | Isu-emina                | Medicinal (boils, fever) | [26] |
| **Eremospathaceae**                     |                          |      |            |
| Eremospatha wandialiana Dammer ex Becc.; C | Ukan                | Thatching | [41] |
| Laccoperma secundiflorum (G. Mann & H. Wendl.) Kunz; C | Okuku | crafts (for making cane and cane chairs) | [41] |
| Raphia hookeri Mann.; Wended; T         | Apako                    | Alcoholic beverage (emu); medicinal (hemorrhoid, measles); rope | [26, 31, 32] |
| Raphia mambilisensis Otedola; S         | Alaghanko               | Medicinal (female infertility) | [24] |
| Raphia regalis Becc.; S                 | Eriko                    | Thatching | [41] |
| **Eremospathaceae**                     |                          |      |            |
| Eremospatha wandialiana Dammer ex Becc.; C | Ukan                | Thatching | [41] |
| Laccoperma secundiflorum (G. Mann & H. Wendl.) Kunz; C | Okuku | crafts (for making cane and cane chairs) | [41] |
| Raphia hookeri Mann.; Wended; T         | Apako                    | Alcoholic beverage (emu); medicinal (hemorrhoid, measles); rope | [26, 31, 32] |
| Raphia mambilisensis Otedola; S         | Alaghanko               | Medicinal (female infertility) | [24] |
| Raphia regalis Becc.; S                 | Eriko                    | Thatching | [41] |
| **Asparagaceae**                        |                          |      |            |
| Agave sisalana Perritine; H             | For making rope | [49] |
| Asparagus africanus L.; C               | Aluki                    | Medicinal (diabetes) | [28] |
| **Dioscoreaceae**                       |                          |      |            |
| Dioscorea alata L.; C                   | Isu                      | Food (Starch); medicinal (hemorrhoid) | [31, 32] |
| Dioscorea bulbifera L.; C               | Isu-emina                | Medicinal (boils, fever) | [26] |
| (continued on next page)
### Table 2 (continued)

| Plant Families, species and their habits | Vernacular names (Yoruba) | Uses | References |
|-----------------------------------------|---------------------------|------|------------|
| Dioscorea dumetorum (Knuth) Pax.; C    | Easu                      | Food, medicinal (pain relief, malaria, abdominal pain, analgesic, skin diseases, antibilharzia) | [10, 23, 26, 32] |
| Dioscorea rotunda Poir.; C             | Isu-igo                   | Medicinal (measles) | [27] |
| Taccia leontopetaloides (L.) Kuntze; C | Adosu                     | Medicinal (female infertility) | [24] |
| Hypoxiaceae                            |                           |      |            |
| Curculigo pilosa (Schum & Thonn.) Engl.; H | Epakun                  | Medicinal (hemorrhoid, abscess, diabetes, female infertility) | [24, 28, 31, 35] |
| Iridaceae                              |                           |      |            |
| Gladiolus daleni Van Geel; H           | Baka                      | Medicinal (gonorrhea, vulvovaginal candidiasis, hemorrhoid, diabetes) | [9, 28, 31] |
| Irvingiaceae                           |                           |      |            |
| Irvingia galbanensis (AubryLecomte ex O'Rorke) Bail.; T | Oro iro                   | Food, Medicinal (diarrhoea, stomach pains associated with menstruation) | [10, 26, 32] |
| Irvingia grandifolia (Engl.) Engl.; T   | Karakoro                  | Medicinal (ulcer), Timber | [36, 40] |
| Kannaedra galbanensis Pierre; T        | Kakanowo                  | Cosmetics (body cream) | [11] |
| Liliaceae                              |                           |      |            |
| Allium ascalonicum L.; H               | Alabosu elewe             | Food (spice); medicinal (convulsion, dysentery, anticancer, hemorrhoid, scalp infection in children, abscess, female infertility, diabetes, Guinea worm infections); cosmetics (body cream) | [7, 11, 23, 24, 28, 31, 32, 33, 34, 35, 42] |
| Allium cepa L.; H                      | Alabosu onisi             | Food (spice); medicinal (anticancer, diabetes) | [28, 32, 33] |
| Allium sativum L.; H                   | Ayuu                      | Food (spice); medicinal (anti asthma, hypertension, cough, rheumatism, pile, hemorrhoid, anticancer, aphrodisiac, diabetes, Guinea worm infections, malaria, ulcer); cosmetics (body and hair cream); mosquito repellent | [11, 23, 28, 31, 32, 35, 34, 36, 37, 42, 44, 57] |
| Marantaceae                            |                           |      |            |
| Marantchloa cupridata (Roscoe) Milne-Redh; H | Toto                     | Crafts (mat weaving) | [41] |
| Megaphyrium macrostachyum (K.Schum.) Milne-Redh; H | Ghodogi                 | For wrapping food | [41] |
| Sarcophrynium brachystachyum (Benth.) K. Schum.; H | Ewe-iran                | Crafts (mat weaving); for wrapping food | [41] |
| Thalamotococc danielli (Benz.) Benth. & Hook. f.; H | Ewe moimo               | Medicinal (diabetes, emetic, skin infection); craft (mat weaving); food (sweetener); for wrapping food | [23, 26, 59] |
| Musaceae                               |                           |      |            |
| Musa acuminata L.; H                   | Ogode paraanta            | Food (Fruit); medicinal (eczema, hemorrhoid, diabetes, diarrhea, dysentery, epilepsy, goiter, gonorrhea, anemia, infertility); magical (breast enlargement); soap making | [10, 24, 26, 28, 32, 44] |
| Musa paradisiaca L.; H                 | Ogode agbaghe            | Food (Vegetable); medicinal (low sperm count, heart problems, blood tonic, convulsion, pile, burns, hemorrhoid, anticancer, diabetes, malaria, ulcer); magical (resistance against attacks ‘madarikan’); soap making | [25, 28, 30, 35, 36, 37, 44] |
| Myristicaceae                          |                           |      |            |
| Pycnanthus angolensis (Welw.) Warb.; T | Akumu                     | Medicinal (black tongue, cough, fever, skin infections, anti cancer, malaria) | [26, 33, 37] |
| Pandanaceae                            |                           |      |            |
| Pandanus candelabrum P. Beauv.; S      | Akumu                     | Crafts (mat weaving) | [41] |
| Poaceae                                |                           |      |            |
| Arundinaria compressa Engl. & Diels; H | Idi                       | Medicinal (hemorrhoid) | [31] |
| Bamusa vulgaris Schrad. ex J.C. Wendl.; S | Opuru                    | Medicinal (gonorrhea, syphilis, abortifacient, measles, hemorrhoid, anthelmintics, emmenagogue, diabetes); firewood, construction | [23, 26, 27, 28, 31, 40, 44] |
| Cymbopogon citratus (D.C) Stapf.; H    | Koriko oba Ewe tii        | Medicinal (malaria, rheumatism, nervous disorder, yellow fever, jaundice, cough, strains, diaphoretic, mosquito repellent, typhoid fever, hemorrhoid, scalp infection of children, ulcer); beverage | [10, 23, 25, 31, 35, 36, 37, 43, 44] |
| Cynodon dactylon (L.) Pers.; H         | Koriko barnbu             | Medicinal (hemorrhoid) | [31] |
| Echinochloa pyramidalis (Lam.) H. Hitchc. And Chase; H | Sabe                    | Veterinary | [47, 63] |
| Elaeis indica Gaertn.; H               | Gbogi                     | Medicinal (poison and snakebite antidote) | [10] |
| Oryza sativa L.; H                    | Iresi                     | Food (starch) | [32] |
| Oxytenanthera abyssinica (A. Rich.) Munro; S | Parun papa               | Medicinal (scalp infections in children) | [35] |
| Pennisetum purpureum Schum.; H        | Egnu                      | Medicinal (hemorrhoid); Forage (sheep and goat) | [31] |
| Saccharum officinarum L.; H            | Iroke                     | Food (stem); medicinal (cancer, headache, joint pains, diabetes) | [28, 32, 33, 42, 44] |
| Sorghum bicolor (L.) Moench; H        | Paruporo baba             | Food (grain); food colorant (leaf); medicinal (malaria, fever, skin infections, blood tonic, gonorrhea, syphilis, diabetes, anti-sickling, female infertility); for making broom | [9, 23, 24, 28, 30, 32, 44] |
| Zea mays L.; H                        | Agbado                    | Food (seed for starch); alcoholic beverage, making fire (hunk); medicinal (hemorrhoid, urinary troubles, diabetes, ulcer) | [28, 31, 32, 36, 42] |

