

Floristic diversity of classified forest and partial faunal reserve of Comoé-Léraba, southwest Burkina Faso

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Abstract: The classified forest and partial faunal reserve of Comoé-Léraba belongs to the South Sudanian phytogeographical sector of Burkina Faso and is located in the most humid area of the country. This study aims to present a detailed list of the Comoé-Léraba reserve's flora for a better knowledge and conservation. Floristic inventories have permitted to record 540 plant species belonging to 342 genera and 91 families, thus representing 26.12% of Burkina Faso's phytodiversity (2067 species). Fabaceae and Poaceae with 89 and 51 species respectively, were the dominant families. The vegetation is characterized by the dominance of both phanerophytes (45.51%) and therophytes (32.73%). The importance of Guineo-Congolian species proves that the Comoé-Léraba flora belongs to the Sudano-Guinean transition sector. Comoé-Léraba also accounts the highest number of exclusive species followed by the reserve of Sahel in the country. Exclusive species bring out its value in flora conservation.

Key words: protected area, phytodiversity, life form, phytogeography, savanna

INTRODUCTION

An updated checklist of the vascular plants of Burkina Faso with 2067 species was recently published (Thiombiano *et al.* 2012), with most of these species documented from protected areas. Nevertheless, published lists of phytodiversity in protected areas are scarce. There are 81 protected areas in the country (Thiombiano and Kampmann 2010), but local floras have been published for only three of them: Bangr-Weogo urban park (Gnomou *et al.* 2008), the partial faunal reserve of Pama (Mbaygone *et al.* 2008) and Arly National Park (Ouedraogo *et al.* 2011).

Among Burkina Faso's protected areas, the Comoé-Léraba reserve is unique due to its geographical position and flora. The reserve is located in the most humid zone of the country. The vegetation is dominated by woodland and islands of tropical dry forest, with some patches of dense non-riparian forests (Neumann and Müller 1999; Gnomou 2011b), which are very rare habitats in Burkina Faso. The annual rainfall may reach

1000 mm and the rainy days per year exceed 90 days. Hence, a floristic inventory can be expected to include many exclusive species in comparison to the other parts of the country. With the ultimate objective to assess floristic diversity for better conservation and management of the Comoé-Léraba reserve, this paper aims to provide a detailed floristic list.

MATERIALS AND METHODS

Study site

The classified forest and partial faunal reserve of Comoé-Léraba is located in the southwest part of Burkina Faso (Figure 1) between the latitudes 10°02' and 09°31' N and the longitudes 004°55' and 004°13' W. It was established from two existing classified forests (Diéfoula and Logoniégué) in 2001 and covers 125,000 ha. The Comoé-Léraba reserve belongs to Category IV of IUCN protected areas (IUCN 2004) and is a Ramsar site since 2009 (<http://www.ramsar.org>; Ramsar 2014) mainly due to the two permanent rivers (Comoé and Léraba) that cross the reserve. The reserve is managed by the local association "AGEREF" (Comoé-Léraba classified forest and partial faunal reserve's inter-village association of natural resource management). Hunting and ecotourism are permitted under a forester agreement in a specific period of each year during the dry season. Land use pressure is high in the cultivation zone surrounding the reserve. Indeed, the conservation of this protected area is sustained by the integrated management based on local participation (through the AGEREF). After 13 years, positive results (*e.g.*, reconstitution of fallow land) have been obtained, according to the survey of vegetation structure in the protected area (Gnomou *et al.* 2011b).

Data collection

The species list was established from phytosociological surveys, carried out from 2007 to 2010 and covering all vegetation types of the protected area (dense dry forest, riparian forest, woodland, woodland savanna, tree savanna, shrubs-savanna, bush of termite mound, grove both on termite mounds and pond). It was supplemented by collection data from the University of Ouagadougou Herbarium (OUA).

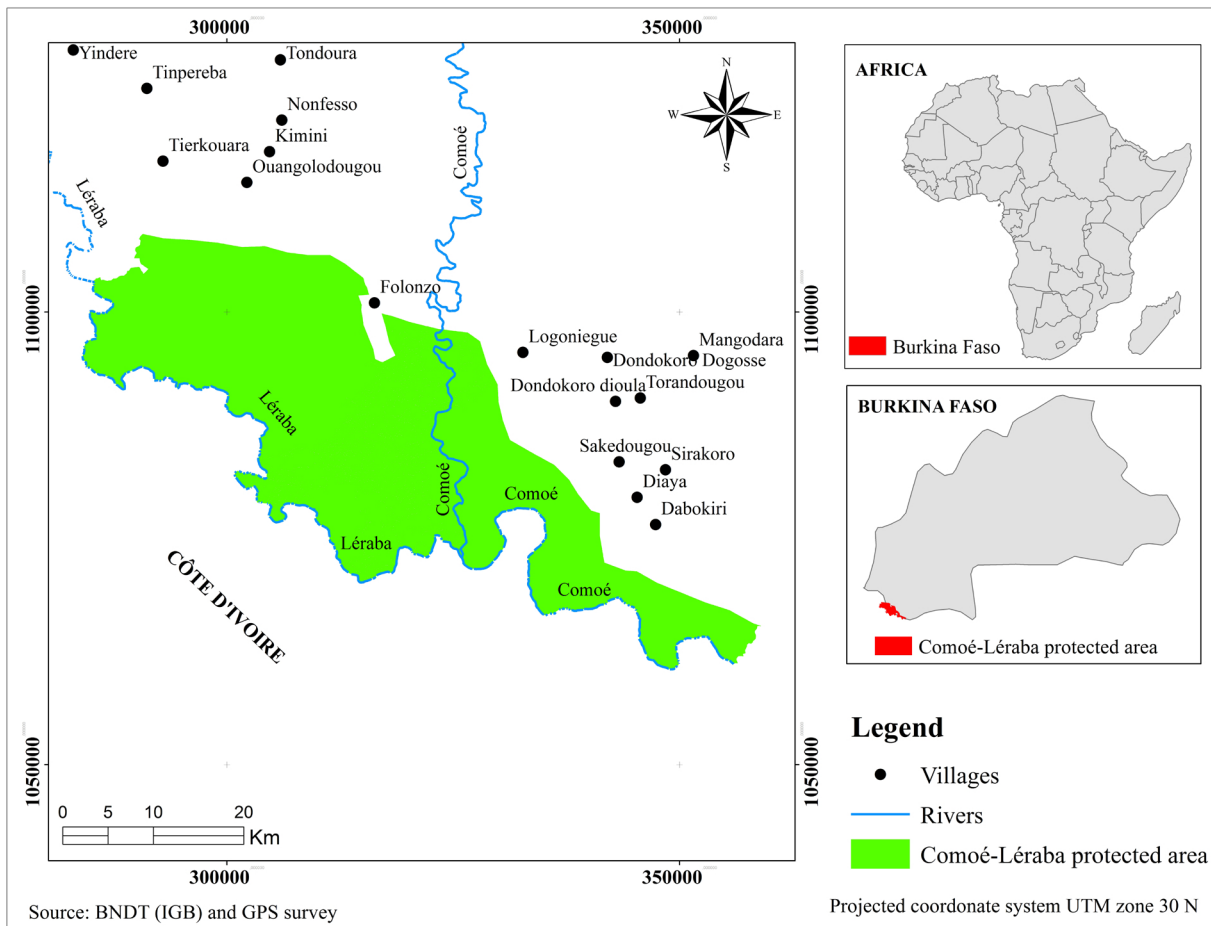


Figure 1. Map of the classified forest and partial faunal reserve of Comoé-Léraba and its surroundings, Burkina Faso.

Species were identified using Berhaut (1971-1988); Le Bourgeois and Merlier (1995); Akbundu and Agyakwa (1989); Arbonnier (2002); Hutchinson and Dalziel (1954-1972); Hawthorne and Jongkind (2006), Akoègninou *et al.* (2006); Poilecot (1995, 1999) and the West African Plants Database (<http://www.westafrican-plants.senckenberg.de>; Bruken *et al.* 2008).

Data analysis

The family concept follows Thiombiano *et al.* (2012), therefore Fabaceae and Malvaceae have been considered in a wider sense (with Caesalpinoideae and Mimosoideae as subfamilies of Fabaceae and Bombacoideae, Grewioideae, Sterculioideae as subfamilies of Malvaceae), which is now generally accepted (*e.g.*, APG III, 2009) but may differ from previous analyses from West Africa. Life forms follow Raunkiaer (1934) and have been assembled from literature (Mbayngone *et al.* 2008; Ouédraogo *et al.* 2011; Thiombiano *et al.* 2012). The chorological types refer to the phytochoria of White (1983), widely used in West African studies (Sinsin 2001; Mbayngone *et al.* 2008), and distributional information from the Global Biodiversity Information Facility (<http://www.gbif.org/species>). To determine floristic similarity with other protected areas, Sørensen indices were calculated using the Community Analysis Package (CAP 2002).

