Graduate College Journal – NU
Vol.17 -2022, No. (3)
ISSN: 1858-6228, http://www.neelain .edu.sd

مجلة الدراسات العليا - جامعة النيلين
المجلد (17) –2022 العدد (3)
الرقم الدولي الموحد للدوريات: 1858-6228

Checklist of the Woody Species in Zalingei Locality, Central Darfur State- Sudan and their Economic Uses

Ekhlas A. Khlyfa[1], Alawia A. Elawad[2] and Ismail M. Ismail[3]
[1]Department of Sciences University of Zalingei, Faculty of Education, Zalingei.
[2]Department of Biology and Biotechnology, Faculty of Sciences and Technology, Al-Neelain University, Khartoum
[3]Forestry and Gum Arabic Research Center, Agricultural Research Corporation, Khartoum.
Corresponding author E-mail: alawiaelawad@gmail.com

Abstract
Zalingei Locality, located in Central Darfur State- Sudan, maintains great plant diversity. However, little attention has been paid to plant diversity studies. This study aimed to document the diversity of the woody plant species; and to determine their importance as a natural resource to the locals. Here, a checklist of the trees and shrubs had been obtained through intensive field investigations. Standard collection and identification methods were used. Voucher specimens were deposited in Alneelain and Zalingei Universities and Forestry Research Center herbaria. This work covers 76 trees and shrubs from which 7 species are exotic. The results also revealed that all recorded woody plants had significant, impacts on people's livelihood strategies. They have various contributions from cash income to multiple other uses such as fodder, traditional medical uses, construction material, fuel wood, fruits, food, shelter, industrial and recreation.

Keywords: Zalingei, plant biodiversity, life forms, economic uses

Introduction

Biodiversity has been recognized as an important source of knowledge; it provides essential services to the livelihood of many people. Since Rio and Durban biodiversity conventions biodiversity has become a topic of debates, discussions and deliberations (Onyango and Onyango, 2005). Recently, plant biodiversity is highly threatened by climate change and human activities. There is a need to preserve biodiversity for future generations. According to FAO (1997) plant diversity in the tropical forests are facing rapid deforestation.

Plants are important to man and his animals, they provide him with a wide range of products for survival (Seth, 2004). The woody species have numerous economic and ecological values. They produce timber, round poles, and fuel wood. Non-woody products contribute significantly in human life. Other products of importance to rural communities are fruit, fibers, food, fodder, medicinal materials, gum, dyes and tannin material. Ecologically tree and shrub species stabilize sand dunes, enrich soil through nitrogen fixation, and provide natural ecosystems for wildlife (Gorashi**,** 1998**)**.

The flora of Sudan has not been revised since Andrews, (1950, 1954 and 1956). Zalingei locality was selected because it owes a high diversity of plant species. The area was affected by expanded agricultural practices; in addition to the impact of the civil war which was reflected on the composition and diversity of the vegetation. There was little literature or recorded information on the plant diversity in the study area. Wickens (1976) in his famous checklist of plant in Jebel Marra described 976 species including higher plants, Pteriodophytes and Bryophyetes, Zalingei flora is part of his work. Trees and shrubs of Zalingei are reported as part of the work of Elamin (1990). Mutasim and Al Kordofani (2015) reported 48 tree and shrub species from Zalingei area. Specific contributions on woody plants include the work of Abusuwar, *et al.* (2011) and Ali, *et al*. (2015).

It is estimated that about 80% of the African population depend on traditional medicine for primary health care (Karori and Pulu, 2003). In traditional societies in Sudan, several medicinal plants were used to treat various diseases. During dry seasons, the poor communities harvest different woody plants parts for food. No research has been carried to document the economic values of these valuable resources in the studied region.

The aim of this work is, thus, to present the current status of the trees and shrubs which is important to search possible restoration or management measures whereby the ever-increasing decline could be culminated and the sustainable utilization of the species be enhanced. A checklist will provide the basis for further studies of the indigenous woody species and their economic uses. It will also assist in implementing policies and strategies for the ecological research and conservation of the studied area.

II MATERIALS AND METHODS

Study area:

Zalingei Locality situated in Central Darfur State – Sudan is selected for the present study because is populated with a number of important woody species. It lies between latitude 12° 42' - 13° 08' N and longitude 23° 39' - 23° 25' E with an altitude that varies from 890 to 1121 m above sea level. The area lies on the Savannah zone (Harrison and Jackson, 1958), which is affected by the elevation of Jebel Marra massif (Desougi *et al*., 2016). The soil was derived from the gneisses and shists and granites of underlining basement complex, it includes drift alluvial and dry plains. The rainy season was usually 7 months (April to October), with an annual ranges of 379.4 to 772.4 mm. The mean annual relative humidity was`50.5% and it reached a maximum of 81.5% in August and a minimum of 29 % in March. The mean annual temperature was 26.2 C^0 , with a maximum monthly mean of 30 C^0 in April and May to 22.8 during winter in January and December (Meteorological Station Zalingei, 2018).

