

Ethnobotanical Important Plant Species of Kaya Kauma and Kaya Tsolokero

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Abstract

An ethnobotanical study was carried out in the sacred forests of Kaya Kauma in Kilifi county and Kaya Tsolokero in Junju location in Kenya between 2015 and 2016. Indigenous important plants used for food, medicine, construction, recreation, and aesthetics are still available in the wild. Most of the plant species are threatened by over harvesting, human encroachment and loss of traditional knowledge on how to use them. In the Kaya Kauma and Tsolokero ethnobotanical knowledge on important plants has contributed to the livelihood of the communities living around the area. These plant resources have provided vital materials for survival to humanity. However this ethnobotanical knowledge has not been well documented, and these significant plant species used by the community around these forests has not been reported. Knowledge on ethnobotany in these communities is diminishing with the passage of the older generation. This paper intends to document the important plant species used by the communities living around Kaya Kauma and Kaya Tsolokero. Data was collected using interviews and questionnaires from the residents and villagers living around both the forest. Kaya elders, men, women and youth were interviewed in this survey. A total of 477 useful plants species were mentioned in Kaya Kauma and Kaya Tsolokero. In Kaya Kauma 167 useful plants were mentioned compared to 312 useful plants for Kaya Tsolokero. These useful plants were important for food, medicinal, constructional, firewood, decoration, recreational, bee-keeping and others. It also served in fulfilling the economic, medicinal, forage, constructional, apiary and more importantly medicinal applications to the dwelling population.

Keywords: Kaya Kauma; KayaTsolokero; Communities; Important plant species;

Introduction

Kaya is a sacred forest of the Mijikenda people in the coastal region of Kenya. The literal meaning of Kaya is a "Home". These forests have a fortified village at its centre which is called "Kaya Village". The concept of Kaya forest started way back in 16th Century and got over by 1940. But the remains of these forests are still there. They were built on the hill tops for defence. These forest sites still stand as homes for ancestors and are maintained by a council of elders.[1] In Kaya Kauma the community does not live in the Kaya sites but the traditional rituals of the communities are still performed in the Kaya sites. The Kaya forest is considered to be an intrinsic source of ritual power and the origin of cultural

identity. It is also a place of prayer for members of the Mijikenda ethnic group. The Kaya forests of coastal Kenya are thus one example of a phenomenon that has been described from many other African countries and from other continents [2]. The traditional African people have used plants as food and feed and as medicine for generations. Synthetic chemicals and petroleum derivatives can replace many plant-derived medicines, and other products to replace wood, but there is no substitute for plant-derived foods. Almost all human foods are plants or organisms that eat plants [3]. The human diets are based on fewer plant species yet there are over 350,000 plant species with 80,000 edible for humans. Out of these, only 150 plant species are actively cultivated and 30 of these plants produce 95% of human calories and proteins. The coastal forests of Kenya are part of a regional system and remnants of East African Coastal forests extending as far down as Mozambique [4] as part of the Zanzibar-Inhambane regional mosaic of white [5]. Traditional important plants are still available in the wild and most are threatened by genetic loss and loss of traditional knowledge on how to use them. Many traditional cultivars have disappeared and are not known to present generation.[6] Indigenous knowledge is with the older generation and the youth have shown little interest in sustaining it. There is therefore danger in completely losing this important knowledge on important flora and their use.

The coastal forests of Kenya are rich in biodiversity of flora and fauna [7] accounting for more than 50% of Kenya's rare trees [8]. These forests harbour wild germ plasm of food and medicine and exhibit a very high level of biodiversity endemism and rarity in a significant number of biological groups[9]. As a part of this system and remnants of once much more extensive forest on the Kenya coast, the coastal sacred forests, Kayas, display high biodiversity values in terms of diversity, endemism and rarity. The latest estimates show that Kayas constitute about 5% of the remaining coastal closed forest cover of Kenya estimated to be about 67,000 ha, with high biodiversity values of 7 out of the 20 sites with the highest conservation status[10]. The forests are inhabited as sacred places and were homes to the Mijikenda community, a dominant ethnic community in the coastal region of Kenya [11].

They are nine distinct ethnic groups that include Giriama, Digo, Chonyi, Jibana, Kauma, Ribe, Rabai, Duruma, and Kambe referred to as the Mijikenda meaning “nine tribes” that speak closely related Bantu dialects sharing about 71% of their vocabulary [12]. In Kenya, the richness of biodiversity in the Kaya forests was recognized in the 1980s [13] and the sacred forests are prominent on hills and other strategic sites blend culture and nature. Traditional restrictions were placed on access and the utilization of natural forest resources resulting to the kayas preserving and sustaining biodiversity. Kaya forest patches are small in size, ranging in area from 10 ha to 400 hectares. To date, over 50 kayas have been identified in Kwale, Msambweni, Kinango, Kaloleni, Mombasa, Kilifi and Malindi. Information documented indicates rules to protect the site which included ban on cutting of live trees, restriction of firewood collection and grazing of livestock. There is vast documentation of usefulness of plant biodiversity in Kenya such as the “Useful trees and shrubs for Kenya [14] and Traditional Food Plants of Kenya. [15] There is documentation in medicinal plants as in the “Traditional medicines in Africa, Medicinal trees of Bukusul and many others” [16]. To date most research on useful plants focused on documenting medicinal plants and their role to make a healthy community [17]. This is the reason why a survey was conducted to determine the status of important plants.