RESULTS

A total of 540 species was recorded in the Comoé-Léraba reserve belonging to 343 genera and 91 families (Appendix 1). In the study area, the pteridophytes constitute 1.11% of the species and the spermatophytes 98.89%. The whole of the

spermatophytes, only the angiosperms are present (monocotyledons 24.77% and dicotyledons 74.12%) and the gymnosperms are missed. The richest dominant families are Fabaceae (89 species), followed by Poaceae (51), Rubiaceae (33), Cyperaceae (25), Malvaceae (23) Apocynaceae (19), Euphorbiaceae (19), Acanthaceae (18), Asteraceae (18) and Combretaceae (14) (Figure 2). Seven types of life form were found in Comoé-Léraba reserve, with a dominance of phanerophytes (45.12%), followed by therophytes (32.97%), geophytes (9.02%), hemicryptophytes (7.55%), chamaephytes (4.24%), epiphytes (0.37%) and hydrophytes (0.18%). Regarding the chorological spectrum of the flora (Figure 3), 13 elements are determined.

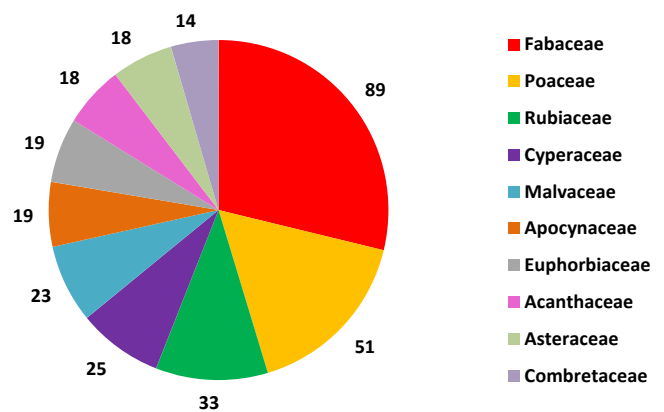


Figure 2. Family composition; showing the number of species in ten dominant families.

The most important are Sudanian (136); Guineo-Congolian (113); Pluriregional African (71); Paleotropical (54); Pantropical (54); Afrotropical (43) and Sudano-Zambezian (42).

DISCUSSION

The flora of Comoé-Léraba reserve represents 26.12% of the vascular plants of Burkina Faso (Thiombiano *et al.* 2012). The five most important families are similar to those of Pama reserve (Mbayngone *et al.* 2008). The family composition is also close to the flora of Arly National Park, but we found more species of Combretaceae.

Family diversity is higher (91 families) in the Comoé-Léraba reserve compared to Arly National Park (83) and the Partial faunal reserve of Pama (73). Fabaceae and Poaceae are the most dominant families in the protected areas in the North and South Sudanian sector (Schmidt *et al.* 2005; Schmidt *et al.* 2010) with typical savanna vegetation. With increasing water availability, gallery forests and dense dry forests become more important landscape elements. This explains the high availability of Rubiaceae members in Comoé-Léraba and Pendjari located in the more humid areas (Sambaré *et al.* 2010; N'Da *et al.* 2008, Bakayoko *et al.* 2004; Ake Assi, 2002).

The life form pattern found in Comoé-Léraba reserve, with a dominance of phanerophytes and therophytes, is in accordance with other studies from the North Sudanian (Ouédraogo *et al.* 2011) and South Sudanian phytogeographical sectors (Assédé *et al.* 2012). The dominance of phanerophytes in this study is due to the presence of different forest types. These results are similar to South Sudanian Zone (Thiombiano *et al.* 2012).

The chorological spectrum of the flora is characterized by a high proportion of Sudanian species (25.19%). However, the number of Guineo-Congolian species is also very important in the reserve (20.93%). These elements are found in each vegetation type of the reserve as opposed to Arly National Park where they are mainly confined to the gallery forests (Ouédraogo *et al.* 2011). This study confirms the phytogeographic placement of Comoé-Léraba in the Sudano-Guinean transition zone as shown by the presence of open forest of *Isoberlinia* (Adjanohoun *et al.* 1989) and the presence of *Monotes* and *Uapaca*. Within the chorological spectrum a high proportion of widespread species has been documented (Pluriregional African, Paleotropical, Pantropical, Sudano-Zambezian and Afrotropical). *Chromolaena odorata*, a neophyte from the Americas, has been identified. In West Africa, *C. odorata* shows the limit between denser rain forest and Guinean savanna (Akbundu and Agyakwa 1989). In other areas of the world, it is considered as an aggressive invader (US Forest Service 2014).

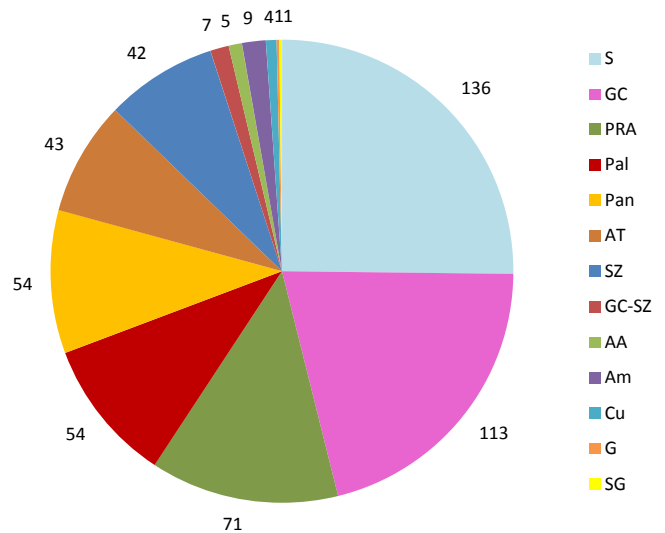


Figure 3. Chorological spectrum of the flora of Comoé-Léraba reserve, Burkina Faso. S= Sudanian; GC= Guinean-Congolian; PRA= Pluriregional African; Pal= Paleotropical; Pan = Pantropical; AT = Afrotropical, SZ= Sudano-zambesian; GC-SZ=Guinean-Congolian; Sudano-Zambezian; AA= Afro-American; Am = Afro-Malagasy; Cu= Cultivated; G= Guinean.

The comparison of protected areas of Burkina Faso and Benin includes four neighbouring areas. W-Burkina Faso (Nacoulma *et al.* 2011), Arly (Ouédraogo *et al.* 2011), Pama (Mbayngone *et al.* 2008) are geographically grouped together with the biosphere reserve of Pendjari in Benin in the so-called WAPO complex (W-Arly-Pendjari-Oti). Two other protected areas have been considered: Bangr-Weoogo urban park (Gnoumou *et al.* 2008), in the central part of the country, and the classified forest of Kou (Guinko and Thiombiano 2005), in southwest Burkina Faso. The last one is the country's largest protected area located in its northernmost corner - the Sahel reserve (Schmidt *et al.* 2008).

The highest floristic similarity was found between W-Burkina Faso and Arly national parks (Table 1) and also these protected areas are also similar to Pama and Pendjari in species composition.

Moreover, W-Burkina Faso, situated in the North Sudanian sector has a flora most similar to the Comoé-Léraba reserve. This is probably due to the similarity of more ecosystems, such as (1) groves on termite's mounds, (2) woodland savannah on flood plains, in high, middle and lower glacis, (3) gallery forest on river beds, (4) forest in middle glacis and high glacis, which is quite opposite to Kou reserve which is geographically closer to Comoé-Léraba. The W-Burkina Faso has high

Table 1. Comparison of the protected areas: Sørensen index

Protected area	Comoé-Léraba	Arly	Kou	Pama	Pendjari	PUBW	Sahel	W-Burkina
Comoé-Léraba								
Arly	0.49							
Kou	0.46	0.43						
Pama	0.47	0.66	0.44					
Pendjari	0.43	0.55	0.36	0.50				
PUBW	0.33	0.47	0.35	0.43	0.38			
Sahel	0.33	0.37	0.15	0.34	0.29	0.30		
W-Burkina	0.52	0.70	0.42	0.66	0.58	0.43	0.37	

Table 2. Comparison of the protected areas: common species, exclusive species and species richness.

Protected area	Common Species							Exclusive	Richness
	Comoé-Léraba	Arly	Kou	Pama	Pendjari	PUBW	Sahel		
Comoé-Léraba								118	521
Arly	216							34	490
Kou	204	197						25	275
Pama	203	298	211					34	450
Pendjari	252	323	233	282				180	684
PUBW	151	180	173	164	189			59	327
Sahel	88	155	115	227	147	167		109	345
W-Burkina	403	388	270	297	474	290	198	60	615

species richness with few exclusive species in comparison to the other protected areas. However, low dissimilarity exists between Comoé-Léraba reserve and the other transboundary protected areas further east. The environmental differences and larger distance to the other reserves make the Bangr-Weoogo urban park and the Sahel reserve the most distinctive in species composition. Comoé-Léraba accounts the highest number of exclusive species followed by the reserve of Sahel in the country (Table 2). Exclusive species bring out their value in flora conservation.

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Appendix 1. Higher plants of the classified forest and partial faunal reserve of Comoé-Léraba. The table follows the presentation of the families in alphabetical order and for each family the species are also in alphabetical order. Life form, chorological information and voucher specimens are provided for each species (life forms: [c] chamaephyte, [g] geophyte, [hc] hemicryptophyte, [hy]

hydrophyte, [p] phanerophyte, [t] therophyte; [ep] epiphyte; chorology: [S] sudanian, [Pan] pantropical, [SZ] Sudano-Zambesian, [Pal] Paletropical, [AT] Afrotropical, [PRA] pluriregional African, [GC] Guineo-Congolian, [AA] Afro-American, [Am] Afro-Malagasy, [G] Guinean, [Cu] cultivated, cosmopolitan, [GC-SZ] Guineo-Congolian-Sudano-Zambesian.