(continued on next page)
Sagittifolium is used to feed livestock especially goats and sheep. It can also be fermented to make local gin. Other indigenous vegetables such as Citrus aurantifolia (L.) Osbeck are also sometimes cooked with the seeds of Phaseolus vulgaris, which are used in the preparation of different soups. Among all the species, Solanum scabrum is the most underutilized according to a survey by Adewoyin et al. [65] where only 9.2% of respondents consume the vegetable. Abelmoschus esculentus and Solanum lycopersicum are used in the preparation of different soups. Virtually all the species are cooked along with ground seeds of Cucumis melo. Daus carota L. is a popular root vegetable among the Yorubas but are not indigenous and rarely cultivated in the region, as most of it is brought in from the northern part of the country. Others in this category include Brassica oleracea and Lactuca sativa which were introduced more recently.

2.1.2. Vegetables

Even though vegetables are an integral part of meals in southwestern Nigeria, a substantial number of vegetables are not cultivated but growing in the wild making them unavailable to many people [21]. This menace has led to the underutilization of many of these indigenous vegetables. Ajao et al. [22] have reported the invaluable health advantage of Clerodendrum volabile, and significant antioxidant properties of other indigenous vegetables such as Crassocephalum crepidioides, Solanum macrocarpon, and Trichosanthes cucumerina have also been reported [21]. Twenty-two (22) species spread across 13 families are eaten as vegetables in Yoruba land.

The family Asteraceae is represented with five species, Solanaceae with four species while Amaranthaceae, and Cucurbitaceae are represented with three species each, Malvaceae and Solanaceae with two species each, while each of Areaceae, Basellaceae, Brassicaceae, Cucurbitaceae, Portulacaceae, Poaceae, and Verbanaceae are represented with one species. All the recorded species are consumed as leafy vegetables except Saccharum officinarum where the stem is consumed and Telfaria occidentalis (both the seeds and leaves are consumed). The consumption of the leaves of Telfaria occidentalis was copied from the Ibo culture as Yorubas primarily eat the seeds. It is noteworthy that only the young leaves of Xanthosoma sagittifolium (root is consumed as starch) are deemed good enough to be consumed as vegetables and older leaves are never eaten. Among all the species, Solanum scabrum is the most underutilized according to a survey by Adewoyin et al. [65] where only 9.2% of respondents consume the vegetable. Abelmoschus esculentus and Solanum lycopersicum are used in the preparation of different soups. Virtually all the species are cooked along with ground seeds of Cucumis melo. Daus carota L. is a popular root vegetable among the Yorubas but are not indigenous and rarely cultivated in the region, as most of it is brought in from the northern part of the country. Others in this category include Brussica oleracea and Lactuca sativa which were introduced more recently.