Materials and Methods

Site description

Kaya Kauma, a primary Kaya of the Kauma community, is located in Jaribuni area in Kilifi County. The geographical position of this forest is 3°37.821S and 39°44.189E at an altitude of 120m above the sea level. The size of this forest is 100 ha in area and it exhibits a deciduous pattern of vegetation, sloping down in the north to “Ndzovuni” river. The forest exhibits a rich soil content of iron-ore deposit with the top layer of soil changing its colour to black due to the iron gravels. Iron ore mining is a major threat to this forest with deep pits spread all round and disposing the bare ground to gully erosion.

Kaya Tsolokero is located in Junju location of Kilifi County. It is a Kaya for the Jibana Community. The area of the forest is 35 hectares, geographical position is 3°50.802E and 39°44.645S with a vegetation exhibiting an evergreen pattern with very thick forest and a variety of floral diversity. There is still a Kaya village inside the forest with dwelling population.

Study Approach

A survey on useful ethnobotanical important plant species around Kaya Kauma and Kaya Tsolokero was undertaken. A semi-structured questionnaire was used to conduct a demographic survey on the population and the useful plants around the villages adjacent to Kayas. Important ethnobotanical plant species prevalent around both Kaya forests were taken into account with the help of interviews responses from the respondents. In Kaya Kauma 179 and 103 respondents from Kaya Tsolokero were interviewed respectively. The number of adjoining villages

around two Kayas in all the four geographical directions was recorded from the area chief of Kauma and Junju location respectively. In all four directions 18 villages surrounding Kaya Kauma and 9 surrounding Kaya Tsolokero were surveyed. Recent population in each village was also recorded from the Chief’s office. Semi-structured questionnaire were circulated in these villages to obtain the list of useful plants, parts used, habit of growth, frequency of usage, commercialization aspects, efforts on domestication for sustainability was accessed.

Data Collection

The prevalent local language was used as a media of communication apart from the prevalent language “Kiswahili” to get the best information from the respondents. Enumerators that were fluent with the local languages were trained to interview the respondents with the help of a local guide to conduct this survey. The villages that were chosen for the survey were around the forest in the radius of 5 to 8 km to capture the most knowledge of the flora. The Kaya elders, local herbalist, local leaders and a sample of adults and youth were randomly selected for interviews. The questionnaire focused on the general personal data of key informants, description of uses, habits and distribution of the important plants to the community and the corresponding uses and beliefs.

These data were evaluated and the results were manipulated to obtain general information on the prevalent knowledge on the plants that are important in the community. Important plants were noted according to the frequency of mentioning among the respondents that were categorized on the basis of gender, age and tribe.

Results and Discussion

The survey showed six (6) Mijikenda sub-tribes living around Kaya Kauma with the Kauma as the dominant group and five (5) sub-tribes living around Kaya Tsolokero with the Jibana community as the dominant. Fruits and vegetables were the most commonly used plants in the communities around both the Kaya forests. A total of 163 important plants were listed from the population around Kaya Kauma and 213 useful plants around Kaya Tsolokero (Table 1). A total of 37 and 54 food plants were stated by the population of Kaya Kauma and Kaya Tsolokero respectively. A list of 73 medicinal plants and 114 medicinal plants used by the two population and 69 herbal plant species in Kaya Kauma and 48 in Kaya Tsolokero came to be known. Twelve (12) constructional plants were stated by the population around Kaya Kauma and 58 around Kaya Tsolokero respectively, 24 useful firewood species in Kaya Kauma and 13 in Kaya Tsolokero. Two (2) useful plants were reported to be decorative around Kaya Kauma and 16 around Kaya Tsolokero. Two (2) of the useful plants were reported for bee-keeping around Kaya Kauma and 10 for Kaya Tsolokero. Eight (8) of the mentioned useful plants by the communities carried other uses.

From the survey undertaken 239 species of plants were mentioned as important by the communities around Kaya Kauma

Table 1: Useful tropical plants ethno botanical species of Kaya kauma and Kaya Tzolokero