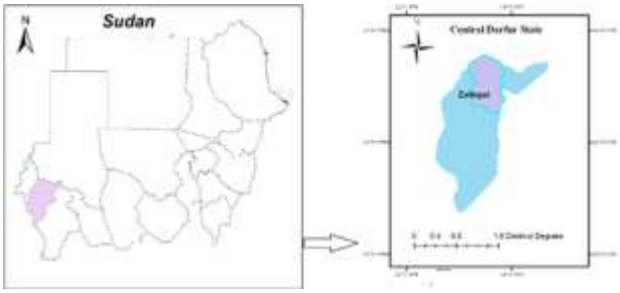

Figure 1: Map of the Study area: Zalingei locality, Central Darfur State, Sudan (UNAMID, 2012)

Specimen collection and identification:

Different surveys were made in the study area to collect plant materials. The collection procedure followed methods described by Lawrence (1969) and Forman and Bridson (1991). Standard references were used for plant identification (Andrews, 1950, 1952 and 1956; Wichens, 1976; Elamin, 1990 and Vogt, 1995). Identification was confirmed using the Herbarium catalogue, Royal Botanic Gardens, Kew (http://apps.kew.org/herbcat/navigatoe.do).

The standard up-dated scientific binomials were given to all taxa. Recent literature was consulted for updating plant names (The Plant List, version 1.1 (2013) http://www.theplantlist.org, and World Flora Online. Accessed at http://www.worldfloraonline.org.). Collection of Vernacular or Arabic names was derived from comprehensive questionnaires and checking in the field as well as standard literature. Economic uses given were compiled from local people and partly from references (Sahni (1968), Von Mydell (1990), Bein *et al.* (1996) and Maundu and Tengnas (2005), as well as electronic sites: Useful Tropical Plants, PROTA4U Homepage.

Checklist:

A comprehensive checklist of the woody species in the study area was prepared. The list of clades, orders and families covered in this study were arranged according to APG IV system (2016); while subfamilies, genera, and species are arranged alphabetically.

III Results and Discussion

The results reveal the presence of 76woody species belonging to 53 genera and 25 families in the study area; these include 69 native or indigenous species and 7 exotic species (marked with * in table 1). The exotic species have been introduced in tropical and subtropical Africa including the Sudan for different purposes and become naturalized (Elamin, 1990; Gafaar 2011; PEOTA, 2017 and USDA-ARS 2017).

Table (1) present a checklist of the recorded taxa including local names and the economic uses of the species. The family Fabaceae recorded the highest number of species (21); 15 of which from the subfamily Mimosoideae. This confirms the fact that members of this subfamily in nature are mostly trees or shrubs rarely herbs (Porter, 1966; Hunde and Thulin, 1989). The genus *Acacia s.l.* (Updated in this work as *Senegalia* and *Vachellia* using World Flora Online. http://www.worldfloraonline.org.) is represented with 10 species from the 28 species recorded in the Sudan by Elamin (1990). Capparaceae is second with 9 species followed by Malvaceae (6), Combretaceae (5) and Moraceae (4). While the families Arecaceae and Euphobiaceae are presented by 3 species each, 7 families are presented with 2 species and the rest 11families are presented with only 1 species. This information has been illustrated in Figure 2.

4 indigenous species are new records in the study area; these include: *Maerua crassifolia* Forssk, *Euphorbia tirucalli* L., *Delonix regia* (Hook.) Raf and *Ficus cordata* subsp. *salicifolia* (Vahl) C. C. Berg.

Taxonomically the studied taxa were grouped into 7 clades according to APG IV (2016). Most of the species belong to the Clade Eudicots-Superrosids-Rosids-Fabids followed with Eudicots-Superrosids-Rosids-Malvids, Eudicots-Superastrids-Asterids-Lamiids and Monocots. The Clades: Eudicots-Superrosids-Rosids, Eudicots-Superasterids and Eudicots-Superasterids-Asterids (1 species in 1genus in 1 family in 1 order) for each. (Figure 3).