2.1.3. Fruits

Thirty-two species from 20 families are embraced by the Yorubas as fruits. Fabaceae with 6 species, provides the highest species in this category, followed by Cucurbitaceae (5), Rutaceae (4) and Anarcardiaeae (3). Many of these fruits have great commercial value as they are cultivated in orchards around the region and sold to other parts of the country or exported. The commercial importance of the fruit of Anacardium occidentale has drastically reduced in the South-west due to the more lucrative sales of its seed used in the production of cashew nut shell liquid (CNSL), an important additive in the petroleum industry. It is important to note that Citrus aurantifolia is only used for medicinal purposes. Some of the fruits are consumed directly while others are processed before consumption, for example, Synepalum dulcificum is well known for its characteristic sweet berries which are consumed directly while the fruits of Irvingia gabbonensis are used for making soup.

2.1.4. Seeds

Of the recorded plants, the seeds of only 6 species are eaten which are Anacardium occidentale (Anacardiaeae), Phaseolus vulgaris (Fabaceae), Cucumis melo (Cucurbitaceae), Blighia sapida (Sapindaceae), Vigna unguiculata (Fabaceae) and Curcubitapex (Cucurbitaceae). Seeds of Cucumis melo and Curcubitapex are used in the same manner; seeds are ground and used to cook soup with or without varieties of leafy vegetables, but the former is more popular and of more commercial
importance. The seeds of *Anacardium occidentale* are roasted, cracked and the inner succulent part eaten as nuts, a viable rival of the nuts of *Arachis hypogaea*. Among all these, species representing the Fabaceae family are of the greatest commercial importance, which of course is expected because Fabaceae is the second most economically important plant family in the world [15].

### 2.1.5. Spices and food colorant

Spices are used to describe plant parts used as condiments, sweetener, and colorant or to garnish food. There are 22 species in this category belonging to 14 families with Liliaceae (3) having the highest representation though all the three species belong to the genera Allium. Even though some of these species are rarely used because of the advent of synthetic spices, many of them are still very much in use, for example, *Purica biglobosa*. The use of the oil of *Elaeis guineensis*, *Cocos nucifera* and *Arachis hypogaea* is common to everybody while no food is considered good enough without adding fruits of *Allium cepa*. The two species of Solanaceae *Capsicum frutescens and Capsicum annum* are integral parts of the Yoruba soups which is sometimes regarded as peculiar to only the Yorubas. The seeds of *Aframomum melegueta* are rarely used as spices as they are more useful for medicinal purposes while *Sorghum bicolor* is a common food colorant that is added to beans and maize in making pap (Og) to give it an attractive brownish color. *Laurus nobilis* is another very common plant used as a spice to garnish jollof rice.

### 2.1.6. Beverages

Alcoholic and non-alcoholic beverages are prepared from 7 species across 5 families. The most popular among alcoholic beverages is palm wine (emu), common to all southern parts of the country and it is the sap collected from the stem of *Elaeis guineensis* and *Raphia hookeri*. It is allowed to ferment in some cases to increase its intoxication while youths add fruits of *Datura metel* to further increase its intoxication. The other popular alcoholic beverage is prepared by fermentation of the seeds of *Zea mays*. *Ananas comosus* is also macerated in water to produce a refreshing non-alcoholic beverage (adoyo) which is sold in marketplaces, while leaves of *Cymbopogon citratus* are cooked in hot water to prepare local tea. The tea is mostly taken for medicinal purposes. *Arachis hypogaea* is mashed and squeezed to produce milk, which is diluted and sold as a beverage. The most commercially important plant in this category is *Theobroma cacao* which is used for the production of chocolates and allied products. It is also an important cash crop for foreign exchange earnings.

### 2.2. Medicinal plants

A total of 418 species from 96 families are used as medicinal plants in southwestern Nigeria. This figure partly shows a wide usage of plants as medicine in the region since the ethnomedical research in southwestern Nigeria has focused mainly on medicinal uses of the plant. Kunle et al. [68] had concluded from their study that Yoruba ancestors stumbled upon the use of plants as medicine through trial and error. However, Temitope and Ibrahim [3] identified various means through which informants claimed to have derived their knowledge which included vision and dreams, animals and contacts with supernatural beings. It is important to note that superstitious beliefs are attached to some of the medicines. For example, Temitope and Ibrahim [3] reported that some plants must be collected at certain times of the day for them to be potent while Mukaila et al. [69] reported that some herbal preparations are said to lose their potency once their containers touch the floor, therefore must be suspended. The usage of plants as medicine in this review is grouped into the following categories of diseases and treated accordingly: digestive, respiratory, reproductive and urinary, circulatory, degenerative, nervous, dermatological and veterinary uses. Other ailments were treated separately including hemorrhoids, toothache, sickle cell, etc.

### 2.2.1. Digestive diseases

The digestive ailment represents diseases such as colic, constipation, diarrhea, dysentery, heartburn, indigestion, vomiting and ulcers. For these groups of illnesses, 141 of the recorded plant species are used as remedies. Given this vast amount of natural remedy for diseases in this category, it is surprising that they still remain one of the major killer diseases in Nigeria. For example, diarrhea is ranked 4th among the top 10 causes of death in Nigeria [70], and about 70–90% of the Nigerian population live with various ulcers [71]. Although *Aloe vera* is well known for its use as a cure for skin diseases in southwestern Nigeria, a decoction of its leaves is also taken twice a day for various ulcers. Lawrence et al. [72] have reported high antimicrobial activity for the ethanolic and methanolic extract of *Aloe vera* supporting its folkloric use. The use of *Aloe vera* for purposes other than skin problems is not peculiar to only the Yorubas as three *Aloe* species were reported to be used as remedies for digestive problems by the Basotho people of South Africa [15].

Similarly, the anti-ulcerative potential of *Spondias mombin*, *Ficus exasperata* and *Gossypium barbadense* have also been reported [73, 74]. Another important plant in this category is *Elytraria marginata* which has been reported to have substantial antimicrobial activity against ten different regular hospital microbes [75]. Noticeably, many of the plants eaten as leafy vegetables are used as remedies for minor stomach disorders and indigestion. Some other plants in this category include *Celastus indica*, *Costus afer*, *Cnida jagus*, *Holarrhena floribunda*, *Lannea acida*, *Kalanchoe pinnata*, and *Tridax procumbens*.