Plant name	Family	Local name	Kaya		Domesticated	Cultivation Status
			Kaum	Tzolokero		
1 <i>Asystasia gangetica</i> (L.)	Acanthaceae	Tsalakushe	+	+	+	Widespread
2 <i>Hoslonia opposita</i> (Vahl.)	Acanthaceae	Mtserere	+	+	-	Widespread
3 <i>Justicia engleriana</i> (Lindau.)	Acanthaceae	Mboma	-	+	-	Widespread
5 <i>Amaranthus viridis</i> (L.)	Amaranthaceae	Kiswenya	+	-	+	Widespread
6 <i>Lamnea schweinfurthii</i> (Engl.)	Anacardiaceae	Mchumbu	+	+	+	Widespread
7 <i>Sorindeia madagascariensis</i> (Thouars.)	Anacardiaceae	Mkunguma	-	+	+	Widespread
8 <i>Ozoroa obovata</i> (Oliv.)	Anacardiaceae	Mkayukayu	+	-	-	Rare
9 <i>Lamnea schimperii</i> (Hochst.A.) (Rich.)	Anacardiaceae	Mkonzi	+	-	-	Widespread
10 <i>Mangifera indica</i> (L.)	Anacardiaceae	Mswembe	+	+	+	Exotic
11 <i>Anacardium occidentale</i> (L.)	Anacardiaceae	Mkanju/Mkorosho	+	+	+	Exotic
12 <i>Annoa squamosa</i> (Juss.)	Annonaceae	Mtomoko	-	+	+	Widespread
13 <i>Uvariadendron kirkii</i> (Verdc.)	Annonaceae	Mangajine	-	+	-	IUCN Red List(Vulnerable)
14 <i>Artabotrys madesi</i> (Sauf.)	Annonaceae	Mubulushi	-	+	-	IUCN Red list(Critically endangered)
15 <i>Mkilua fragrans</i> (Verdc.)	Annonaceae	Mulua	-	+	+	Exotic
16 <i>Annona senegalensis</i> (Pers.)	Annonaceae	Mbokwe	-	+	-	Widespread
17 <i>Uvaria acuminata</i> (Oliv.)	Annonaceae	Mufumba	+	-	-	IUCN Red List(Least concenred)
18 <i>Annoa squamosa</i> (Juss.)	Annonaceae	Mtomoko	-	+	+	Exotic
19 <i>Uvariadendron kirkii</i> (Verdc.)	Annonaceae	Mangajine	-	+	-	IUCN Red List(Vulnerable)
20 <i>Mkilua fragrans</i> (Verdc.)	Annonaceae	Mulua	-	+	+	Endemic
21 <i>Annona senegalensis</i> (Pers.)	Annonaceae	Mbokwe	-	+	-	Widespread
22 <i>Uvaria acuminata</i> (Oliv.)	Annonaceae	Mufumba	+	-	-	Widespread
23 <i>Artabotrys madagascariensis</i> (Miq.)	Annonaceae	Mubulushi	+	-	-	Exotic
24 <i>Annona squamosa</i> (L.)	Annonaceae	Mtomoko	+	-	+	Exotic
25 <i>Uvariadendron kirkii</i> (Verdc.)	Annonaceae	Mangajine	-	+	-	IUCN Red List
26 <i>Mkilua fragrans</i> (Verdc.)	Annonaceae	Mulua	-	+	+	Endemic
27 <i>Annona senegalensis</i> (Pers.)	Annonaceae	Mbokwe	-	+	-	Widespread
28 <i>Uvaria acuminata</i> (Oliv.)	Annonaceae	Mufumba	+	-	-	Widespread
29 <i>Pleumeria alba</i> (L.)	Apocyanaceae	Mkabugu	-	+	+	Widespread
30 <i>Artabotrys madagascariensis</i> (Miq.)	Annonaceae	Mubulushi	+	-	+	Exotic
31 <i>Aloe barbadensis</i> (Miller.)	Asphodelaceae	Kizimulo/Mualovera	+	+	+	Exotic
32 <i>Launea cornuta</i> (Oliv. & Hiern)	Asteraceae	Mtsunga	+	-	+	IUCN Red List(near threatened)
33 <i>Brachylaena huillensis</i> (O Hoffm.)	Asteraceae	Mhulu	+	-	-	IUCN Red List(near threatened)
34 <i>Markhamia zanzibarica</i> (Bojer ex DC.)	Bignoniaceae	Mjepa/Mlaga kuku	+	+	-	Widespread
35 <i>Crescentia cujete</i> (L.)	Bignoniaceae	Mrenje	-	+	-	Exotic
36 <i>Fernandoa magnifica</i> (Seem.)	Bignoniaceae	Mrondo	-	+	-	Exotic
37 <i>Markhamia zanzibarica</i> (Bojer ex DC.)	Bignoniaceae	Mjepa/Mlaga kuku	+	+	-	Widespread
38 <i>Crescentia cujete</i> (L.)	Bignoniaceae	Mrenje	-	+	+	Exotic
39 <i>Fernandoa magnifica</i> (Seem.)	Bignoniaceae	Mrondo	-	+	+	Widespread
40 <i>Heliotropium steumeri</i> (Vate.H)	Boraginaceae	Muchironda	+	-	+	Exotic
41 <i>Turraea andriamariasoana</i> (Calm.Phillipson &Lowry)	Boraginaceae	Mchironda	+	-	-	Exotic
42 <i>Bourveria nemoralism</i> (L.)	Boraginaceae	Mubunduki	+	-	-	Widespread
43 <i>Cordia monoica</i> (Roxb.)	Boraginaceae	Msasa	+	-	-	Widespread
44 <i>Brassica oleracea</i> (L.)	Brassicaceae	Msukuma	+	-	+	Exotic