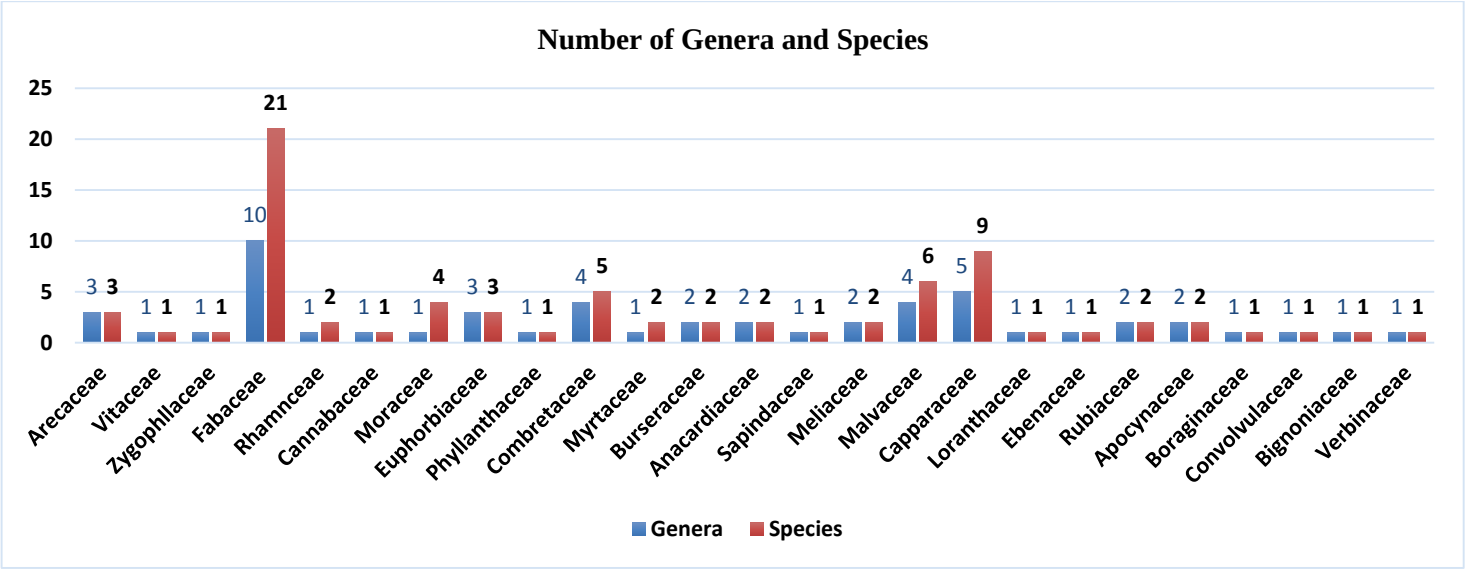

Figure 2: Families in the study area with numbers of genera and species

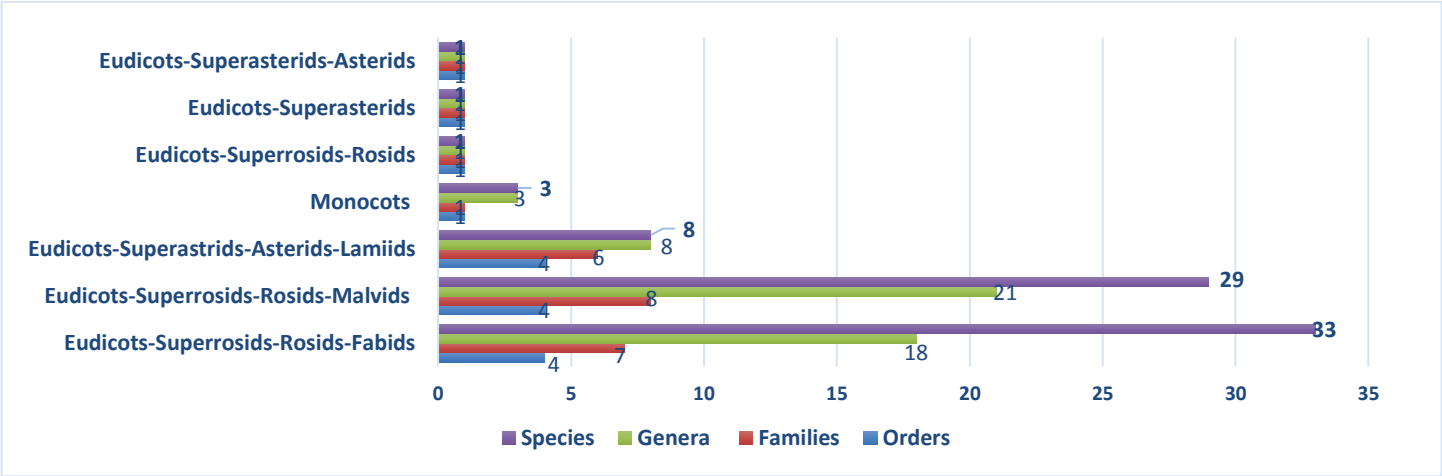

Figure (3): Presentation of the numbers of different taxa in the study area

Life Forms:

According to Raunkiaer (1934) woody plants are classified as Phanerophytes; within these the recorded species in this study appeared in different sub-life forms categories (Table 1). Figure 4 shows that most of the species are trees (35), 24 species appear either in the form of trees or shrubs and 2 species (*Senegalia ataxacantha* DC. and *Cadaba farinosa* Forssk.) grow as trees or climbing shrubs. 15 species are shrubs of which 6 are climber with tendrils, scramblers or twiners and *Tapinanthus globiferus* (A. Rich.) Tiegh. is parasitic.