### 2.2.2. Respiratory diseases

Respiratory diseases include chest pains, colds, sore throats, coughs, malaria, and typhoid fevers. 132 plant species are used in this category and only a few of them have been analyzed pharmacologically despite the fact that respiratory diseases account for 39% of Nigerian deaths [70]. Some of the plants in this category that have been tested pharmacologically include *Anacardium occidentale*, *Mangifera indica*, *Entada chlorantha*, *Asadirachta indica*, *Khaya senegalensis* and all the three *Citrus* spp. present in the region [76, 77, 78, 79, 80]. They were all found to be effective against the tested microbes.

### 2.2.3. Reproductive and urinary tract infections

The reproductive and urinary tract infections (UTIs) are grouped together in this review. This is because, in the process of collecting information on the survey, virtually the same set of plants are used for treating both ailments. Reproductive problems include difficult labour, infertility, miscarriages, menstrual pains, impotence, low sperm count and sexually transmitted diseases (STDs), while urinary tract infections are used to refer to as kidney and bladder problems. A total of 138 plant species are used as remedies, with the majority used for female reproductive problems. This is as a result of the general belief that infertility is said to be associated with women-folk in African traditional medicine [15]. *Corchorus olitorius* is popularly taken either cooked or macerated with water to ease child labor while *Cassia fistula*, *Moringa oleifera* and *Zingiber officinale* have been reported to have substantial anti-inflammatory activities, thus supporting their folkloric uses as remedies for pains associated with menstruation in women [81]. Among the plant species that are used for male reproductive problems, *Anthocleista djalonensis*, *Byrsonicarpus coccineus*, and *Microdesmis puberula* are embraced for male impotence while *Musia paradisiaca* is used to boost low sperm count. Out of the plants in this category, more than 50% (82) are used for STDs, which might be as a result of the prevalence of the diseases among adults in the region. *Adansonia digitata*, *Citrus colocynthis*, *Laportea ovifolia*, and *Uvaria afzelii* are used for bladder diseases and kidney stones.

### 2.2.4. Circulatory diseases

Sixty-four (64) plants are used to treat circulatory problems such as those related to improving blood circulation, blood cleansing, increment
in blood iron content, anemia, hypertension and problems associated with the heart. This list does not include plants used as anti-sickling agents which will be treated separately. The use of herbs for diseases in this category is one of the most common because diseases in this category require continuous treatments making orthodox treatments extremely expensive. Even patients who begin treatments in hospitals sometimes return home to continue with herbs [58, 69]. For example, orthodox hypertension treatments might require nonstop use of some expensive drugs, and chronic anemia requires transfusion of several pints of blood. Popular among plants in this category are Witherbera indica and Telfaria occidentalis. The latter is macerated with water or malt drinks and mixed with milk to be taken as many times as possible while the decoction of the former is taken to rapidly improve blood level. In fact, Witherbera indica is called ‘ewe eje’ translating to blood leaf. A decoction of the stem bark of Theobroma cacao is also used for the same purpose. Some plants consumed as leafy vegetables are also used here including Corchorus olitorus, Cucurbita pepo, Solanaceae biparvae, Solanum nigrum, and Taraxacum officinale. Apart from these plants, one striking similarity of other plants in this category is their wine or red color (blood-like color) after preparation which could be one of the reasons guiding the choice of use. Though their effectiveness cannot be doubted there has been very little scientific evidence to prove the activity of plants in this category. The following plants used in the treatment of hypertension have been reported to exhibit hypotensive properties by various researchers thus supporting their folkloric uses as anti-hypertensive agents; Hibiscus sabd-darrifff [82, 83], Allium sativum [84], Musanga cerropoides [85] and Phyllanthus amarus [86].

2.2.5. Degenerative diseases

Degenerative diseases include arthritis, rheumatism, diabetes, and cancer. 182 plants species are used as remedies for diseases in this category. Diabetes and cancer (mainly breast cancer) are the most common diseases in this category, of which some of the plants implicated have been scientifically proven. Ethanolic extracts of Allium sativum, Aristolochia rings and aqueous extract of the bark and root of Azadirachta indica elicited significant antidiabetic potentials [87, 88, 89, 90]. The seed extract of Caesalpina bonduc also showed significant anti-hyperglyceremic activities as it was reported to block glucose absorption in rats [91]. The antitumor activity of allin, the active metabolite in Allium sativum on breast and prostate cancer has also been supported with pharmacological data [92]. Furthermore, Curcuma longa is also found to be effective in abating various cancers [93], as well as genetic damages caused by the exposure of the human body to radioactive substances [94]. The anti-arthritic activity of the aqueous extract of Phyllanthus amarus, one of the major plants used by the Yorubas in the treatment of arthritis has also been supported with pharmacological data [95]. Interestingly, the plant is also used for the same purpose by the indigenes of Amazonia and Brazil [96].

2.2.6. Nervous system disorders

Diseases in this category include nausea, giddiness, epilepsy, convulsion, headaches, psychosis, insomnial, and mental illnesses. Fourty (40) plants are used for this purpose, these include Alstonia boonei, Carica papaya, Olatx subspecies, Rauwolfia vomitoria (also used for the same purpose in Ghana [97]) and Xylia aethiopica are used for mental disorders. While 9 plants are used for headaches, insomnia is treated with 10 plants, though 3 of them (Artocarpus altilis, Morus mesozygia and Rhigio-carpus) are said to be too strong as a sedative, as such they are only used to sedate people suffering from mental disorder. Twenty (20) plants are used to treat convulsion and epilepsy and unsprisingly 5 of the plants are Bidens pilosa, Bryophyllum pinnatum, Danielli oliveri, Khaya senegalensis and Tetrapleurera tetraptera are also used in Cameroon for the same purpose [98]. The 5 medicinal plants were also shown to protect 50%-75% of tested mice against pentyleneetrazol (PTZ) and single twitch-response (STR) induced convulsions [98]. Cooked fruits of Tetracarpidium conophorum are eaten to prevent giddiness.