45 <i>Ptilotricum sclerenthum</i>	Brassicaceae	Chibiriti	-	+	-	Widespread
46 <i>Azifela quanzensis</i> (Welw.)	Caesalpinaceae	Mbambakofi	+	+	+	Widespread
47 <i>Cassia abbreviata</i> (Oliv.)	Caesalpinaceae	Mhumba	+	+	+	Widespread
48 <i>Delonix regia</i> (Bojer ex Hook.) (Raffin.)	Caesalpinaceae	Mlukina	-	+	+	IUCN Red List(Vulnerable)
49 <i>Caesalpinia volkensii</i> (Harms.)	Caesalpinaceae	Mumburi	-	+	-	Widespread
50 <i>Bauhinia tomentosa</i> (Linn.)	Caesalpinaceae	Mbwale	+	-	+	Widespread
51 <i>Thylachium thomasii</i> (Lemmens.)	Capparaceae	Mwizutsaka	+	-	-	Widespread
52 <i>Capparis erythrocarpus</i> (Adjanohoun et al.)	Capparaceae	Mbadapaka	+	+	-	Endemic
53 <i>Carica papaya</i> (L.)	Caricaceae	Mpapayu	+	+	+	Widespread
54 <i>Casuarina equisetifolia</i> (Lour.)	Casuarinaceae	Kasorina/Mvunje	+	+	+	Widespread
55 <i>Cleome gynandropsis</i> (Sonder)	Cleomaceae	Mwangani	+	-	-	Widespread
56 <i>Terminalia sambesiaca</i> Engl. & Diels	Combretaceae	Mkunguni	-	+	+	Widespread
57 <i>Combretum hereroense</i> (Schinz.)	Combretaceae	Mnyanyari	-	+	-	Widespread
58 <i>Pteleopsis tetraptera</i> (Wickens.)	Combretaceae	Mdzanga	-	+	-	IUCN Red List (Threatened) d)
59 <i>Combretum adenogonium</i> (Engl. & Diels.)	Combretaceae	Mshinda alume	+	-	-	Endemic
60 <i>Combretum paniculatum</i>	Combretaceae	Msundizi	+	-	-	Widespread
61 <i>Terminalia spinose</i> (Engl.)	Combretaceae	Mwanga	+	-	-	Widespread
62 <i>Combretum vendae</i> (A.E.van Wyk)	Combretaceae	Mchirang'ombe	+	+	-	Widespread
63 <i>Combretum schumannii</i> (Engl.)	Combretaceae	Mngurure	+	-	-	Widespread
64 <i>Commelina benghalensis</i> (L.)	Commelinaceae	Dzadza	-	+	-	Widespread
65 <i>Solanecio angulatus</i> (Vahl.)	Compositae	Mdzipo/Reza	+	+	+	Endemic
66 <i>Vernonia hildebrandtii</i> (Baker.)	Compositae	Mlalapiri/Mlazakoma	+	+	+	Endemic
67 <i>Vernonia homilantha</i> (Moore) (Undulata Oliv) (Hiern)	Compositae	Munyinya	+	-	+	Endemic
68 <i>Hewittia malabarica</i> (L.)	Convolvulaceae	Mdoka	-	+	+	Widespread
69 <i>Ipomoea batatas</i> (L.)	Convolvulaceae	Viazu tamu	+	+	+	Widespread
70 <i>Cucurbita pepo</i> (L.)	Cucurbitaceae	Mahango	+	+	-	Widespread
71 <i>Coccinia grandis</i> (L.)	Cucurbitaceae	Mhombonyoka	-	+	+	Exotic
72 <i>Cucumis maxima</i> (Duchesne.)	Cucurbitaceae	Muiyo	+	+	+	Widespread
73 <i>Citrullus lanatus</i> (Thunb.)	Cucurbitaceae	Matikiti	+	+	+	Widespread
74 <i>Luffa aegyptiaca</i> (Miller)	Cucurbitaceae	Mdodoki	+	-	-	Widespread
75 <i>Cyperus rotundus</i> (L.)	Cyperaceae	Mdago	-	+	+	Widespread
76 <i>Tetracera litoralis</i> (Gig.)	Dilleniaceae	Makuha/Mkuha	+	+	+	Endemic
77 <i>Tetracera boiviniana</i> (Baill.)	Dilleniaceae	Mchepe	-	+	+	Widespread
78 <i>Dioscorea dumetorum</i> (Afoakwa)(Undie)(Corley)	Dioscoreaceae	Mringa/Mriga	+	+	+	Widespread
79 <i>Sansevieria gracilis</i> (Brown.)	Dracaenaceae	Mkonjetsaka	+	+	-	Widespread
80 <i>Diospyros squarrosa</i> (Klotzsch)	Ebenaceae	Mgore	-	+	-	Widespread
81 <i>Diospyros comii</i> (Chiov.)	Ebenaceae	Mkulu	-	+	-	Endemic
82 <i>Diospyros consolatae</i> (Chiov.)	Ebenaceae	Mukulu/Mryambuzi	+	+	-	Widespread
83 <i>Euclea divinorum</i> (Chiov.)	Ebenaceae	Mdaa	+	-	+	Widespread
84 <i>Antidesma venosum</i> (Tul.)	Euphorbiaceae	Mkaniki	-	+	+	Widespread
85 <i>Manihot esculenta</i> (Crantz.)	Euphorbiaceae	Manga	+	+	-	Widespread
86 <i>Suregada zanzibariensis</i> (Baill.)	Euphorbiaceae	Mdimu tsaka	+	+	+	Widespread
87 <i>Bridelia cathartica</i> (Bertol.)	Euphorbiaceae	Mubunduki	-	+	-	Widespread