Family and species	Lf	Chor.	Voucher specimen number
PTERIDOPHYTA			
Adiantaceae			
<i>Adiantum philipense</i> L.	hc	SZ	A. Gnoumou 16431
<i>Doryopteris kirkii</i> (Hook.) Alston	t	AT	
Marsileaceae			
<i>Marsilea quadrifolia</i> L.	t		
Ophioglossaceae			
<i>Ophioglossum reticulatum</i> L.	g	Sz	A. Gnoumou 16459
Parkeriaceae			
<i>Ceratopteris cornuta</i> (P.Beauv.) Lepr.	t	SZ	A. Gnoumou 16589
Selaginellaceae			
<i>Selaginella protensa</i> Alston	t	GC-SZ	A. Gnoumou 16600
SPERMATOPHYTA			
Angiospermae			
Monocotyledonae			
Alismataceae			
<i>Burnatia enneandra</i> Micheli	t	PRA	A. Gnoumou 16653, Aké Assi et al 4064, 4065
<i>Butomopsis latifolia</i> (D.Don) Kunth	t	Pan	
<i>Limnophyton obtusifolium</i> (L.) Miq.	g	Pal	
Aloaceae			
<i>Aloe buettneri</i> A.Berger	g	S	
Amaryllidaceae			
<i>Pancratium tenuifolium</i> Hochst. ex A.Rich.	g	GC-SZ	
Anthericaceae			
<i>Chlorophytum laxum</i> R. Br.	g	S	A. Gnoumou 16478

Appendix 1. Continued.

Family and species	Lf	Chor.	Voucher specimen number
<i>Chlorophytum limosum</i> (Baker) Nordal	hc	S	A. Gnoumou 16544
<i>Chlorophytum senegalense</i> (Baker) Hepper	g	S	A. Gnoumou 16517
<i>Chlorophytum stenopetalum</i> Baker	g	SZ	A. Gnoumou 16546
<i>Chlorophytum lancifolium</i> Baker	g	GC	A. Gnoumou 16526
Araceae			
<i>Amorphophallus abyssinicus</i> (A.Rich.) N.E.Br.	g	S	
<i>Amorphophallus aphyllus</i> (Hook.) Hutch.	g	S	A. Gnoumou 16616
<i>Anchomanes difformis</i> (Blume) Engl.	g	GC	
<i>Caladium bicolor</i> (Ait.) Vent. var. <i>pictum</i>	g	AA	A. Gnoumou 13636
<i>Stylochaeton hypogaeus</i> Lepr.	g	GC	A. Gnoumou 16488, 16621
Areceaceae			
<i>Elaeis guineensis</i> Jacq.	p	Cu	
<i>Raphia sudanica</i> A.Chev.	p	S	
Asparagaceae			
<i>Asparagus africanus</i> Lam.	c	S	
<i>Drimia altissima</i> (L. f.) Ker-Gawl.	hc	AT	A. Gnoumou 16557
<i>Sansevieria liberica</i> Gêrôme & Labroy	g	GC	A. Gnoumou 16524, 16591
Colchicaceae			
<i>Gloriosa superba</i> L.	g	Pal	A. Gnoumou 16433
Commelinaceae			
<i>Aneilema lanceolatum</i> Benth.	t	S	
<i>Aneilema paludosum</i> A. Chev.	t	GC	A. Gnoumou 16424
<i>Commelina africana</i> L.	t	PRA	
<i>Commelina benghalensis</i> L.	t	Pal	
<i>Commelina erecta</i> L.	t	Pan	A. Gnoumou 16495
<i>Commelina nigrifolia</i> Benth.	t	GC	A. Gnoumou 16581
<i>Commelina subulata</i> Roth	t	Pal	
<i>Floscopa axillaris</i> (Poir.) C.B.Clarke	t	GC	A. Gnoumou 16444
<i>Murdannia simplex</i> (Vahl) Brenan	g	Pal	A. Gnoumou 16601
Costaceae			
<i>Costus spectabilis</i> (Fenzl) K.Schum.	g	SZ	
Cyperaceae			
<i>Bulbostylis abortiva</i> (Steud.) C.B.Clarke	t	PRA	
<i>Bulbostylis coleotricha</i> (Hochst. ex A.Rich.) C.B.Clarke	t	PRA	
<i>Bulbostylis filamentosa</i> (Vahl) C.B.Clarke	hc	SZ	A. Gnoumou 16567, 16456
<i>Bulbostylis hispidula</i> (Vahl) R.W.Haines subsp. <i>brachyphylla</i> (Cherm.) Napper	t	PRA	A. Gnoumou 16563
<i>Bulbostylis scabricaulis</i> Cherm.	t	PRA	A. Gnoumou 16566
<i>Cyperus amabilis</i> Vahl	t	Pan	A. Gnoumou 16643
<i>Cyperus cuspidatus</i> Kunth	t	Pan	A. Gnoumou 16421
<i>Cyperus difformis</i> L.	t	Pan	A. Gnoumou 16559
<i>Cyperus haspan</i> L.	hc	Pan	A. Gnoumou 16647
<i>Cyperus laxus</i> Lam. subsp. <i>buchholzii</i> (Boeckeler) Kük.	t	GC	A. Gnoumou 16611, 16614
<i>Cyperus margaritaceus</i> Vahl	t	PRA	A. Gnoumou 16467
<i>Cyperus tenuiculmis</i> Boeckeler	g	Pal	A. Gnoumou 16454
<i>Eleocharis complanata</i> Boeckeler	t	PRA	A. Gnoumou 32, 13641
<i>Eleocharis mutata</i> (L.) Roem. & Schult.	t	GC	A. Gnoumou 31, 13640
<i>Fimbristylis ferruginea</i> (L.) Vahl	t	Pan	A. Gnoumou 16646
<i>Fuirena ciliaris</i> (L.) Roxb.	t	Pal	A. Gnoumou 16641
<i>Fuirena umbellata</i> Rottb.	g	Pan	A. Gnoumou 16423
<i>Kyllinga tenuifolia</i> Steud.	hc	Pal	A. Gnoumou 16450
<i>Mariscus cylindristachyus</i> Steud.	hc	Pan	A. Gnoumou 16572
<i>Pycnus flavescens</i> (L.) Reichenb.	t	Pan	
<i>Rhynchospora corymbosa</i> (L.) Britton	hc	Pan	
<i>Schoenoplectiella senegalensis</i> (Hochst. ex Steud.) Lye	hc	Pal	A. Gnoumou 16656, 16672
<i>Scleria naumanniana</i> Boeckeler	g	GC	A. Gnoumou 16283, 16550; Aké Assi et al. 4093
<i>Scleria sphaerocarpa</i> (E.A.Rob.) Napper	g	S	
<i>Scleria tessellata</i> Willd.	t	Pal	A. Gnoumou 16570
Dioscoreaceae			
<i>Dioscorea bulbifera</i> L.	g	Pan	A. Gnoumou 16266
<i>Dioscorea dumetorum</i> (Kunth) Pax	g	GC	A. Gnoumou 16530

Appendix 1. Continued.