Economic uses

Trees and shrubs play a significant role in maintaining the natural ecosystem; they provide a wide range of benefits in terms of products such as timber, medicine and environmental services such as shade or soil conservation. The study reveals that all woody plants in the region are important for ecological set up and human subsistence and welfare (Figure 5). The study area is considered as an important source of animal feed; 65 of the woody species are fodder plants browsed by animals during the dry season. 73 species are used for different medicinal purposes. Wild plants provide cheap and readily available

medical resources to many rural duelers. Knowledge of such medicinal uses will provide vital information to the local community members who still rely on herbal medicine for the treatment of most diseases. Large trees and shrubs are utilized for timber that is used for making furniture, tool handles, farm implements and as building material; and other plant parts are used in manufacture of rope, soup, jam, syrup, oil, soap, cosmetic and perfume (69 species). 69 species are used as an important source of energy in the form of fuel wood. Stems and poles of 44 species are used in charcoal production. 64 species are important in environmental setup; environmental uses in the result include: shade, soil conservation or improvement, ornamental and nitrogen fixation. Different parts of 52 species are edible and are important source of human food. The information gathered is not complete and not fully applicable in the study area. Different parts of the studied plants are used for the different purposes as shown in Figure 6. Excretions include: gum, resin, latex, dye or tannin.

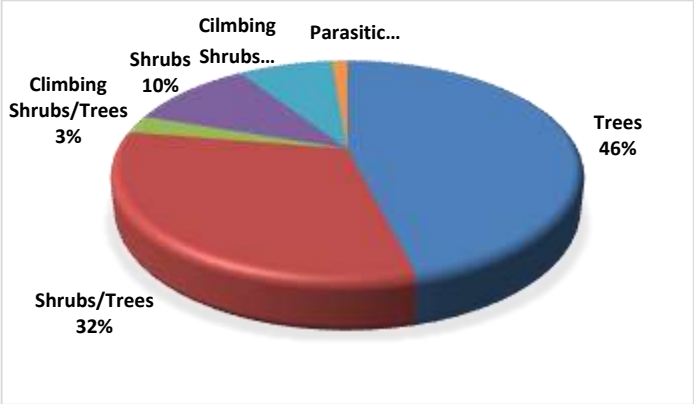

Figure (4): Pie chart showing percentage distribution of life forms of the studied plants

Woody plants in the area will contribute to the improvement of research on medicinal plants in the Sudan. They can be an important source of many active ingredients in the industrial manufacture of pharmaceuticals.

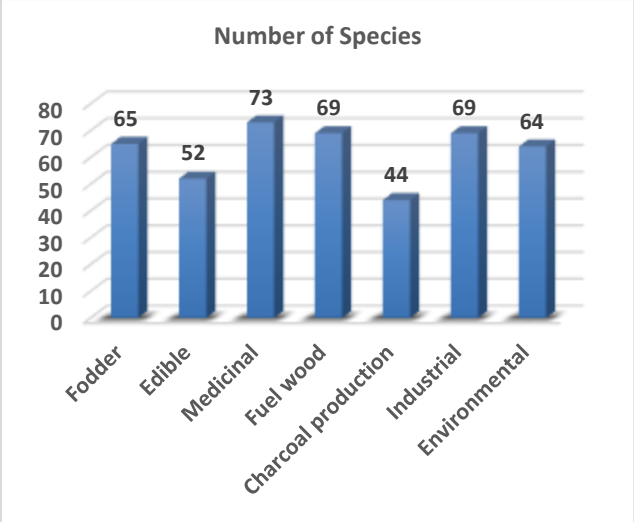

Figure 5: Economic uses of plant species.