88	<i>Euphorbia nyikae</i> (Pax ex Engl.)	Euphorbiaceae	Mseketsa	-	+	+	Endemic
89	<i>Euphorbia dactyli</i> (L.)	Euphorbiaceae	Chatsa	+	+	-	Widespread
90	<i>Euphorbia pereskiiifolia</i> (Houllet ex Baill.)	Euphorbiaceae	Chatsamkuluho	+	-	-	Endemic
91	<i>Euphorbia trigona</i> (Mill.)	Euphorbiaceae	Chatsavunga	+	+	-	Exotic
92	<i>Tragia furialis</i> (Bojer.)	Euphorbiaceae	Lwavi	+	+	+	Widespread
93	<i>Jatropha multifida</i> (L.)	Euphorbiaceae	Misipiriti	+	+	-	Exotic
94	<i>Croton pseudopulchellus</i> (Pax.)	Euphorbiaceae	Myama wa nyika	+	-	+	Widespread
95	<i>Ricinus communis</i> (L.)	Euphorbiaceae	Mbono	+	+	-	Exotic
96	<i>Milbraedia carpinifolia</i> (Pax Hutch.)	Euphorbiaceae	Mfundirangambi	-	+	+	IUCN Red List(Vulnerable)
97	<i>Synadenium grantii</i> (Hook.)	Euphorbiaceae	Mtupa	+	-	+	Rare
98	<i>Oldfieldia somalensis</i> (Chiov.)	Euphorbiaceae	Mbirandu	+	-	+	Exotic
99	<i>Albizia anthelmintica</i> (Brong.)	Fabaceae	Mpojo	-	+	+	Widespread
100	<i>Dialium orientale</i> (Baker.)	Fabaceae	Mtumbwi	-	+	+	Widespread
101	<i>Tamarindus indica</i> (L.)	Fabaceae	Mkwaju	+	+	+	Exotic
102	<i>Cajanus cajan</i> (L.)	Fabaceae	Mbalazi	-	+	+	Exotic
103	<i>Senna occidentalis</i> (Roxb.)	Fabaceae	Msalafa	-	+	+	Exotic
104	<i>Millettia usaramensis</i> (Taub.)	Fabaceae	Muhumba	-	+	+	Widespread
105	<i>Dalbergia melanoxylon</i> (Guill. & Perr.)	Fabaceae	Mhingo	-	+	-	IUCN Red List(Near threatened)
106	<i>Mimosa pudica</i> (L.)	Fabaceae	Kabodzebodze	+	+	-	Exotic
107	<i>Omocarpum kirkii</i> (W. Sonder.)	Fabaceae	Chitwadzi	+	+	+	Widespread
108	<i>Dichrostachys cinerea</i> (L.)	Fabaceae	Mkingiri	-	+	+	IUCN Red List(Least concerened)
109	<i>Bombax rhodognophalon</i> (Engl.)	Fabaceae	Mware	+	+	-	Widespread
110	<i>Hymenaea verrucosa</i> (Gaertn.)	Fabaceae	M ngolo	+	+	-	Widespread
111	<i>Newtonia paucijuga</i> (Harms.) (Brenan.)	Fabaceae	Mulea	-	+	-	IUCN Red List(Vulnerable)
112	<i>Crotalaria laburnifolia</i> (L.)	Fabaceae	Mfrimbi	-	+	+	Widespread
113	<i>Lablab purpureus</i> (L.)	Fabaceae	Mlupu	-	+	+	Widespread
114	<i>Abrus precatorius</i> (L.)	Fabaceae	Mfiri	-	+	+	Widespread
115	<i>Dalbergia vacciniifolia</i> (Vatke.)	Fabaceae	Mpingwa	+	-	+	Endemic
116	<i>Senna siamea</i> (Lam.)	Fabaceae	Mchilifi	+	-	+	Exotic
117	<i>Vigna unguiculata</i> (L.)	Fabaceae	Mkunde(Cowpeas)	+	-	+	Widespread
118	<i>Erythrina saleceii</i> (Andayi.)	Fabaceae	Mbamba ngoma	+	-	-	Exotic
119	<i>Albizia adiantifolia</i> (Schumach.)	Fabaceae	Tsafwe/Mporojo/Mdzapi	+	-	-	Widespread
120	<i>Acacia ampliceps</i> (Ursula K. Le Guin.)	Fabaceae	Manemane	+	-	-	Exotic
121	<i>Acacia mellifera</i> (Vahl)	Fabaceae	kikwata	+	-	+	Endemic
122	<i>Cynometra webberi</i> (Baker f)	Fabaceae	Mfinda	+	-	-	IUCN Red List(Vulnerable)
123	<i>Brachystegia spiciformis</i> (Benth.)	Fabaceae	Mrihi	+	-	-	Endemic
124	<i>Flagellaria guineensis</i> (Schumach.)	Flagellariaceae	Mchewa	+	-	-	Widespread
125	<i>Gynocarpus americanus</i> (Jacq.)	Hernandiaceae	Mpewa	-	+	-	Endemic
126	<i>Vitex ferruginea</i> (K. Schum. & Thonn.)	Lamiaceae	Mkuni	-	+	+	Widespread
127	<i>Hoslundia opposita</i> (Vahl)	Lamiaceae	Mvumbani	-	+	+	Widespread
128	<i>Ocimum gratissimum</i> (L.)	Lamiaceae	Kavumbani	+	-	-	Widespread
129	<i>Leucas glabrata</i> (R.Br.)	Lamiaceae	Nyadzua	+	-	-	Exotic
130	<i>Cyphostemma adenocaulis</i> (Cao&Miller.)	Lamiaceae	Mchirawaloma	+	-	+	Widespread
131	<i>Persea americana</i> (Mill.)	Lauraceae	Avacado	+	+	-	Widespread