Family and species	Lf	Chor.	Voucher specimen number
<i>Dioscorea hirtiflora</i> Benth.	g	GC	
<i>Dioscorea sagittifolia</i> Pax	g	S	
Eriocaulaceae			
<i>Eriocaulon inundatum</i> Moldenke	t	GC	A. Gnoumou 16511
<i>Eriocaulon meikleii</i> Moldenke	t	S	A. Gnoumou 16659
<i>Eriocaulon togoense</i> Moldenke	t	S	A. Gnoumou 16541
Hydrocharitaceae			
<i>Ottelia ulvifolia</i> Pers.	Hy	PRA	
Hypoxidaceae			
<i>Curculigo pilosa</i> (Schum. & Thonn.). var. <i>minor</i> Engler	g	PRA	
Iridaceae			
<i>Gladiolus gregarius</i> Welw. ex Baker	g	AT	A. Gnoumou 16501
Marantaceae			
<i>Thalia geniculata</i> L.	g	PRA	
Nymphaeaceae			
<i>Nymphaea lotus</i> L.	g	Pal	
<i>Nymphaea maculata</i> Schumacher. & Thonn.	g	GC	A. Gnoumou 16652
<i>Nymphaea micrantha</i> Guill. & Perr.	g	GC	A. Gnoumou 16654, 16671
Orchidaceae			
<i>Calyptrochilum christyanum</i> (Rchb.f.) Summerh.	ep	S	A. Gnoumou 16437
<i>Eulophia cucullata</i> (Afz.) Lindl.ex Steud.	hc	S	
<i>Liparis nervosa</i> (Thunb.) Lindl.	g	Pan	
<i>Malaxis chevalieri</i> Summerh.	g	GC	A. Gnoumou 16606
<i>Nervilia petraea</i> (Afzel.ex. Sw.) Summerh	g	Am	A. Gnoumou 16580
<i>Nervilia kotschyii</i> (Rchb.f.) Schltr.	g	Am	
<i>Nervilia simplex</i> (Thouars) Schltr.	g	Am	A. Gnoumou 16607
<i>Nervilia bicarinata</i> (Blume) Schltr.	g	Am	A. Gnoumou 16461, 16520
Poaceae			
<i>Acroceras zizanioides</i> (Kunth) Dandy	hc	Pan	A. Gnoumou 16604
<i>Andropogon gayanus</i> Kunth	hc	AT	A. Gnoumou 16547
<i>Andropogon schirensis</i> A.Rich.	hc	PRA	A. Gnoumou 16463
<i>Aristida kerstingii</i> Pilg.	t	GC	A. Gnoumou 16497
<i>Brachiaria serrata</i> (Thunb.) Stapf	hc	SZ	A. Gnoumou 16622
<i>Chasmopodium caudatum</i> (Hack.) Stapf	t	GC	A. Gnoumou 16531
<i>Chloris robusta</i> Stapf	t	S	
<i>Chrysopogon nigritanus</i> (Benth.) Veldkamp	hc	PRA	
<i>Ctenium elegans</i> Kunth	t	AT	A. Gnoumou 16551
<i>Ctenium newtonii</i> Hack.	hc	S	
<i>Cymbopogon caesius</i> (Nees ex Hook. & Arn.) Stapf	hc	PRA	A. Gnoumou 16617
<i>Digitaria diagonalis</i> (Nees) Stapf var. <i>hirsuta</i> (De Wild. & Th. Dur.) Troupin	hc	PRA	A. Gnoumou 16583, 16594
<i>Digitaria horizontalis</i> Willd.	t	GC	
<i>Elionurus elegans</i> Kunth	t	SZ	A. Gnoumou 16464
<i>Elionurus royleanus</i> Nees ex A. Rich.	t	AT	
<i>Elymandra androphila</i> (Stapf) Stapf	hc	S	A. Gnoumou 16472
<i>Elytrophorus spicatus</i> (Willd.) A.Camus	t	Pal	A. Gnoumou 16655, 16662
<i>Euclasta condylotricha</i> (Hochst. ex Steud.) Stapf	t	Aam	A. Gnoumou 16272
<i>Hyparrhenia glabriuscula</i> (Hochst. ex A.Rich.) Anderss. ex Stapf	hc	S	A. Gnoumou 16523
<i>Hyparrhenia involuocrata</i> Stapf	t	S	A. Gnoumou 16484
<i>Hyparrhenia smithiana</i> (Hook. f.) Stapf	hc	S	A. Gnoumou 16451, 16457
<i>Loudetia simplex</i> (Nees) C.E.Hubb.	hc	PRA	A. Gnoumou 16458
<i>Loudetiopsis kerstingii</i> (Pilg.) Conert	t	S	A. Gnoumou 16457, 16483
<i>Microchloa indica</i> (L.f.) P.Beauv.	t	Pan	A. Gnoumou 16494
<i>Monocymbium ceresiiforme</i> (Nees) Stapf	hc	S	A. Gnoumou 16489, 16502
<i>Oplismenus hirtellus</i> (L.) P.Beauv.	c	GC	A. Gnoumou 16514
<i>Oryza barthii</i> A.Chev.	t	AT	A. Gnoumou 16639
<i>Oryza longistaminata</i> A.Chev. & Roehr.	hc	PRA	
<i>Oxytenanthera abyssinica</i> (A.Rich.) Munro	hc	AT	
<i>Panicum fluviicola</i> Steud.	hc	PRA	A. Gnoumou 16491, 16540, 16592
<i>Panicum phragmitoides</i> Stapf	hc	GC	A. Gnoumou 16595
<i>Paspalum scrobiculatum</i> L.	hc	Pal	A. Gnoumou 16439, 16640
<i>Pennisetum pedicellatum</i> Trin.	t	Pal	
<i>Pennisetum polystachion</i> (L.) Schult.	t	GC-SZ	

Appendix 1. Continued.

Family and species	Lf	Chor.	Voucher specimen number
<i>Pennisetum unisetum</i> (Nees) Benth	hc	SZ	A. Gnoumou 16496
<i>Rottboellia cochinchinensis</i> (Lour.) Clayton	t	Pal	A. Gnoumou 16426
<i>Sacciolepis africana</i> C.E.Hubb. & Snowden	g	GC	A. Gnoumou 16663
<i>Sacciolepis chevalieri</i> Stapf	hc	S	A. Gnoumou 16668
<i>Sacciolepis indica</i> (L.) Chase	t	Pal	
<i>Sacciolepis micrococca</i> Mez	t	S	A. Gnoumou 16669
<i>Schizachyrium exile</i> (Hochst.) Pilg.	t	Am	
<i>Schizachyrium brevifolium</i> (Sw.) Nees ex Büse			
<i>Schizachyrium platyphyllum</i> (Franch.) Stapf	hc	S	A. Gnoumou 16442, 16573, 16648
<i>Schizachyrium sanguineum</i> (Retz.) Alston	hc	Pan	
<i>Schizachyrium schweinfurthii</i> (Hack.) Stapf	hc	S	A. Gnoumou 16590
<i>Sorghastrum bipennatum</i> (Hack.) Pilg.	t	PRA	
<i>Sporobolus festivus</i> Hochst. ex A.Rich.	hc	PRA	
<i>Sporobolus pyramidalis</i> P.Beauv.	hc	PRA	
<i>Sporobolus virginicus</i> (L.) Kunth	g	GC	A. Gnoumou 16665
<i>Urelytrum annuum</i> Stapf	t	S	A. Gnoumou 16503
<i>Urelytrum muricatum</i> C.E.Hubb.	hc	S	
Pontederiaceae			
<i>Eichhornia natans</i> (P.Beauv.) Solms	t	AA	A. Gnoumou 16657
Smilacaceae			
<i>Smilax anceps</i> Willd.	p	PRA	
Taccaceae			
<i>Tacca leontopetaloides</i> (L.) Kuntze	g	Pal	
Zingiberaceae			
<i>Aframomum sceptrum</i> (Oliv. & Haub.) K.Schum. (Figure 5)	g	GC	A. Gnoumou 13620
<i>Siphonochilus aethiopicus</i> (Schweinf.) B.L.Burt	g	S	
Angiospermae			
Dicotyledoneae			
Acanthaceae			
<i>Asystasia gangetica</i> (L.) T. Anders.	t	Pal	A. Gnoumou 16575
<i>Barleria ruellioides</i> T. Anders.	t	S	
<i>Blepharis maderaspatensis</i> (L.) Heyne ex Roth	t	Pal	
<i>Dicliptera paniculata</i> (Forssk.) I.Darbysh.	t	PRA	A. Gnoumou 16578
<i>Dyschoriste nagchana</i> (Nees) Bennet	t	AT	
<i>Elytraria marginata</i> Vahl	t	GC	A. Gnoumou 28, 13637
<i>Hypoestes aristata</i> (Vahl) Sol. ex Roem. & Schult.	t	PRA	A. Gnoumou 16321
<i>Justicia ladanoides</i> Lam.	t	AT	
<i>Justicia tenella</i> (Nees) T. Anders.	t	PRA	A. Gnoumou 16441
<i>Lepidagathis alopecuroides</i> (Vahl) R. Br. ex Griseb.	t	Pan	
<i>Lepidagathis anobrya</i> Nees	c	S	A. Gnoumou 16434
<i>Lepidagathis collina</i> (Endl.) Milne-Redhead	t	S	A. Gnoumou 16618, 16619, 16620
<i>Monechma ciliatum</i> (Jacq.) Milne-Redhead	c	PRA	A. Gnoumou 16436, 1646
<i>Monechma depauperatum</i> (T. Anders.) C.B. Clarke	t	S	
<i>Nelsonia canescens</i> (Lam.) Spreng.	t	Pan	A. Gnoumou 16598
<i>Phaulopsis barberi</i> (T. Anders.) Lindau	t	AA	A. Gnoumou 16576, 16577
<i>Phaulopsis ciliata</i> (Willd.) Hepper	t	AT	
<i>Ruellia praetermissa</i> Schweinf. ex Lindau	t	S	A. Gnoumou 16449
Amaranthaceae			
<i>Achyranthes aspera</i> L.	t	Pan	
<i>Cyathula achyranthoides</i> (Kunth) Moq.	t	GC	A. Gnoumou 16281
<i>Cyathula prostrata</i> (L.) Blume	t	GC	
<i>Gomphrena globosa</i> L.	t	Pan	A. Gnoumou 16493
<i>Pandiaka angustifolia</i> (Vahl) Hepper	t	S	A. Gnoumou 16462
Anacardiaceae			
<i>Lannea acida</i> A. Rich.	p	S	
<i>Lannea barberi</i> (Oliv.) Engl.	p	S	
<i>Lannea microcarpa</i> Engl. & K.Krause	p	SZ	
Annonaceae			
<i>Annona senegalensis</i> Pers.	p	S	
<i>Hexalobus monopetalus</i> (A. Rich.) Engl. & Diels	p	S	
<i>Uvaria chamae</i> P.Beauv.	p	PRA	A. Gnoumou 16318,
<i>Uvariopsis guineensis</i> Keay	p	GC	

Appendix 1. Continued.