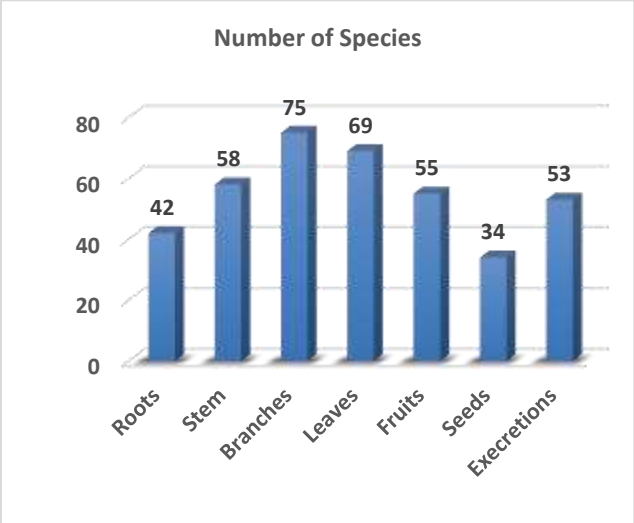

Figure 6: Plant parts used economically

IV CONCLUSION & RECOMMENDATIONS

Conclusion

The research has provided a detailed and comprehensive checklist of the woody plants found within Zalingei Locality. A total of 76 plant species were check listed, together with their life forms, local names, and economic uses. Seven exotic species are recorded. The highest number of species is from the family Fabaceae. The genus *Acacia* score the highest number of species. Taxonomically most of the studied plants are from the clade Eudicots-Superrosids-Rosids-Fabidsl/Malvids. Most of the plants appear in the form of trees. The woody plants existed

in the study area have important economic uses; and can be considered as important sources for livelihood in the region.

Recommendations

Since the woody vegetation of the study area is an important source for livelihood the extensive uses with increase of population from neighboring region to the area and the effect of the civil war can lead to extinction of vegetation cover. Conservation of natural vegetation must be a target. As the area is an important part of the Sudan with a rich flora it merits special attention and hence deserves academic efforts to follow up its floristic composition. There is a need for strategies to sustain indigenous (adaptable) vegetation and flora to conserve the cultural heritage of the area**.** It is recommended that policy and decision – makers have to consider and not to under estimate the significance of woody plants in the study area and to focus on certain species (e.g. *Senigalia senegal* (L.) Willd, *Commiphora africana* (A. Rich.) Endl.). They can be sources of income and employment to the rural communities. As recorded, most of the woody plants have medicinal properties; it is suggested that research on these plants need to be undertaken, especially on the plants that have not thoroughly been studied. Guidance of herbal practitioners should be sought before use and local knowledge on simple methods of preparation and dosage are needed.

REFERENCES

Gafaar, A. (2011). Forest Plantation and Woodlots in Sudan. *African Forest Forum Working Paper Series. Volume1; Issue 15*.

Abusuwar, A. O.; Ahmed, S. A. and Mohamed, A. (2011). Range inventory and Evaluation of Zalingei Area vegetation. Western Darfur State, Sudan. *International Journal of Science and Nature. Vol. 2(2):* 248-253.

Ali, N. A., Adam, A. A. and Desougi, M. A. (2015). Woody vegetation changes across the wadi system to the stony Hill slopes in Zalingei area. *ARPN Journal of Science and Technology. Vol.5. No.1*:1-9.

Andrews, F.W. (1950). The flowering plants of the Angl-Egyptian Sudan, Vol. 1. Arbroath, UK: Buncle & Co.

Andrews, F.W. (1952). The flowering plants of the Angl-Egyptian Sudan, Vol. 2. Arbroath, UK: Buncle & Co.

Andrews, F.W. (1956). The flowering plants of the Sudan, Vol. 3. Arbroath, UK: Buncle & Co.

APG IV (2016). An update of the Angiosperm Phylogeny Group classification for the orders and families of flowering plants: APG IV. *Botanical Journal of the Linnean Society 181(1):* 1–20. https://doi.org/10.1111/boj.12385

Bein, E.; Habte, B.; Jaber, A.; Birnie, A. and Tengnas, B. (1996). Useful Trees and Shrubs in Eritrea, Identification, Propagation and Management for Agricultural and Pastoral Communities. Regional Soil Conservation Unit (RSCU), Technical Handbook Series; 12. Nairobi, Kenya.

Desougi, M. A., Ali, N. A. and Adam, A. A. (2016). Effect of soil physical chemical properties on the distribution of trees in some ecological zones of Zalingei. 131-139.

Elamin, H.M. (1990). Trees and shrubs of the Sudan. Exeter, UK: Ithaca Press.

FAO (1997) State of the world's forests. Food and Agriculture Organisation, Rome.

Forman, L. and D. Bridson. (1991). The herbarium handbook. Kew: Royal Botanic Gardens. 214 pp.

Gorashi, A. (1998). State of Forest Genetic Resources in Sudan Prepared for the sub- regional workshop FAO/IPGRI/ICRAF on the conservation, management, sustainable utilization and enhancement of forest genetic resources in Sahelian and North-Sudanian Africa (Ouagadougou, Burkina Faso, 22-24 September 1998). A co-publication of FAO, IPGRI/SAFORGEN, DFSC and ICRAF December 2001.