132	<i>Hugonia castaneifolia</i> (Engl.)	Linaceae	Mkuro	-	+	-	Endemic
133	<i>Strychnos madagascariensis</i> (Poir.)	Loganiaceae	Mkokola/Mkwakwa a	+	+	+	Widespread
134	<i>Strychnos spinosa</i> (Lam.)	Loganiaceae	Mbate /Mjaji	+	+	-	Widespread
135	<i>Acoidocarpus zarzibaricus</i> (Chiov.)	Malpighiaceae	Mboho	+	-	-	IUCN Red List(Least concerened)
136	<i>Acridocarpus alopecurus</i> (E.Launert)	Malpighiaceae	Msinduzi	-	+	+	Widespread
137	<i>Nesogordoniaholtzii</i> (kavianyika.)	Malvaceae	Mtobwe	-	+	+	Endemic
138	<i>Corchorus tridens</i> (L.)	Malvaceae	Chikoshu	-	+	+	Widespread
139	<i>Abelmoschus esculentus</i> (L.)	Malvaceae	Mabenda	-	+	-	Widespread
140	<i>Thespesia danis</i> (Oliv.)	Malvaceae	Mhoe	+	+	-	Widespread
141	<i>Hibiscus micranthus</i> (L.)	Malvaceae	Karembeganga	+	+	+	Widespread
142	<i>Adensonia digitata</i> (L.)	Malvaceae	Muyu	+	+	-	Widespread
143	<i>Abutilon mauritanum</i> (Jacq.)	Malvaceae	Mkorokoro	-	+	-	Widespread
144	<i>Waltheria indica</i> (L.)	Malvaceae	Muhangusa mavi	+	-	-	Endemic
145	<i>Melia azedarach</i> (L.)	Meliaceae	Msonbari	-	+	-	Exotic
146	<i>Azadirachta indica</i> (A.Juss)	Meliaceae	Mwarubani	+	-	-	Exotic
147	<i>Trichilia emetic</i> (Kotze)	Meliaceae	Mnwamadzi	+	-	-	Widespread
148	<i>Cissampelos pareira</i> (Linn.)	Menispermaceae	Mshondoha	-	+	-	Exotic
149	<i>Tinospora oblongifolia</i> (Engl.)	Menispermaceae	Mzikakoma	-	+	+	Widespread
150	<i>Grevea eggelingii</i> (Milne.)	Montinaceae	Mgandiza Pula	+	-	+	IUCN Red List(Least concerened)
151	<i>Artocarpus heterophyllus</i> (L.)	Moraceae	Mfenesi	-	+	+	Exotic
152	<i>Milicia excelsa</i> (Welw.)	Moraceae	Mvure	-	+	+	IUCN Red List(Near threatened)
153	<i>Haplocoelum inoploemum</i> (Radlk.)	Moraceae	Mfingohema	-	+	+	Exotic
154	<i>Ficus benjamina</i> (L.)	Moraceae	Mvadapaa	-	+	+	Exotic
155	<i>Ficus sycomorus</i> (L.)	Moraceae	Mvumbamanga/Mga	+	+	+	Widespread
156	<i>Ficus bussei</i> (Warb.)	Moraceae	Mpeno	-	+	+	Rare
157	<i>Antiaris toxicaria</i> (Pers.)	Moraceae	Mguoguo	-	+	+	Widespread
158	<i>Ficus carica</i> (L.)	Moraceae	Mpirapira	-	+	-	Exotic
159	<i>Ficus lingua</i> (Warb.)	Moraceae	Mdro	+	-	+	Widespread
160	<i>Moringa oleifera</i> (Lam.)	Moringaceae	Mzungi	+	+	+	Exotic
161	<i>Musa basjoo</i> (Sieb.et.Zucc.)	Musaceae	Mgomba	+	+	+	Exotic
162	<i>Musa acuminata</i> (L.)	Musaceae	Ndizi	+	+	+	Exotic
163	<i>Syzygium guineense</i> (Winkl.)	Myrtaceae	Mzambarau	-	+	+	Widespread
164	<i>Psidium guajava</i> (L.)	Myrtaceae	Mpera	-	+	+	Exotic
165	<i>Eucalyptus camaldulensis</i> (Dehnh.)	Myrtaceae	Mbulgamu	-	+	+	Exotic
166	<i>Brackenridgea zanguebarica</i> (Oliv.)	Ochnaceae	Mhoho	-	+	+	Widespread
167	<i>Ochna mossambicensis</i> (Klotzsch.)	Ochnaceae	Mdimu tsaka	+	+	+	Widespread
168	<i>Opillia amentacea</i> (Roxb.)	Opiliaceae	Msaro	-	+	+	Widespread
169	<i>Panicum virgatum</i> . (Boutelou)(Claudio)	Panicum sp.	Maondo	+	-	-	Exotic
170	<i>Passiflora edulis</i> (Sims.)	Passifloraceae	Mpesheni	-	+	+	Widespread
171	<i>Adenia globulosa</i> (Engler.)	Passifloreaceae	Mandari	+	-	-	Widespread
172	<i>Flueggea virosa</i> (Willd.)	Phyllanthaceae	Mkwamba	+	+	+	Widespread
173	<i>Margaritoria discoidea</i> (Baill)	Phyllanthaceae	Kaguo	+	+	+	Widespread
174	<i>Saccharum officinarum</i> (L.)	Poaceae	Mua	+	+	+	Widespread
175	<i>Hordeum vulgare</i> (L.)	Poaceae	Mkunde	+	+	+	Exotic
176	<i>Cymbopogon citratus</i> (L.)	Poaceae	Mzuma	-	+	+	Exotic