Family and species	Lf	Chor.	Voucher specimen number
<i>Uvariopsis tripetala</i> (Baker f.) G.E.Schatz	p	GC	A. Gnoumou 16417
<i>Xylopia acutiflora</i> (Dunal) A.Rich.	p	GC	A. Gnoumou 16365
Apocynaceae			
<i>Alafia scandens</i> (Thonn.) De Wild.	p	GC	A. Gnoumou 14, 13623
<i>Baissea multiflora</i> A. DC.	p	SZ	A. Gnoumou 16256
<i>Carissa edulis</i> (Forssk.) Vahl (Figure 9)	p	Pal	A. Gnoumou 16326
<i>Cryptolepis oblongifolia</i> (Meisn.) Schltr.	c	PRA	A. Gnoumou 16508
<i>Cryptolepis sanguinolenta</i> (Lindl.) Schltr.	p	GC	A. Gnoumou 16419
<i>Cryptostegia grandiflora</i> R.Br. ex Lindl.	p	GC	A. Gnoumou 16471
<i>Gymnema sylvestre</i> (Retz.) Schultes	p	Pal	
<i>Holarrhena floribunda</i> (G.Don) T.Durand & Schinz	p	GC	A. Gnoumou 16352, 16390
<i>Landolphia dulcis</i> (Sabine) Pichon	p	GC	A. Gnoumou 16397
<i>Landolphia hirsuta</i> (Hua) Pichon	p	GC	A. Gnoumou 13626
<i>Leptadenia hastata</i> (Pers.) Decne.	p	PRA	A. Gnoumou 16377
<i>Oxystelma bornouense</i> R.Br.	p	GC	
<i>Pentatropis nivalis</i> (J.F.Gmel.) D.V.Field & J.R.I.Wood	p	Pal	A. Gnoumou 16295, 16296
<i>Saba comorensis</i> (Bojer ex A.D.C.) Pichon	p	PRA	A. Gnoumou 16310
<i>Saba senegalensis</i> (A.D.C.) Pichon	p	S	
<i>Secamone afzelii</i> (Schultes) K.Schum.	p	GC	A. Gnoumou 16260, 16316, 16361
<i>Strophanthus sarmentosus</i> DC.	p	GC	
<i>Tacazzea apiculata</i> Oliv.	p	AT	
<i>Telosma africana</i> (N.E.Br.) N.E.Br.	p	PRA	A. Gnoumou 16273, 16288
Araliaceae			
<i>Cussonia arborea</i> Hochst. ex A. Rich.	p	SZ	
Asteraceae			
<i>Aspilia bussei</i> O. Hoffm. & Muschl.	t	S	A. Gnoumou 16446
<i>Aspilia helianthoides</i> (Schum. & Thonn.) Oliv. & Hiern	t	PRA	
<i>Aspilia paludosa</i> Berhaut	t	S	
<i>Aspilia rudis</i> Oliv. & Hiern	t	S	
<i>Bidens engleri</i> O.E.Schulz	t	S	
<i>Blumea crispata</i> (Vahl) Merxm.	t	GC-SZ	
<i>Centaurea praecox</i> Oliv. & Hiern	g	AT	A. Gnoumou 16455
<i>Chromolaena odorata</i> (L.) R. King & H. Robinson	c	Pan	
<i>Echinops longifolius</i> A.Rich.	t	S	A. Gnoumou 16453
<i>Elephantopus mollis</i> Kunth	t	Pan	A. Gnoumou 16586
<i>Lactuca inermis</i> Forssk.	hc	PRA	A. Gnoumou 16479, 16556
<i>Linzia nigriflora</i> (Oliv. & Hiern) Isawumi	c	S	A. Gnoumou 16466
<i>Litogyne gariepina</i> (DC.) Anderb.	t	AT	A. Gnoumou 16542
<i>Macledium sessiliflorum</i> (Harv.) S.Ortiz	hc	S	A. Gnoumou 16612
<i>Melanthera elliptica</i> O.Hoffm.	hc	S	A. Gnoumou 16473
<i>Pseudoconyza viscosa</i> (Mill.) D'Arcy	t	PRA	
<i>Vernonia colorata</i> (Willd.) Drake	p	SZ	
<i>Vernonia guineensis</i> Benth.	t	PRA	A. Gnoumou 16560
Balanophoraceae			
<i>Thonningia sanguinea</i> Vahl (Figure 10)	g	GC	
Bignoniaceae			
<i>Kigelia africana</i> (Lam.) Benth.	p	GC	A. Gnoumou 16320, 16334
<i>Stereospermum kunthianum</i> Cham.	p	SZ	
Bixaceae			
<i>Cochlospermum tinctorium</i> Perr. ex A.Rich.	g	S	
Boraginaceae			
<i>Cordia myxa</i> L.	p	Pal	
<i>Rotula aquatica</i> Lour.	p	Pan	A. Gnoumou 16351
Campanulaceae			
<i>Wahlenbergia hirsuta</i> (Edgew.) Tuyn	t	AT	A. Gnoumou 16574
Capparaceae			
<i>Cadaba farinosa</i> Forssk.	p	Pal	A. Gnoumou 13276, 13277
<i>Capparis polymorpha</i> A. Rich.	p	GC	A. Gnoumou 16396
<i>Capparis sepiaria</i> L.	p	SZ	
<i>Capparis tomentosa</i> Lam.	p	S	A. Gnoumou 16276, 16393
<i>Crateva adansonii</i> DC.	p	Pal	A. Gnoumou 16383
<i>Maerua angolensis</i> DC.	p	AT	

Appendix 1. Continued.

Family and species	Lf	Chor.	Voucher specimen number
<i>Ritchiea capparoides</i> (Andrews) Britten	p	GC	A. Gnoumou 16382, 16387
Celastraceae			
<i>Apodostigma pallens</i> (Planch. & Oliv.) Wilczek var. <i>pallens</i>	p	GC	A. Gnoumou 16287, 16305
<i>Gymnosporia senegalensis</i> (Lam.) Loes.	p	SZ	
<i>Loeseneriella africana</i> (Willd.) Wilczek ex Hallé	p	AT	A. Gnoumou 16269
<i>Salacia pallescens</i> Oliv.	p	GC	A. Gnoumou 16331, 16332, 16344, 16346
<i>Salacia stuhlmanniana</i> Loes.	p	GC	A. Gnoumou 13282, 16253, 16277
<i>Simicratea welwitschii</i> (Oliv.) N. Hallé	p	GC	A. Gnoumou 16399
Chrysobalanaceae			
<i>Maranthes polyandra</i> (Benth.) Prance	p	S	A. Gnoumou 16355
<i>Parinari congensis</i> Didr.	p	GC	A. Gnoumou 16341, 16359
<i>Parinari curatellifolia</i> Planch. ex Benth.	p	SZ	A. Gnoumou 16324
Combretaceae			
<i>Anogeissus leiocarpa</i> Guill. & Perr.	p	SZ	
<i>Combretum adenogonium</i> Steud. Ex. A.Rich.	p	S	
<i>Combretum collinum</i> Fresen.	p	AT	
<i>Combretum molle</i> R. Br. ex G. Don	p	AT	
<i>Combretum nigricans</i> Lepr. ex Guill. & Perr.	p	S	A. Gnoumou 16407
<i>Combretum paniculatum</i> Vent.	p	PRA	
<i>Combretum racemosum</i> P. Beauv.	p	GC	
<i>Combretum sericeum</i> G. Don	p	S	A. Gnoumou 16349
<i>Combretum tarquense</i> Clark	p	GC	
<i>Pteleopsis suberosa</i> Engl. & Diels	p	PRA	
<i>Terminalia glaucescens</i> Planch. ex Benth.	p	SZ	A. Gnoumou 16286, 16372
<i>Terminalia laxiflora</i> Engl. & Diels	p	S	
<i>Terminalia macroptera</i> Guill. & Perr.	p	S	
<i>Terminalia mollis</i> M. A. Lawson	p	PRA	A. Gnoumou 16354
Convolvulaceae			
<i>Evolvulus nummularius</i> (L.) L.	t	Pan	A. Gnoumou 16474
<i>Ipomoea argentaurata</i> Hallier f.	t	GC	
<i>Ipomoea cairica</i> (L.) Sweet	t	Pan	A. Gnoumou 13625
<i>Ipomoea hederifolia</i> L.	t	GC	A. Gnoumou 16509
<i>Ipomoea marginata</i> (Desr.) Verdc.	p	Pal	A. Gnoumou 16602
<i>Ipomoea mauritiana</i> Jacq.	t	Pan	Aké Assi et al. 4091
<i>Merremia hederacea</i> (Burm.f.) Hallier f.	p	GC	A. Gnoumou
Cucurbitaceae			
<i>Momordica charantia</i> L.	p	Pan	
<i>Cucumis maderaspatanus</i> L.	t	Pal	A. Gnoumou 16537
Dilleniaceae			
<i>Tetracera potatoria</i> Afzel. ex G. Don	p	GC	A. Gnoumou 13629
Dipterocarpaceae			
<i>Monotes kerstingii</i> Gilg	p	S	
Ebenaceae			
<i>Diospyros abyssinica</i> (Hiern) F. White	p	GC	A. Gnoumou 16335
<i>Diospyros heudelotii</i> Hiern	p	GC	
<i>Diospyros mespiliformis</i> Hochst. ex A. DC.	p	Pal	
Euphorbiaceae			
<i>Antidesma rufescens</i> Tul.	p	PRA	A. Gnoumou 16284
<i>Antidesma venosum</i> E. Mey. ex Tul.	p	PRA	
<i>Caperonia serrata</i> (Turcz.) C. Presl	t	S	A. Gnoumou 16538, 16649
<i>Croton nigritanus</i> Scott-Elliot	p	GC	A. Gnoumou 16413, 16416
<i>Croton scarcesii</i> Scott-Elliot	p	GC	A. Gnoumou 16409
<i>Euphorbia convolvuloides</i> Hochst. ex Benth.	c	S	
<i>Excoecaria grahamii</i> Stapf	c	SZ	
<i>Mallotus oppositifolia</i> (Geiseler) Müll. Arg.	p	PRA	A. Gnoumou 16343, 16345
<i>Tragia laminularis</i> Müll. Arg.	hc	S	A. Gnoumou 16626
<i>Tragia volubilis</i> L.	hc	AT	A. Gnoumou 13628
Fabaceae			
Fabaceae-Caesalpinoideae			
<i>Afzelia africana</i> Sm. ex Pers.	p	SZ	
<i>Berlinia grandifolia</i> (Vahl) Hutch. & Dalz. (Figure 12)	p	GC	A. Gnoumou 13278, 13279
<i>Burkea africana</i> Hook.	p	AT	

Appendix 1. Continued.