Harrison, M.N. and J.K. Jackson (1958). Ecological classification of the vegetation of the Sudan. Agricultural Publication Committee, Khartoum.

Hunde, A. and Thulin, M. (1989). Subfamily Mimosoideae in Flora of Ethiopia, Vol. 3. The National Herbarium, Biology Department, Science Faculty, Addis Ababa University, Ethiopia and the Department of Systematic Botany, Uppsala University, Sweden.

Karori and Pulu (2003). Foods and Herbs that Heal. Revelation Heralds, Nairobi, Kenya.

Lawrence, G.H.M. (1969). Taxonomy of vascular plants. Calcutta/ Bombay/New Delhi: IBH Publishing.

Maundu, P. and Tengnas B. (2005). Useful Trees and Shrubs for Kenya. Technical Handbook No. 35. Nairobi, Kenya. World Agroforestry Centre – Eastern and Central Africa Regional Programme (ICRAF-ECA).

Metrology Station Zalingei (2018). Annual report from 2002-2018

Mutasim M. A. and Al Kordofani, M. A. (2015). Taxonomic study of trees and shrubs of Zalingei area West Darfur state – Sudan. *International Journal of Science and Research* (IJSR) ISSN (Online).

Onyango, M. A. O. and Onyango, J. C. (2005). Conservation and seed production of African Leafy vegetables at Maseno University botanic garden, Kenya. African Crop Science Conference Proceedings, Vol. 7.: 1201-1204.

Porter, C. L. (1966). Taxonomy of Flowering Plants, 2nd ed. W. H. Freeman Company.

Raunkiaer C. C. (1934). The Life Forms of Plants and Statistical Plant Geography. Oxford University Press.

Sahni K. C. (1968). Important Trees of the Northern Sudan. Khartoum University Press.

Seth, M. K. (2004). Trees and their Economic Importance. *The Botanical Review*, *69*: 321–376.

Vogt, K. (1995). Common trees and shrubs of dry land Sudan. A field workers guide to the identification, propagation and uses, SOS. London: Sahel International.

Von Maydell, H. J. V. (1990). Trees and Shrubs of the Sahel, Their Characteristics and Uses. Deutsche Gesellschaft fur Technische Zusammenarbeit (GTZ), Germany.

Wichens, G. E. (1976). The Flora of Jebel Marra (Sudan Republic) and its geographical affinities – Kew Bull. Add. Ser. 5- London.

Herbarium catalogue, Royal Botanic Gardens, Kew (http://apps.kew.org/herbcat/navigatoe.do).

PROTA (2017). PROTA4U Web database. Grubben GJH, Denton OA, eds. Wageningen, Netherlands: Plant Resources of Tropical Africa. http://www.prota4u.org/search.asp

The Plant List. 2013. The plant list. Version 1.1. Accessed at http://www.theplantlist.org, 1 January 2013.

USDA-ARS, (2017). Germplasm Resources Information Network (GRIN). Online Database Beltville. USA: National Germplasm Resources Laboratory. http://www.ars-grin.gov/cgi-bin/npgs/html/tax_search.pl

Useful Tropical Plants. http://tropical.thefern.info. Last update 30.7.2021.

World Flora Online. Accessed at http://www.worldfloraonline.org.

Table (1): Checklist of Woody Species

Taxonomic Ranks	Local Names	Life form	Economic uses							Part Used						
			Fd	E	M	Fu	C	I	En	R	St	B	L	F	Se	Ex
Monocots																
Arecales Bormhead																
Arecaceae Bercht, & J. Presl. (= Palmae Juss.)																
Borassus aethiopum Mart.	Delap	T	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Hyphaene thebaica (L.) Mart.	Dom	T	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Phoenix reclinata Jacq.	Nakhil	T	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Eudicots/Superrosids/Rosids																
Vitales Juss. ex Bercht. & J.Presl																
Vitaceae Juss.																
Cissus quadrangularis L.	Salala	CSh	+	+	+			+	+			+	+	+	+	+
Eudicots/Superrosids/Rosids/Fabids																
Zygophllales Link																
Zygophllaceae R.Br.Subf. Tribuloideae																
Balanites aegyptiaca (L.) Delile	Hegleeg	T	+	+	+	+	+	+	+	+	+	+	+	+	+	+