177	<i>Bambusa tomentosa</i> (Hack; Lndm.)	Poaceae	Manzi	-	+	+	Exotic
178	<i>Ohyra latifolia</i> (L.)	Poaceae	Mridza	-	+	+	Widespread
179	<i>Zizyphus mauritiana</i> (Lamk.)	Rhamnaceae	Mkunazi	+	+	-	Exotic
180	<i>Berchemia discolor</i> (Klotzsch.)	Rhamnaceae	Mkulu	+	-	-	Widespread
181	<i>Cassipourea euryoides</i> (Alston)	Rhizophoraceae	Msusi	+	-	+	Widespread
182	<i>Pavetta parvifolia</i> (Vidal)	Rubiaceae	Mumangi	-	+	+	Widespread
183	<i>Pavetta stenosepala</i> (K. Schum)	Rubiaceae	Mpepo	-	+	-	Widespread
184	<i>Catunaregam</i> (Thunb.)	Rubiaceae	Mvahani	-	+	+	Exotic
185	<i>Polysphaeria pervifolia</i> (Mlapaa.)	Rubiaceae	Mangimangi	-	+	+	Widespread
186	<i>Agathisanthemum bojerii</i> (Klotzsch.)	Rubiaceae	Mvunjakesi	+	-	+	Exotic
187	<i>Heinsia ornata</i> (A. Fiel)	Rubiaceae	Mfyofyo	+	+	+	Widespread
188	<i>Cremalespora triflora</i> (Thom.)	Rubiaceae	Mumangitsaka	-	+	+	Widespread
189	<i>Keetia zanzibarica</i> (Klotzsch.)	Rubiaceae	Mwaro	-	+	+	Endemic
190	<i>Rytigynia mrimaensis</i> (Verdc.)	Rubiaceae	Mtsala	-	+	-	Endemic
191	<i>Clerodendrum incisum</i> (Klotzsch.)	Lamiaceae	Mhina	-	+	+	Widespread
192	<i>Pentas lanceolata</i> (Nees.)	Lauraceae	Kairima	+	-	+	Exotic
193	<i>Vangueria madagascariensis</i> (J.F. Gmel)	Rubiaceae	Mviru	+	-	+	Widespread
194	<i>Gardenia volkensii</i> (K. Schum.)	Rubiaceae	Mumwemwe	+	-	+	Endemic
195	<i>Afrocanthium kilifiensis</i> (Bridson)	Rubiaceae	Mfidzo	+	-	+	IUCN Red List(Vulnerable)
196	<i>Citrus aurantifolia</i> (Christm.)	Rutaceae	Mchungwa	-	+	+	Exotic
197	<i>Citrus sinensis</i> (L.)	Rutaceae	Mchenza	-	+	+	Exotic
198	<i>Citrus limon</i> (L.)	Rutaceae	Mdiru	+	+	-	Exotic
199	<i>Citrus microcapa</i> (Bunge.)	Rutaceae	Mlimu	-	+	+	Exotic
200	<i>Zanthoxylum holizianum</i> (Engl)	Rutaceae	Mdingu	+	+	+	IUCN Red List (Threatened)
201	<i>Citrofortunella microcarpa</i> (Bunge.)	Rutaceae	Mdiru/Tamu	+	-	-	Widespread
202	<i>Homalium abdessammadii</i> (A. Sch.; Schweinf)	Salicaceae	Mtingara	-	+	-	Widespread
203	<i>Salvadora persica</i> (Ohtani) (Almas)(Noumi)	Salvadoraceae	Mdaa	+	-	-	Widespread
204	<i>Chytranthus obliquinervis</i> (Engl)	Sapindaceae	Mhukuhu	-	+	+	IUCN Red List(Vulnerable)
205	<i>Deinbollia oblongifolia</i> (Radlk.)	Sapindaceae	Mhuku	-	+	-	Widespread
206	<i>Cissampelos pereira</i> (L.)	Sapindaceae	Kasikropaka	-	+	+	Exotic
207	<i>Allophylus rubifolia</i> (Hochst. ex A. Rich.)Engl	Sapindaceae	Mvunzajembe	+	+	-	Exotic
208	<i>Deinbollia borbonica</i> (Scheff)	Sapindaceae	Mtsimbi	+	-	-	Widespread
209	<i>Haplocoelum foliosum</i> (Hiem.)	Sapindaceae	Mkokola	+	-	+	Exotic
210	<i>Manilkara sansibarensis</i> (Engl)	Sapotaceae	Mngambo/Mnago	+	+	+	Widespread
211	<i>Synsepalum subverticillatum</i> (E.A. Bruce)	Sapotaceae	Mlea	-	+	+	Endemic
212	<i>Pouteria alnifolia</i> (Baker.)	Sapotaceae	Muryahitwa/Mgw d	+	+	+	Widespread
213	<i>Vitellariopsis kirkii</i> (Baker)	Sapotaceae	Mlishangwe	+	-	-	IUCN Red List (Threatened)
214	<i>Manilkara sulcata</i> (Engl)	Sapotaceae	Mtsetzi	-	+	+	Widespread
215	<i>Harissonia abyssinica</i> (Okore; Rajab; Balde).	Sinaroubaceae	Mrerengwa	+	+	-	Widespread
216	<i>Capsicum annum</i> (L.)	Solanaceae	Mpilpili	-	+	+	Widespread
217	<i>Solanum lycopersicon</i> (L.)	Solanaceae	Mtindi	-	+	+	Exotic
218	<i>Lycopersicon esculentum</i> (Mill)	Solanaceae	Mtomato	-	-	-	Exotic
219	<i>Solanum inacum</i> (L.)	Solanaceae	Mtondo	+	+	+	Widespread
220	<i>Solanum nigrum</i> (L.)	Solanaceae	Mnavu	+	+	-	Widespread
221	<i>Solanum cydonifolia</i> (Ireke.)	Solanaceae	Haha	+	-	+	Rare
222	<i>Sterculia Africana</i> (Lour.) Fiori	Sterculiaceae	Morya	+	+	+	Widespread
223	<i>Sterculia quinqueloba</i> (Garcke)	Sterculiaceae	Mfime	+	+	+	Exotic
224	<i>Synaptolepis kirkii</i> (Oliv.)	Thymelaeaceae	Mjrambiri	-	+	+	Widespread
225	<i>Corchorus olitorius</i> (L.)	Tiliaceae	Mwatsaka	-	+	-	Widespread
226	<i>Grewia bicolor</i> (Juss.)	Tiliaceae	Mkone	+	-	+	Widespread
227	<i>Grewia forbesii</i> (Harv. ex Mast.)	Tiliaceae	Mbavubavu	+	+	-	Widespread
228	<i>Grewia stuhmannii</i> (Schum.)	Tiliaceae	Luvumba	-	+	+	Endemic
229	<i>Stachytarpheta urticifolia</i>	Verbenaceae	Bostani	-	+	+	Exotic
230	<i>Gmelina arborea</i> (Roxb.)	Verbenaceae	Mborea	+	-	+	Exotic
231	<i>Clerodendrum hilderbrandtii</i> (L.)	Verbenaceae	Mukulusiku	+	-	-	Exotic
232	<i>Prenna chrysolada</i> (Bojer) Gurke	Verbenaceae	Mvumo	-	+	-	Endemic
233	<i>Lantana camara</i> (L.)	Verbenaceae	Mushomoro	+	+	-	Exotic
234	<i>Ampelocissus africana</i> (Lour.)	Vitaceae	Kadungu	-	+	-	Widespread
235	<i>Cissus quadrangularis</i> (L.)	Vitaceae	Mchengo	+	-	-	Widespread
236	<i>Cyphostemma adenocaulis</i> (Steud. ex A. Rich.)	Vitaceae	Mwanjere	+	-	+	Widespread
237	<i>Encephalartos hilderbrandtii</i> (A. Braun &	Zamiaceae	Mtsapu	+	+	+	IUCN Red List(Near threatened)
238	<i>Curcuma longa</i> (L.)	Zingiberaceae	Chilungo	+	-	+	Exotic
239	<i>Zingiber officinale</i> (Roscoe.)	Zingiberaceae	Mtangawizi	+	+	+	Exotic