Family and species	Lf	Chor.	Voucher specimen number
<i>Cassia absus</i> L.	c	Pal	A. Gnoumou 16443
<i>Cassia podocarpa</i> Guill. & Perr.	p	GC	
<i>Cassia sieberiana</i> DC.	p	SZ	A. Gnoumou 16264
<i>Daniellia oliveri</i> (Rolfe) Hutch. & Dalziel	p	SZ	
<i>Detarium microcarpum</i> Guill. & Perr.	p	S	
<i>Dialium guineense</i> Willd.	p	GC	A. Gnoumou 16279, 16411
<i>Erythrophleum africanum</i> (Welw. ex Benth.) Harms	p	PRA	
<i>Erythrophleum suaveolens</i> (Guill. & Perr.) Brenan	p	PRA	A. Gnoumou 16408
<i>Guibourtia copallifera</i> Benn. (Figure 7)	p	S	Thiombiano et al. 3348
<i>Isoberlinia doka</i> Craib & Stapf (Figure 14)	p	S	
<i>Isoberlinia tomentosa</i> (Harms) Craib & Stapf	p	S	
<i>Mezoneuron benthamianum</i> Baill.	p	GC	A. Gnoumou 13622
<i>Piliostigma reticulatum</i> (DC.) Hochst.	p	S	
<i>Piliostigma thonningii</i> (Schumach.) Milne-Redh.	p	AT	
<i>Tamarindus indica</i> L.	p	Pan	
Fabaceae-Faboideae			
<i>Abrus canescens</i> Welw. ex Baker (Figure 11)	p	GC	A. Gnoumou 13635
<i>Abrus melanospermus</i> Hassk.	p	Pan	
<i>Abrus precatorius</i> L.	p	Pan	A. Gnoumou 16340
<i>Abrus pulchellus</i> Wall	p	AT	
<i>Aeschynomene afraspera</i> J. Léonard	c	S	A. Gnoumou 16510
<i>Alysicarpus glumaceus</i> (Vahl) DC.	t	PRA	A. Gnoumou 16469, 16525, 16569
<i>Andira inermis</i> (Wright) DC.	p	S	
<i>Bakerophyton lateritium</i> (Harms) Hutch. ex Maheshw.	c	S	A. Gnoumou 16554
<i>Calopogonium mucunoides</i> Desv.	p	GC	A. Gnoumou 16627
<i>Centrosema pubescens</i> Benth.	t	Pan	
<i>Crotalaria calycina</i> Schrank	t	Pal	A. Gnoumou 16587
<i>Crotalaria goreensis</i> Guill. & Perr.	t	PRA	A. Gnoumou 16553
<i>Crotalaria hyssopifolia</i> Klotzsch	t	S	A. Gnoumou 16628
<i>Crotalaria microcarpa</i> Hochst. ex Benth.	t	S	A. Gnoumou 16485
<i>Crotalaria vogelii</i> Benth.	t	AT	
<i>Dalbergia hostilis</i> Benth.	p	GC	A. Gnoumou 16420
<i>Dalbergia saxatilis</i> Hook. f.	p	GC	
<i>Desmodium barbatum</i> (L.) Benth.	t	PRA	A. Gnoumou 16558
<i>Desmodium gangeticum</i> (L.) DC.	c	Pal	A. Gnoumou 16532
<i>Desmodium linearifolium</i> G. Don	t	GC	A. Gnoumou 13632
<i>Desmodium velutinum</i> (Willd.) DC.	c	Pal	A. Gnoumou 16529
<i>Eriosema griseum</i> Baker	t	GC	A. Gnoumou 16422
<i>Eriosema psoraleoides</i> (Lam.) G. Don	t	PRA	A. Gnoumou 16539
<i>Erithryna senegalensis</i> A. DC.	p	SZ-GC	
<i>Flemingia faginea</i> (Guill. & Perr.) Baker	p	S	
<i>Indigofera bracteolata</i> DC.	t	S	A. Gnoumou 16487
<i>Indigofera dendroides</i> Jacq.	t	PRA	A. Gnoumou 16465
<i>Indigofera kerstingii</i> Harms	t	S	A. Gnoumou 16555
<i>Indigofera macrocalyx</i> Guill. & Perr.	t	S	
<i>Indigofera macrophylla</i> Schum.	p	GC	
<i>Indigofera microcarpa</i> Desv.	t	Pan	
<i>Indigofera paniculata</i> Vahl ex Pers.	t	S	A. Gnoumou 16299
<i>Indigofera simplicifolia</i> Lam.	t	SZ	A. Gnoumou 16302
<i>Indigofera stenophylla</i> G. et Perr.	t	S	A. Gnoumou 16477
<i>Indigofera tetrasperma</i> Vahl ex Pers.	t	GC	A. Gnoumou 16482
<i>Macrotyloma biflorum</i> (Schumach. & Thonn.) Hepper	p	S	A. Gnoumou 16301
<i>Pericopsis laxiflora</i> (Benth.) Meeuwen	p	S	A. Gnoumou 16263
<i>Philenoptera cyanescens</i> (Schumach. & Thonn.) Roberty	p	GC	A. Gnoumou 16275
<i>Pseudarthria hookeri</i> Wight & Arn.	p	GC-SZ	A. Gnoumou 16564
<i>Pterocarpus erinaceus</i> Poir.	p	SZ	A. Gnoumou
<i>Pterocarpus santalinoides</i> DC.	p	GC	A. Gnoumou 16308, 16342, 16381
<i>Rhynchosia densiflora</i> (Roth) DC.	t	Pal	A. Gnoumou 16536, 16609
<i>Rhynchosia minima</i> (L.) DC.	t	Pan	A. Gnoumou 16492, 16545, 16571
<i>Sphenostylis schweinfurthii</i> Harms	p	S	
<i>Tephrosia elegans</i> Schumach.	t	GC	
<i>Tephrosia pedicellata</i> Bak.	t	S	

Appendix 1. Continued.