2.2.7. Dermatomal uses

This includes various skin problems like blisters, boils, bruises, burns, cracked skin, eczema, leprosy, pimples, snake-bite, sores, swellings, warts, wounds, hemostatic and Guinea worm. This list also includes plants used as cosmetics. A total of 234 plants are used in this category representing the largest number probably because skin diseases are numerous and can be very persistent that people tend to try out varieties of remedies. Just like in many other ethnic groups Aloe spp, are one of the most important in this group and its gel has been proven to help the skin survive frostbite injury [99] and reduce skin damage due to radiation treatment [100]. In the same manner, the leaf extract of Azadirachta indica was found to be very effective for boils and blisters [101]. Other plants mentioned here which have been scientifically proven include Curcuma longa [102], Monordica charantia [103] and Portulaca oleracea (used for boils in Ghana) [104, 105]. Several plants are used as cosmetics and some of them are age-specific, for example, the oil of Pterocarpus osan is used as a body cream for newborn babies, so important to the Yorubas that it is used as means of praying for barren women. Oils commonly used amongst the Yoruba for skin adornment include ‘adin eway’, ‘adin agbon’, and ‘ort’ which are made from the fruits of Elaenia guineensis, cocos Musifera, and Vitellaria paradoxa respectively [106]. The ground fruits of Eugenia carophyllata are mixed with hair cream to induce rapid hair growth.

2.2.8. Hemorrhoid, pile, backache, and aphrodisiacs

These are grouped together because they are generally treated with the same herbs by Yoruba people. In fact, it is very common in southwestern Nigeria to use the same herbal concoction for all these complaints. A total of 149 plants are used for this purpose. The wide array of plants in this category is due to the fact that it is very rare to use orthodox drugs for these ailments, especially hemorrhoids, which might require a surgery called hemorrhoidectomy. Herbal concoctions for these ailments are sold at every nook and cranny in southwestern Nigeria. Some plants listed here as an aphrodisiac are said to increase the level of testosterone in test organisms in various studies, for example, Spondias mombin has had its folkloric uses supported with pharmacological data [107] and Sphenocentrum jollyanum [108]. In a previous study [18], 209 medicinal plants are reported to be used as an aphrodisiac and sexual dysfunction in sub-Saharan Africa, of which 28 species are from Nigeria. It is noteworthy that despite the lack of scientific support for most of the plants used for the treatment of hemorrhoids, 6 of them are used for the same purpose by the medieval Persians [109]. The plants are Aloe vera, Citrullus colocynthis, Citrus medic, Occimum basilicum, Ricinus communis, and Sena tora.

2.2.9. Sickle cell disorder

Though there are presently public campaigns and awareness aimed at educating the public on how to eradicate sickle cell disease in the Nigerian population, there are still a large number of people living with sickle cell in southwestern Nigeria. People suffering from the ailments depend mostly on herbal medicine to manage the disease because the orthodox drugs such as hydroxyurea are expensive and also elicits toxic effects on continuous usage. Thirty-eight (38) plants are currently used to manage this disease by the Yorubas. Plant species such as Zanthoxylum zanthoxyloides have been proven to have considerable anti-sickling activity by reducing sicking of red blood cells [110] and also found to be safe in the toxicity studies carried out by [111], thus lending credence to its folkloric usage. Sunday et al. [112] reported that a polyherbal formula containing extracts from Eugenia carophyllata, Piper guineense, Pier-oquasia, and Sonora johimbae was developed to develop a drug (NHOQ-01) used for the same purpose. Other plants in this category include Alstonia boonei, Anogeissus leiocarpus, Newhoodia laevia, Rauwolfia vomitoria, Uva-ria Chamae and Xylopia aethiopica.

2.2.10. Other medicinal uses

Nine (9) plants are used to treat eye problems; prominent among them is Ageratum conyoides which leaf juice is applied directly to the eyes for conjunctivitis. A decoction of Ficus capensis is taken to increase
lactation in nursing mothers. While thirteen (13) plants are used in the treatment of toothache, a decoction of one or more of Cissus quadrangularis, Ficus sycomorus, and Peperomia pellucida is taken after bone fracture. Additionally, in order to relieve circumcision pain in little children, a decoction of Ceroathea sesamoides is administered. Lippia multiflora is used to cure sleeping sickness and the leaf of Nicotiana tabacum or Ocimum basilicum is gently squeezed and stuffed in the nose to control epistaxis. The leaf stalk of Jatropha multifida is used to wash off the coated tongue, and a decoction of Colocasia esculenta leaf is used to bathe premature babies in order to strengthen them.

Similarly, 13 species belonging to 10 families are taken as stimulants, and these include some of the most commercially important crops in Yoruba land such as Cola spp. and Theobroma cacao of the family Sterculiaceae. The leaves of Carica papaya and Nicotiana tabacum are dried and ground for sniffing or to make cigarettes. Carica papaya is an adulterant of Nicotiana tabacum for this purpose. Coffea canephora is the most cultivated species of coffee in southwestern Nigeria. The unripe fruits of Coffea canephora, when boiled with herb and dried in the sun, are used as a masticatory and stimulant. The coffee produced from the seeds is consumed as a stimulant, although the taste is considered inferior to the widely used Coffee arabica [62]. Despite the restrictions on the use of Cannabis sativa in Nigeria, it remains very popular, widely used and cultivated in a large scale. Its leaves are dried, wrapped and smoked; in some cases, the dried leaves are either eaten raw or cooked with regular food. Datura metel is another stimulant in wide use. Its fruit is soaked in local palm wine or other alcoholic drinks to increase intoxication or sometimes cut into pieces and cooked with food.