Fabales Bromhead																
Fabaceae Lindl. (= Leguminosae Juss.)																
Subf. Caesalpinoidae																
Bauhinia reticulata DC.	Kharub	Sh/T	+	+	+	+	+		+		+	+	+	+		+
Bauhinia rufescens Lam.	Kulkul	Sh/T	+		+	+	+	+	+	+	+	+	+	+		+
Delonix regia (Hook.) Raf. *	Goldmore	T			+	+			+		+	+				
Senna siamea (Lam.) H. S. Irwin & Barneby*	Cassia	T	+	+	+	+	+	+	+		+	+	+			+
Tamarindus indica L.	Aradaib	T	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Subf.Mimosoidae																
Senegalia ataxacantha (DC.) Kyal.& Boatwr.	Abndrwa	CSh/T	+		+	+		+	+	+		+	+			+
Senegalia mellifera (Benth.) Seigler & Ebinger	Kitir	Sh/T	+		+	+	+	+	+		+	+	+	+	+	+
Senegalia polyacantha (Willd.) Seigler & Ebinger	Kakamut/Um	Sh/T	+		+	+	+	+	+		+	+	+	+	+	+
Senegalia senegal (L.) Britton	Hashab	T	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Vachellia gerrardii (Benth.) P.J.H.Hurter	Salgam	Sh/T	+	+	+	+	+	+	+		+	+				+
Vachellia nilotica (L.) P.J.H.H urter & Mabb.	Sunt	Sh/T	+		+	+	+	+	+	+	+	+	+	+	+	+
Vachellia oerfota. (Forssk) Kyal.& Boatwr.	Laut	T	+		+	+		+		+		+	+	+		
Vachellia seyal var. *seyal* (Delile) P.J.H.Hurter	Talih abyed	T	+		+	+	+	+	+		+	+	+	+	+	+
Vachellia seyal var. *fistula* (Schweinf.) Kyal. & Boatwr.	Talih Ahmer/ Talih	T	+		+	+	+	+	+		+	+	+	+	+	+
Vachellia sieberiana (DC.) Kyal.& Boatwr.	Kuok	T	+		+	+	+	+	+		+	+	+	+	+	+
Albizia amara (Roxb.) B.Boivin	Arrad	T	+		+	+	+	+	+	+	+	+	+			+
Albizia anthelmintica Brongn.	Girfat ad dud	Sh/T	+	+	+	+	+	+	+	+	+	+	+	+	+	
Dichrostachys cinerea (L.) Wight & Arn.	Kaddad	Sh/T	+		+	+	+	+	+		+	+	+	+	+	+
Faidherbia albida (Delile) A. Chev.	Haraz	T	+	+	+	+	+	+	+		+	+	+	+	+	+
Pithecellobium dulce (Roxb.) Benth*	Tamar hindi	Sh/T	+	+		+	+	+	+		+	+	+	+		+
						+		+				+	+			+
Subf. Papilionoidae (Faboideae)																
Dalbergia melanoxylon Guill. & Perr	Babanous	Sh/T	+		+	+	+	+	+	+	+	+	+	+	+	
Rosales Bercht. & J.Presl																
Rhamnceae Juss.																
Ziziphus mauritiana Lam.	Krno	Sh/T	+	+	+	+	+	+	+		+	+	+	+	+	
Ziziphus spina-christi (L.) Desf.	Sider	Sh/T	+	+	+	+	+	+	+		+	+	+	+	+	
Cannabaceae Martinov, nom. Cons																
Celtis toka (Forssk.) Hepper & J.R.I.Wood	Mohagria	T	+	+	+	+	+	+	+		+	+	+	+	+	
Moraceae **Gaudich**																
Ficus cordata subsp. *salicifolia* (Vahl) C.C.Berg	Um sisi	Sh/T	+	+	+			+				+				
Ficus glumosa Delile	Gimeez 2	T	+	+	+	+	+	+	+	+	+	+	+	+		+
Ficus sycomorus L.	Gimeez	T	+	+	+	+		+	+		+	+	+	+		+
Ficus thonningii Blume	Gimeez um lban	T	+		+	+		+	+	+	+	+	+			+
Malpighiales Juss. ex Bercht. & J.Presl																
Euphorbiaceae Juss.																
Subf. Acalyphoideae																
Ricinus communis L.	Khirwa	Sh/T			+	+		+	+		+	+	+	+	+	+
Subf. Euphorbioideae																
Euphorbia tirucalli L. *	Ingil	Sh/T	+		+	+	+	+	+		+	+	+			+
Subf. Crotonioideae																
Jatropha curcas L. *	Jatropha	Sh/T			+	+		+	+	+	+	+	+	+	+	+
Phyllanthaceae Martinov,																
Flueggea virosa (Roxb. ex Willd.) Royle	Karson	Sh	+	+	+	+	+	+		+		+	+	+		+
Eudicots/Superrosids/Rosids/ Malvids																
Myrtales Juss. ex Bercht. & J.Presl																
Combretaceae R. Br.																
Anogeissus leiocarpus (DC.) Guill& Perr.	Sahab	T	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Combretum aculeatum Vent	Habeel Shehait	CShSh	+	+	+	+	+	+	+	+		+	+		+	
Combretum molle R.Br.ex G.Don.	Habeel	/T	+	+	+	+	+	+	+	+	+	+	+			+
Guiera senegalensis J. F.Gmel	Gebash	Sh	+	+	+	+		+	+	+		+	+	+		+
Terminalia laxiflora Engl.&Diels	Darot	T			+	+	+	+		+	+	+	+			
Myrtaceae Juss.																
Eucalyptus camaldulensis Dehnh.*	Ban	T			+	+	+	+	+		+	+	+			+
Eucalyptus microtheca F.Muell.*	Kafur	Sh/T		+	+	+	+	+	+	+	+	+	+	+	+	+
Sapindales Juss. ex Bercht. & J.Presl																
Burseraceae Juss.																
Boswellia papyrifera (Caill. ex Delile) Hochst.	Trag Trag	T	+			+	+	+	+		+	+	+			+
Commiphora africana (A.Rich.) Endl.	Gafal	Sh/T	+	+	+	+	+	+	+	+	+	+	+	+		+
Anacardiaceae R.Br.																
Lannea fruticosa (Hochst. ex A. Rich.) Engl.	Leyun	Sh/T	+	+	+	+	+	+	+		+	+	+			+
Sclerocarya birrea (A.Rich.) Hochst.	Himad	T	+	+	+	+		+	+	+	+	+	+	+	+	+
Sapindaceae Juss. (including Simaroubaceae DC.)																
Ailanthus excelsa Roxb*																