Family and species	Lf	Chor.	Voucher specimen number
<i>Tephrosia platycarpa</i> Guill. & Perr.	t	S	A. Gnoumou 16507
<i>Teramnus labialis</i> (L. f.) Spreng.	t	Pan	A. Gnoumou 16610, 16631
<i>Uraria picta</i> (Jacq.) DC.	t	Pan	A. Gnoumou 16527
<i>Vigna filicaulis</i> Hepper	t	GC	
<i>Vigna heterophylla</i> A.Rich.	t	PRA	A. Gnoumou 16613, 16630
<i>Vigna luteola</i> (Jacq.) Benth.	t	GC	A. Gnoumou 16504
<i>Vigna racemosa</i> (G. Don) Hutch. & Dalziel	t	GC	
<i>Vigna reticulata</i> Hook. f.	t	S	A. Gnoumou 16498
<i>Vigna venulosa</i> Baker	t	S	A. Gnoumou 16568
<i>Xeroderris stuhlmannii</i> (Taub.) Mendonça & E.C.Sousa	p	SZ	
Fabaceae-Mimosoideae			
<i>Acacia dudgeonii</i> Craib ex Holland	p	S	
<i>Acacia macrostachya</i> Rchb. ex DC.	p	SZ	
<i>Acacia polyacantha</i> Willd. subsp. <i>campylacantha</i> (Hoechst. ex A. Rich.) Brenan	p	PRA	
<i>Acacia seyal</i> Delile	p	S	
<i>Acacia sieberiana</i> DC.	p	AT	A. Gnoumou 16368
<i>Albizia malacophylla</i> (A. Rich.) Walp. var. <i>ugandensis</i> Bak. f.	p	S	
<i>Albizia zygia</i> (DC.) J.F. Macbr.	p	PRA	A. Gnoumou 16274
<i>Chamaecrista pratensis</i> (R.Vig.) Du Puy	t	Pal	A. Gnoumou 16432
<i>Dichrostachys cinerea</i> (L.) Wight & Arn.	p	Pan	
<i>Entada abyssinica</i> Steud. ex A. Rich.	p	S	
<i>Entada africana</i> Guill. & Perr.	p	SZ	
<i>Entada walberghii</i> Harv.	p	S	A. Gnoumou 16309
<i>Mimosa pigra</i> L.	p	Pan	
<i>Parkia biglobosa</i> (Jacq.) R. Br. ex G. Don	p	Pal	
<i>Prosopis africana</i> (Guill. & Perr.) Taub.	p	S	
Gentianaceae			
<i>Canscora diffusa</i> (Vahl) R. Br. ex Roem. & Schult.	t	Pal	A. Gnoumou 16596
Hydroleaceae			
<i>Hydrolea palustris</i> (Aubl.) Rausch.	t	GC	
Hypericaceae			
<i>Psorospermum corymbiferum</i> Hochr. var. <i>corymbiferum</i>	p	S	A. Gnoumou 16476
<i>Psorospermum senegalense</i> Spach	p	S	
Lamiaceae			
<i>Clerodendrum capitatum</i> (Willd.) Schumach.	p	GC	A. Gnoumou 16403, 16448
<i>Gmelina arborea</i> Roxb.	p	Cu	
<i>Haumaniastrum buettneri</i> (Gürke) J.K. Morton	c	S	
<i>Hoslundia opposita</i> Vahl	p	Am	
<i>Hyptis suaveolens</i> Poit.	t	Pal	A. Gnoumou 16518
<i>Ocimum gratissimum</i> L.	t	Pal	A. Gnoumou 16562
<i>Platostoma africanum</i> P.Beauv.	t	Pal	
<i>Plectranthus gracillimus</i> (T.C.E.Fr.) Hutch. & Dany	t	S	A. Gnoumou 16480
<i>Plectranthus monostachyus</i> (P.Beauv.) B.J.Pollard	t	PRA	
<i>Tectona grandis</i> L. f.	p	Pan	
<i>Vitex chrysocarpa</i> Planch. ex Benth.	p	SZ	
<i>Vitex doniana</i> Sweet	p	AT	
<i>Vitex madiensis</i> Oliv.	p	S	
Lecythidaceae			
<i>Napoleonaea heudelotii</i> A.Juss.	p	GC	A. Gnoumou 13639
<i>Napoleonaea vogelii</i> Hook. & Planch.	p	GC	A. Gnoumou 13631
Linderniaceae			
<i>Lindernia parviflora</i> (Roxb.) Haines	t	Pal	A. Gnoumou 16512
Loganiaceae			
<i>Spigelia anthelmia</i> L.	t	Pan	A. Gnoumou 16528
<i>Strychnos congolana</i> Gilg	p	GC	A. Gnoumou 13627
<i>Strychnos innocua</i> Delile	p	SZ	A. Gnoumou 16254
<i>Strychnos spinosa</i> Lam.	p	AM	
<i>Strychnos usambarensis</i> Gilg	p	PRA	A. Gnoumou 16291, 16410
Loranthaceae			
<i>Agelanthus dodoneifolius</i> (DC.) Polhill & Wiens	ep	S	
Lythraceae			
<i>Ammannia auriculata</i> Willd.	t	Pan	A. Gnoumou 16588

Appendix 1. Continued.

Family and species	Lf	Chor.	Voucher specimen number
<i>Ammannia baccifera</i> L.	t	PRA	A. Gnoumou 16670
<i>Ammannia priureana</i> Guill. & Perr.	t	S	A. Gnoumou 16660
Malpighiaceae			
<i>Flabellaria paniculata</i> Cav.	p	GC	
Malvaceae			
<i>Bombax costatum</i> Pellegr. & Vuill.	p	S	
<i>Ceiba pentandra</i> (L.) Gaertn.	p	Pan	
<i>Christiana africana</i> DC.	p	GC	A. Gnoumou 13281, 16304, 16412
<i>Cola cordifolia</i> (Cav.) R. Br.	p	S	A. Gnoumou 16319
<i>Cola laurifolia</i> Mast.	p	GC	A. Gnoumou 16297
<i>Corchorus fascicularis</i> Lam.	t	Pal	A. Gnoumou 16428
<i>Corchorus tridens</i> L.	t	Pal	A. Gnoumou 16515
<i>Grewia bicolor</i> Juss.	p	SZ	
<i>Grewia cissooides</i> Hutch. & Dalziel	c	S	A. Gnoumou 16203, 16389
<i>Grewia flavescens</i> Juss.	p	Pal	
<i>Grewia lasiodiscus</i> K.Schum.	p	S	A. Gnoumou 16262
<i>Hermannia tigrensensis</i> Hochst. ex A.Rich.	t	AT	A. Gnoumou 16645
<i>Hibiscus cannabinus</i> L. [cult.]	t	PRA	
<i>Hibiscus sabdariffa</i> L. [cult.]	t	Pan	A. Gnoumou 16429
<i>Hibiscus squamosus</i> Hochr.	t	S	A. Gnoumou 16447
<i>Hibiscus surattensis</i> L.	t	Pan	A. Gnoumou 16615
<i>Melochia corchorifolia</i> L.	p	AA	
<i>Sida alba</i> L.	t	Pan	A. Gnoumou 16300
<i>Sida javensis</i> Cav.	c	GC	A. Gnoumou 16516
<i>Sida urens</i> L.	t	Pan	
<i>Sterculia setigera</i> Delile	p	AT	
<i>Triumfetta rhomboidea</i> Jacq.	t	Pal	
<i>Wissadula rostrata</i> (Schumach.) Hook.f.	p	PRA	
Meliaceae			
<i>Khaya senegalensis</i> (Desr.) A.Juss.	p	S	
<i>Pseudocedrela kotschy</i> Harms	p	S	
<i>Trichilia emetica</i> Vahl subsp. <i>emetica</i>	p	Pan	
Menispermaceae			
<i>Chasmanthera dependens</i> Hochst.	p	SZ	A. Gnoumou 13634
<i>Triclisia subcordata</i> Oliv.	p	GC	
Moraceae			
<i>Dorstenia cuspidata</i> Hochst. ex A.Rich.	g	AT	A. Gnoumou 16406
<i>Ficus asperifolia</i> Miq.	p	AT	A. Gnoumou 16292, 16350
<i>Ficus cordata</i> Thunb.	p	AT	
<i>Ficus dicranostyla</i> Mildbr.	p	S	A. Gnoumou 16636
<i>Ficus elasticoides</i> De Wild.	p	GC	A. Gnoumou 13624
<i>Ficus exasperata</i> Vahl.	p	PRA	
<i>Ficus ingens</i> (Miq.) Miq.	p	SZ	A. Gnoumou 16327
<i>Ficus platyphylla</i> Delile	p	S	
<i>Ficus sur</i> Forssk.	p	SG	A. Gnoumou 16363
<i>Ficus thonningii</i> Blume	p	S	
<i>Milicia excelsa</i> (Welw.) C.C.Berg	p	GC	A. Gnoumou 16374
<i>Myrianthus serratus</i> (Trécul) Benth. & Hook.	p	GC	A. Gnoumou 13638, 16347, 16348
Myrtaceae			
<i>Eucalyptus camaldulensis</i> Dehn.	p	Cu	
<i>Syzygium guineense</i> (Willd.) DC. subsp. <i>guineense</i>	p	AT	
Ochnaceae			
<i>Lophira lanceolata</i> Tiegh. ex Keay	p	S	
<i>Ochna rhizomatosa</i> (Tiegh.) Keay	p	S	A. Gnoumou 16360, 16388
<i>Ochna schweinfurthiana</i> F.Hoffm.	p	PRA	A. Gnoumou 16329, 16414
Olacaceae			
<i>Olax subscorpioidea</i> Oliv.	p	GC	
<i>Ximenia americana</i> L.	p	Pan	A. Gnoumou 16362
Oleaceae			
<i>Schrebera arborea</i> A. Chev.	p	GC	
Onagraceae			
<i>Ludwigia abyssinica</i> A.Rich.	p	PRA	A. Gnoumou 16597

Appendix 1. Continued.