In the face of the growing malaria parasite resistance to varieties of remedies, measures aimed at prevention have been advocated and seem to be better than cure. Plants provide an environmentally friendly alternative as side effects like irritation of the eyes, nose, and throat are consistent with the chemical mosquito repellants. Fifteen plant species are reported to be used as mosquito repellants among Yoruba people. The most common of them is Cymbopogon citratus which is planted in the surroundings to deter mosquitoes. Ocimum gratissimum has been proven to have significant mosquito repellent activity when its juice is topically administered [113]. Other plants in this category are Ageratum conyzoides, Allium sativum, Arenga pinnata, and Hyptis suaveolens, Lantana camara, Moringa oleifera, Syzygium aromaticum, Tridax procumbens and all the species of Citrus available in the region.

### 2.2.11. Veterinary uses

Seventy-five (75) plant species are used in treating various animal diseases. Several methods of application are also used, for example, Ficus exasperata is simply used as beddings for animals that are disturbed by mites while the water extract of Amaranthus spinosus is used to dress the wound of animals. Fresh leaves of Spondias mombin are given to ruminant animals to expel retained placenta while mouth ulcer is treated with ground fruits of Capsicum frutescens [114]. Noticeably, the same plants are used for diseases that are common to man and animals. For example, formulations of Vernonia amygdalina, Ocimum gratissimum and Telfairia occidentalis are used for the treatment diarrhea as well as constipation and hepatoprotection, respectively in sheep and human beings [115]. To cure Newcastle disease in poultry animals, powdered fruits of Capsicum frutescens and Capsicum annum are added to drinking water while fruits of Adansonia digitata are ground to powder and mixed with some feed to cure fowl cholera [38]. Burnt ash of Nicotiana tabacum leaves is rubbed into the feathers of poultry birds affected by lice while fruit juice of Citrus medica is used to treat worm infestation also in poultry birds [116].

### 2.3. Other uses

These refer to general uses of plants that are neither medicinal nor food.

#### 2.3.1. Clothing and dyes

The basic plant species used for clothing in southwestern Nigeria is Gossypium hirsutum. The dried fruit of the plant is popped open, spurned and thinned with local implements to make fabric and the fabric made into clothing. There are two special clothing peculiar to the Yorubas which are ‘aso-oke’ and ‘adire’ meaning ‘tie and dye’ and they have remained relevant till today even in the face of trending western clothes. In fact, the former is presently used for very important occasions like weddings and coronations of Chiefs and Obas (kings). To increase the market value of these plants, plant-based dyes are used to make attractive designs on them. Nine (9) plant species used for this purpose include Annona mannii, Bixa orellana, Baphia nitida, Cyanium cordifolium, Harungana madagascariensis, Lawsonia inermis, Lonchocarpus cyanescens, Pierocarpus erineus, Pierocarpus osun, Pierocarpus soyauxii and Rothmannia hispida. The most important ingredient in the making of ‘adire’ are the dyes, and the most frequently used plant as dye is Lonchocarpus cyanescens.

#### 2.3.2. Soap and oral hygiene

The leaves and skins of Musa spp. are burnt into ash and the oil of Vitellaria paradoxa is added to produce local soap (Ose dudu), a multipurpose soap used for washing and bathing. The oil from the kernel of Elaeis guineensis is also used to produce soap in industries. Dried fruits of Luffa cylindrica is used as an organic sponge for bathing and washing kitchen utensils. Husks of Cocos nucifera and leaves of Ficus exasperata are strictly used for washing kitchen wares most especially cooking pots. Despite the wide acceptance of toothbrushes for oral hygiene, the use of chewing sticks is still very common among the Yorubas. Ten (10) plant species are used as chewing sticks for oral hygiene and sore throat which are: Azadirachta indica, Distemonanthus benhamianus, Massularia acuminata, Prospis africana, Terminalia schimpertiana, Vernonia amygdalina, Xylopia aethiopica, and Zanthoxylum zanthoxyloides. Massularia acuminata is most popularly used and come with significant commercial importance as it is hawked and sold in markets. It is important to note that extract from Azadirachta indica has been proven to inhibit the growth of Streptococcus attached to the tooth surface as well as bacteria associated with saliva [117].

#### 2.3.3. Brooms and ropes

The midrils of palm fronds (Raphia hookeri) and the stems of Sorghum bicolor var. technicum are the major plant species used in the production of brooms in southwestern Nigeria [118]. The long brooms called ‘igbale’ are used in sweeping and removing cobwebs, while there are short brooms called ‘ihele’ specifically made for the preparation of one of the most popular Yorubas soup ‘ewedu’ (Corchorus olitorius). Acacia ataxacantha, Adansonia digitata, Agave sisalana, and Raphia hookeri are used in making ropes for purposes such as tying brooms and firewood and sometimes as emergency fishing lines. Ropes are made by twisting or plaiting plant parts which could be leaves as in Agave sisalana and Raphia hookeri [118] or inner barks as in Adansonia digitata. Though most species of plants used to make mats are also used as ropes. However, they are rarely used due to their commercial importance in mat making. Apart from the use of Raphia hookeri in making ropes, the medicinal uses of the plant for the treatment of ailments, most especially diabetes, has been reported [118].

#### 2.3.4. Mats, hats and bags

The long leaf stalks of Marantochloa cupidata, Pandanus candelabrum, Sarcophyllum brachystachyum, and Thaumatococcus danielli are used in making mats. The most widely used is Thaumatococcus danielli. The mats are of different sizes, colors, and qualities as some are used to cover small outdoor huts in houses and hotels, while others are used for decorating traditional wedding receptions and for sleeping. The materials are also made into hats and bags and have seen increasing patronage over the years.
2.3.5. Mortar and pestle

Bascom [32] reported pounded yam to be one of the most important Yoruba foods and it still remains the same to date. Wooden mortar and pestle are required for the preparation of this dish. They are made from the stem of tree species including Dialium guineense, Erythrophleum suaveolens, and Vitellaria paradoxa. The stems are cut down, dried and shaped into the form of a mortar and pestle.