Table 2: Undocumented plants of Kaya Kauma and Kaya Tsolokero

No	Local Name	Parts Used	Tribes mentioned	Habit	Kaya forest
1	Mrerezi	Herb	Leaves	Kauma, Giriama	Kauma
2	Mhulunula	Climber	Leaves	Kauma	Kauma
3	Kaimbi	Herb	Leaves	Kauma	Kauma
4	Kodzorerera ajema	Climber	Leaves	Kambe	Kauma
5	Mhuku	Herb	Fruit	Mchyoni	Tsolokero
6	Mani	Climber	Leaves	Mchyoni	Tsolokero
7	Mwazi	Tree	Fruit	Mginiama	Tsolokero
8	Kaboga	Climber	Leaves	Mchyoni	Tsolokero
9	Mahuku	Tree	fruit	Mginiama	Tsolokero
10	Mkungi	Tree	Leaves	Mchyoni	Tsolokero
11	Mkaniki	Herb	fruit	Mchyoni	Tsolokero
12	Mpukusa	Tree	Leaves	Mjibana	Tsolokero
13	Kalumva	Tree	Roots	Mchyoni	Tsolokero
14	Mvadapaa	Herb	Roots	Mjibana, Mchyoni	Tsolokero
15	Mkakani	Herb	fruit	Mchyoni	Tsolokero
16	Mhoho/Mho	Shrub	fruit	Kauma	Tsolokero

and Kaya Tsolokero. These plants belonged to 15 families. The cultivation status of the mentioned plants showed 125 species that are wide spread around Africa, 24 as endemic in and around Kenya, 4 as rare species and 22 as threatened species by the International Unit of Conservation of Nature (IUCN). From the identified important species 136 plants were domesticated. 52% of the mentioned plants were cultivated around their homesteads and in their farms. Out of the plants stated by the population, sixteen (16) species of plants which were mentioned as important by the communities could not be assigned scientific names. These species were mentioned in their local language as Kauma by the communities around Kaya Kauma and Chonyi language by the communities around Kaya Tsolokero.

Conclusion

The important flora reported in this study was useful to the societies around Kaya Kauma and Tsolokero. There is need therefore to categorize these important plants into their ethno botanical application. The data shall provide new insight to identify knowledge and, opportunity gaps for flora found in other Kaya forests.

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