Family and species	Lf	Chor.	Voucher specimen number
<i>Ludwigia adscendans</i> (L.) Hara	c	Pan	A. Gnoumou 16664
<i>Ludwigia hyssopifolia</i> (G. Don) Exell	c	Pan	A. Gnoumou 16637
Opiliaceae			
<i>Opilia amentacea</i> Roxb.	p	SZ	A. Gnoumou 13273, 16255
Orobanchaceae			
<i>Micrargeria filiformis</i> (Schumach. & Thonn.) Hutch. & Dalziel	t	S	A. Gnoumou 16534
<i>Sopubia parviflora</i> Engl.	t	S	A. Gnoumou 16629
<i>Sopubia ramosa</i> (Hochst.) Hochst.	t	S	A. Gnoumou 16584, 16625
<i>Striga asiatica</i> (L.) Kuntze	t	Pal	A. Gnoumou
<i>Striga hermonthica</i> (Delile) Benth.	t	PRA	A. Gnoumou 16522
<i>Striga macrantha</i> (Benth.) Benth.	t	S	
<i>Striga passargei</i> Engl.	t	S	A. Gnoumou 16565
Oxalidaceae			
<i>Biophytum umbraculum</i> Welw.	t	SZ	A. Gnoumou 16549
Passifloraceae			
<i>Passiflora foetida</i> L.	c	Pan	A. Gnoumou 16392
Pedaliaceae			
<i>Ceratotheca sesamoides</i> Endl.	c	SZ	
Phyllanthaceae			
<i>Bridelia ferruginea</i> Benth.	p	SZ	
<i>Bridelia micrantha</i> (Hochst.) Baill	p	PRA	A. Gnoumou 16271
<i>Bridelia scleroneura</i> Müll. Arg.	p	AM	A. Gnoumou 16376
<i>Flueggea virosa</i> (Willd.) Voigt subsp. <i>virosa</i>	p	Pal	
<i>Hymenocardia acida</i> Tul.	p	AT	A. Gnoumou 13274, 13275, 16366
<i>Hymenocardia heudelotii</i> Müll. Arg.	p	GC	A. Gnoumou 16358
<i>Phyllanthus muellerianus</i> (O. Ktze) Exell	p	PRA	A. Gnoumou 16293
<i>Phyllanthus reticulatus</i> Poir.	p	PRA	A. Gnoumou 16378
<i>Phyllanthus sublanatus</i> Schum. & Thonn.	t	S	A. Gnoumou 16543
<i>Uapaca togoensis</i> Pax	p	S	A. Gnoumou 16270
Plantaginaceae			
<i>Dopatrium junceum</i> Buch.-Ham. ex Benth.	t	Pal	A. Gnoumou 16666
<i>Limnophila indica</i> (L.) Druce	t	Pal	A. Gnoumou 16593, 16599
<i>Scoparia dulcis</i> L.	t	Pan	A. Gnoumou 16470
Polygalaceae			
<i>Polygala arenaria</i> Willd.	t	PRA	A. Gnoumou 16468, 16548
<i>Polygala baikiei</i> Chodat	t	GC	A. Gnoumou 16634
<i>Polygala butyracea</i> Heckel	t	AT	A. Gnoumou 16632, 16633
<i>Polygala erioptera</i> DC.	t	Pal	A. Gnoumou 16623
<i>Securidaca longipedunculata</i> Fresen.	p	AT	
Primulaceae			
<i>Embelia guineensis</i> Bak.	p	GC	A. Gnoumou 16289, 16307, 16364
<i>Embelia rowlandii</i> Gilg	p	S	A. Gnoumou 13630, 16261
Putranjivaceae			
<i>Drypetes floribunda</i> (Müll. Arg.) Hutch. (Figure 6)	p	GC	A. Gnoumou 16314, 16330
Rhizophoraceae			
<i>Cassipourea congoensis</i> R. Br. ex DC.	p	GC	A. Gnoumou 16278, 16312, 16333, 16395
Rubiaceae			
<i>Borreria ocyroides</i> (Burm.f.) DC.	t	GC	A. Gnoumou 16579
<i>Coffea ebracteolata</i> (Hiern) Brenan	p	GC	A. Gnoumou 16303
<i>Cremaspora triflora</i> (Thonn.) K. Schum.	p	PRA	A. Gnoumou 16370, 16386
<i>Crossopteryx febrifuga</i> (Afzel. ex G.Don) Benth.	p	AT	
<i>Fadogia agrestis</i> Schweinf. ex Hiern	p	S	
<i>Fadogia cienkowskii</i> Schweinf.	c	SZ	
<i>Feretia apodanthera</i> Delile	p	S	
<i>Gardenia aqualla</i> Stapf & Hutch.	p	SZ	
<i>Gardenia erubescens</i> Stapf & Hutch.	p	S	
<i>Gardenia nitida</i> Hook. (Figure 4)	p	GC	A. Gnoumou 16313
<i>Gardenia ternifolia</i> Schumach. & Thonn.	p	Pal	
<i>Geophila repens</i> (L.) I.M.Johnston	g	Pan	A. Gnoumou 16605
<i>Keetia cornelia</i> (Cham. & Schltdl.) Bridson	p	GC	
<i>Keetia venosa</i> (Oliv.) Bridson	p	GC	
<i>Macrosphyra longistyla</i> (DC.) Hiern	p	S	

Appendix 1. Continued.

Family and species	Lf	Chor.	Voucher specimen number
<i>Mitracarpus hirtus</i> (L.) DC.	t	PRA	
<i>Mitragyna inermis</i> (Willd.) Kuntze	p	SZ	
<i>Morelia senegalensis</i> A.Rich.	p	G	A. Gnoumou 16290, 16338
<i>Oldenlandia herbacea</i> (L.) Roxb.	t	Pal	A. Gnoumou 16552
<i>Oldenlandia lancifolia</i> (Schumach.) DC.	t	PRA	
<i>Oxyanthus racemosus</i> (Schumach. & Thonn.) Keay	p	GC	A. Gnoumou 16336, 16394
<i>Pavetta corymbosa</i> (DC) F.N.Williams	p	GC	A. Gnoumou 16369, 16384, 16385
<i>Pavetta crassipes</i> K.Schum.	p	S	A. Gnoumou 16367
<i>Psychotria psychotrioides</i> (DC.) Roberty	p	S	A. Gnoumou 16356, 16371
<i>Rytigynia senegalensis</i> Blume	p	S	
<i>Sarcocephalus latifolius</i> (Sm.) E.A.Bruce	p	SZ	
<i>Spermacoce filifolia</i> (Schumach. & Thonn.) J.-P.Lebrun & Stork	t	S	A. Gnoumou 16638
<i>Spermacoce octodon</i> (Hepper) J.-P.Lebrun & Stork	t	S	A. Gnoumou 16490
<i>Spermacoce quadriscutata</i> (Bremek.) Verdc.	t	GC	A. Gnoumou 16650
<i>Spermacoce radiata</i> (DC.) Hiern	t	AT	
<i>Spermacoce ruelliae</i> DC.	t	S	
<i>Spermacoce stachydea</i> DC.	t	S	
<i>Tarenna pavetoides</i> (Harv.) Sim	p	GC	A. Gnoumou 13621
Rutaceae			
<i>Afraegle paniculata</i> (Schum. & Thonn.) Engl.	p	GC	A. Gnoumou 16339
<i>Zanthoxylum zanthoxyloides</i> (Lam.) Zepern. & Timler	p	SZ	
Salicaceae			
<i>Dissomeria crenata</i> Hook. F. ex Benth.	p	S	A. Gnoumou 13280, 16353
<i>Flacourtia indica</i> (Burm.f.) Merr.	p	Pal	A. Gnoumou 16405
<i>Oncoba spinosa</i> Forssk. (Figure 8)	p	Pal	A. Gnoumou 16280
Sapindaceae			
<i>Allophylus africanus</i> P.Beauv.	p	PRA	A. Gnoumou 16259
<i>Allophylus spicatus</i> (Poir.) Radlk.	p	PRA	A. Gnoumou 16402
<i>Cardiospermum halicacabum</i> L.	g	Pan	
<i>Lecaniodiscus cupanioides</i> Planch.	p	GC	A. Gnoumou 16317
<i>Paullinia pinnata</i> L.	p	AA	
<i>Zanha golungensis</i> Hiern	p	S	
Sapotaceae			
<i>Manilkara multinervis</i> (Bak.) Dubard	p	GC-SZ	
<i>Manilkara obovata</i> (Sabine & G. Don) J.H. Hemsl.	p	GC	A. Gnoumou 16282
<i>Mimusops kummel</i> Bruce ex A. DC.	p	S	A. Gnoumou 16311, 16401
<i>Pouteria alnifolia</i> (Baker) Roberty	p	PRA	
<i>Synsepalum pobeguianum</i> (Pierre ex Lecomte) Aké Assi & L.Gaut.	p	GC	
<i>Vitellaria paradoxa</i> C. F. Gaertn.	p	S	
Solanaceae			
<i>Capsicum annum</i> L. [cult.]	c	Cu	
Sphenocleaceae			
<i>Sphenoclea zeylanica</i> Gaertn.	t	Pan	A. Gnoumou 16661
Urticaceae			
<i>Pouzolzia guineensis</i> Benth.	t	GC	A. Gnoumou 16608
Verbenaceae			
<i>Lantana ukambensis</i> (Vatke) Verdc.	p	S	
<i>Stachytarpheta angustifolia</i> (Mill.) Vahl	t	GC	
Vitaceae			
<i>Ampelocissus leonensis</i> (Hook. f.) Planch.	p	GC	
<i>Cayratia gracilis</i> (Guill. & Perr.) Suess.	p	AT	
<i>Cissus aralioides</i> (Welw. ex Bak.) Planch.	p	PRA	A. Gnoumou 16513
<i>Cissus doeringii</i> Gilg & M.Brandt	p	S	A. Gnoumou 16506
<i>Cissus palmatifida</i> (Baker) Planch.	p	AT	A. Gnoumou 16505
<i>Cissus petiolata</i> Hook.f.	p	GC	
<i>Cissus populnea</i> Guill. & Perr.	p	S	
<i>Cissus quadrangularis</i> L.	p	Pal	
<i>Cyphostemma adenocaula</i> (Steud. ex A.Rich.) Desc. ex Wild & R.B.Drumm.	p	AT	
<i>Cyphostemma cymosum</i> (Schumach. & Thonn.) Desc.	p	AT	
<i>Cyphostemma junceum</i> (Webb) Wild & R.B.Drumm.	g	AT	
<i>Cyphostemma vogelii</i> (hook. f.) Desc	p	AT	



Figures 4–9. 4: *Gardenia nitida*. 5: *Aframomum sceptrum*. 6: *Drypetes floribunda*. 7: *Guibourtia copallifera*. 8: *Oncoba spinosa*. 9: *Carissa edulis*.



Figures 10–14. 10: *Thonningia sanguinea*. 11: *Abrus precatorius*. 12: *Berlinia grandiflora*. 13: Forest gallery in border of river Comoé. 14: Woodland dominated by *Isoberlinia doka*.