2.3.6. Cane

Only Laccosperma secundiflorum is recorded for this purpose, and it is mainly used as canes in schools and homes for corporal punishment.

2.3.7. Local containers

Of great importance is Crescentia cujete and Lagenaria siceraria used as calabash and gourd respectively [119]. Their dried fruits are harvested and processed by experts called ‘afrogba’. Small fruits of Crescentia cujete are used in holding water or the alcoholic wine obtained from the sap of Raphia hookeri (palm wine) while larger ones can be used to fetch water and wash clothes. Large fruits of Lagenaria siceraria serve as big containers for holding a large quantity of water or palm wine while the small fruits are used for holding medicine prepared as powders.

2.3.8. Musical instrument

Though the leaf stalk of Carica papaya is used as flute by children producing rough musical sounds, the major Yoruba musical instruments are the drums made from tree trunks. Oladosu [51] opined that drums are an integral part of the Yoruba culture and the drums are said to be spiritual as much as cultural in nature, therefore specific trees are used to produce specific drums. In general, three plants are used to produce the majority of the drums namely; Cordia millenii, Okoubaa aubrevillei and Distemonathus benthamianus. The trees are cut, and the trunks made into a cylindrical shape opened at both ends, and the ends are covered with dried and tanned animal hides. The drumsticks are made from Laccosperma secundiflorum but sometimes they are made from rubber. Another important musical instrument (Sekere) is made by tying several cowries around the dried medium-sized fruit of Lagenaria siceraria. Shaking this instrument produces a special sound and is considered very important in the Yoruba music world.

2.3.9. Construction

Almost all tree species are cut and sawed to be used as timbers for the purpose of construction and making furniture. Notwithstanding, Bamusa vulgaris is very important in this category because it is a cheap means of scaffold in construction works in rural areas in southwestern Nigeria, it can be obtained for use in nearby bushes at no cost. For roofing, the trunks of Cocos nucifera and Elaies guineensis are used and said to be more durable than most other alternatives. The leaves of Eremospatha wendladiana and Raphia regalis are used for thatching temporary huts or shades and also for installing temporary outdoor bathrooms.

2.3.10. Coronation

In the process of installation of kings and other dignitaries in Yoruba land, the leaves of Newbouldia laevis are a compulsory part of the ceremony, a branch holding few leaves is cut and hanged on the ear during the coronation. In some places, the leaves of Pseudoporpandias microcarpa are substituted for it, while in some other places like Egba land (Abeokuta), a specific Newbouldia laevis plant must be used during the traditional rite for the installation of the king. Still, some others can be used for other dignitaries.

2.3.11. Paints

The roots of Mucuna pruriens are macerated in water for few days to give a black solution that is used for darkening blackboards in schools.

Leaves of Gliricidia sepium and Momordica charantia are also used for the same purpose when ground with charcoal. Lawsonia inermis is used with chalk to design palaces of kings, though this practice is outdated.

2.3.12. Educational aid

The seeds of Chrysophyllum albidium are used as instructional materials in elementary mathematics of addition and subtraction.

2.3.13. Fuel

Virtually all the species of plants are used in making domestic fires for cooking. Shrubs and trees are mostly used with the exception of palm plants such as Cocos nucifera, Elaies guineensis and Raphia hookeri which are known to produce excessive smoke which may be hazardous. A by-product of the production of kernel oil from Elaies guineensis called ‘oguso’ is added to the fire to make the wood burn efficiently. The shaft of Cocos nucifera and the dry husk of Zea mays are used for the same purpose. Though the use of firewood for domestic cooking has reduced drastically over the years, the consumption of firewood did not reduce due to the fact that the majority of commercial bread bakeries still make use of it in large quantities. Wool from Gossypium hirsutum is rolled to make a short wick which is placed in small clay material called ‘atupa’ and fueled with the oil of Elaies guineensis to light up the room, though this is no more in practice, it is still used for ritual purposes among the people of Osogbo in Osun State during the annual Osun Osogbo festival.

2.3.14. Games

The dried seeds of Canna indica and Caesalpinia bonduc are used for gaming purposes, where the former is used by children and the latter by adults. Caesalpinia bonduc is used also in one of the most popular indigenous Yoruba games (ayo olopon). The game has become a symbol of the Yoruba people making the seeds of the plant of commercial importance. The dried fruits of Citrus sinensis are used to play football by children.

2.3.15. Food packaging

Species with large leaves including Cola nitida, Megaphrynium macrostachyum, Tectona grandis, and Thaumatococcus daniellii are used for the wrapping of food. Among these, Thaumatococcus daniellii is the most popular and is recently planted for commercial purposes. It is popularly used in foods such as ‘moimoi’ made from ground seeds of Phaseolus vulgaris, ‘eko’ made from Zea mays and a type of local rice called ‘ofada’.

2.3.16. Preservation

The dried leaves of Theobroma cacao are used to preserve Cola spp. meant to be transported through long distances. Various Musa spp. are planted with young Theobroma cacao plants for the purpose of protecting the young plants, though they are later uprooted when the cocoa reaches maturity.

2.3.17. Fish poison

Entandrophragma angolense, Olax gambecola, and Rauvolfia vomitoria are used by fishermen to poison fishes so they float and are easily caught. It is a popular belief among the fishermen that the plants are not poisonous to humans though it has not been proven scientifically.

2.3.18. Cheese making

The leaf juice of Calotropis procera is the major coagulant used in cheese making. Ibhaze et al. [120] reported other natural extracts that could replace Calotropis procera for this purpose to include unripe pawpaw fruit extract (Carica papaya), Moringa seed extract (Moringa oleifera) and Soursop fruit extract (Annona muricata) but these have not been explored.
2.3.19 Religious

Mature stems of *Musa* spp. are placed in front of churches during harvest celebrations or Bazaars. Also, the fronds of *Raphia hookeri* are used to decorate churches and make cross necklaces on palm Sundays. The tree itself is wrapped with white clothes and surrounded by its fronds by traditional worshipers in the region as recognition and symbol of the Orunmila deity by its devotees.

2.4 Magic and witchcraft

A very little work has been done on the use of plants for magic by the Yoruba people. A total of twenty-two (22) plants belonging to fourteen (14) families have been recorded to be used for magic. Seeds of *Croton penduliflorus* are used as atonement for a man who fell during sexual intercourse with a woman who is trickily spelt with the strange illness to curb promiscuity. Although the seeds are poisonous when ingested in large quantity, it is alternatively, ground seeds of *Aframomum melegueta* is poured in dry gin and taken. A common Yoruba practice is visiting traditional oracle custodians for divination, and for this purpose, the custodian uses split fruits of *Cola acuminate* or 16 seeds of *Elaeis guineensis* called ‘ikin’. In order to stop rainfall, the leaves of *Colocasia esculenta* are burnt with other non-plant materials and blown into the atmosphere. Dry leaves of *Adenopus breviflorus* and *Ficus thonningii* are ground, mixed with local soap and used to bathe twice a day for goodwill, success, promotion, and seduction. A woman who desires a male child is given soup made from ground fruits of *Glyphae brevis*.

In contrast, leaves and fruits of *Trema orientalis* are boiled in water with some other non-plant material to facilitate the disappearance of people. For escaping the repercussion of an act, burnt leaves of *Hannoa undulata* is mixed with cold pap and drunk. The fruits of *Nigelia africana* are used to rub the breast to increase breast size, while *Sonneo abyssinicus* is used in wars to paralyze enemies. It is cultural in Yorubaland to belief that setbacks and deaths are caused by witches and demonic spirits and the following plants: *Ageratum conyzoides*, *Croton zambesicus*, *Elaeis guineensis*, *Erythrophleum suaveolens*, *Milicia excels*, *Musa paradisiaca*, *Newbouldia laevis*, and *Tetrapleura tetraptera* are used as protection against such occurrences. *Erythrophleum suaveolens* is especially important in this category as it is believed that witches are allergic to every part of its fruit. An equal number of seeds of *Ageratum conyzoides* and *Aframomum melegueta* (9 for male, 7 for female) are swallowed without water for protection against spiritual attacks. Dry pods of *Tetrapleura tetraptera* are burnt and the powder poured on burning coal, it is believed that the smoke will chase witches and evil spirits away.

3. Materials and method

3.1 Study area

Yoruba is an ethnic group occupying the southwestern part of Nigeria (Figure 2), and with reasonable presence in other nations such as the Republic of Benin, Togo, Cuba, and few Caribbean countries [121]. The total population of the Yorubas is estimated at 40 million with over 90% in Nigeria, and their language is basically Yoruba with different locality within the region speaking variants of the language [2]. Their culture of sculpture, pottery, beadwork, blacksmith, and wood carving was well discussed by Phoebe [122]. In Nigeria, they are found around the rainforest region with some derived savannah and are bordered in the south by the Atlantic Ocean. Due to this, there are a vast diversity of plant species in the region for different usages as reported in this study.

3.2 Methods

The information used in this review was based on published and unpublished academic resources including research articles, books, online media, theses (published and unpublished) and dissertations. The published information was retrieved and downloaded from online databases including Google Scholar, Science Direct, Scopus and PubMed. Search words and phrases used include “food plants”, “Yoruba plants”, “medicinal plants”, “plants used in southwestern Nigeria”, “Nigerian useful plants” in articles published up to April 2021. The search identified 206 literature references 27 of which were duplicates. The remaining 179 literature references were subjected to eligibility tests and 31 were removed because the plant uses recorded were not peculiar to the area under review. Therefore 141 published literatures and one unpublished dissertation were used in this review. Plant families were quoted according to APG IV family circumscription [123] and plant names were listed following the International Code of Nomenclature for algae, fungi, and plants (ICN) using the plant list website (www.theplantlist.org). Plant uses are categorized as previously reported [15]. The uses are grouped into four categories including (i) medicinal; (ii) food and drinks; (iii) magic and witchcraft, and (iv) other uses. Author citations of the plants listed are included in the Tables of results and are not repeated elsewhere.

4. Conclusion

This review presents for the first time, all known uses of plants by the Yoruba people of southwestern Nigeria. A total of 493 species from 99 families of angiosperm comprising 65 monocots and 428 dicots are used for purposes such as medicine, clothing, food, crafts, etc. Fabaceae is the family with the highest number of species with 72, other well-represented families include Euphorbiaceae (32), Malvaceae (30) and Asteraceae (25). As expected of a rainforest region, trees are the most prevalent plant habit making up 36.5% of the habit of all recorded plant species, followed by herbs (34.1%). A substantial number (418) of these species are used for medicine, suggesting that most studies have focused more on the use of plants as medicine in the region.

Interestingly, some of the remedies mentioned in this write-up have been verified scientifically for medicinal purposes, while many others await verification though there is very little information on the toxicity studies on a number of them. Superstitious beliefs are attached to some of the medicines which, when violated, the medicine is said to become impotent. Most of the food plants recorded in this review are still very important as means of nutrition for communities, notwithstanding, many unpopular and underutilized vegetables have been scientifically proven to be very nutritional and should be harnessed. There are several functional uses of plants ranging from clothing to building, games to preservation, fuel to paint, etc. The use of plants for magic is a common phenomenon in the region. Still, very few research works have been carried out on this aspect as only 22 plants were found to be used for

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Figure 2. A map of southwestern Nigeria. Compiled by Abdulwakeel Ajao.
Declarations

Author contribution statement

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The authors declare no conflict of interest.

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