	Kibreet	T	+		+	+		+	+		+	+	+			+
Meliaceae Juss.	Mahogani															
Khaya senegalensis (Desv.) A. Juss.	murrayaNeem	T	+	+	+	+	+	+	+	+	+	+	+	+	+	
Azadirachta indica A. Juss.*		T	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Malvales Juss. ex Bercht. & J.Presl																
Malvaceae Juss.																
Subf. Bombacoideae																
Adansonia digitata. Linn.	Tabaldi	T	+	+	+	+		+	+	+	+	+	+	+		+
Subf. Grewioideae																
Grewia flavescens Juss.	Khelisan	CSh	+	+	+	+		+		+		+	+	+		
Grewia tenax (Forssk.) Fiori	Guddeim	Sh/TS	+	+	+	+		+	+		+	+	+	+		+
Grewia villosa Willd.	Tico, Grgdan	h	+	+	+	+		+	+	+		+	+	+		
Subf. Malvoideae																
Azanza garckeana (F. Hoffm.) Exell & Hillc.	Jakhjakh	Sh/T	+	+	+	+		+	+		+			+		
Subf. Sterculioideae																
Sterculia setigera Delile	Umm Tali Terter	T	+	+	+	+	+	+	+		+	+	+	+	+	+
Brassicales Bromhead																
Capparaceae Juss.																
Boscia salicifolia Oliv.	Seban	T	+	+	+	+		+	+	+	+	+	+	+	+	+
Boscia senegalensis Lam.	Mukheit	Sh	+	+	+	+			+	+		+	+	+	+	+
Cadaba farinosa Forssk.	Serih	CSh/T	+	+	+	+		+	+	+		+	+	+		
Capparis corymbosa Lam.	Mardo	Sh		+	+	+			+	+		+	+	+		
Capparis decidua (Forssk.) Edgew.	Tundub	Sh/T	+	+	+			+	+	+		+	+	+		
Capparis fascicularis DC.	Gurso	CSh	+	+	+	+		+				+	+	+		
Crateva adansonii DC.	Dabker	T	+	+	+	+	+	+			+	+	+	+	+	+
Maerua crassifolia Forssk.	Sraih	T	+	+	+	+	+	+			+	+	+	+		+
Maerua oblongifolia (Forssk.) A. Rich.	Arig Elmahba	CSh	+	+	+							+	+			
Eudicots/Superasterids																
Santalales R.Br. ex Bercht. & J.Presl																
Loranthaceae Juss., nom. cons.																
Tapinanthus globiferus (A.Rich.) Tiegh.	munun; anab	PSh	+		+							+				
Eudicots/Superasterids/Asterids																
Ericales Bercht. & J.Presl																
Ebenaceae Gurke																
Diospyros mespiliformis Hochst. ex. A. DC.	Gughan	T		+	+	+	+	+	+	+	+	+		+		
Eudicots/Superastrids/Asterids/Lamiids																
Gentianales Juss. ex Bercht. & J.Presl																
Rubiaceae Juss.																
Catunaregam nilotica (Stapf.) Tirveng.	Shagart Elmarfaein	Sh/T	+		+	+		+			+	+				+
Gardenia ternifolia subsp. *jovis-tonantis* (Welw) Verdc.	Abu Gawi	Sh/T		+	+			+		+	+	+	+	+	+	+
Apocynaceae Juss., nom. cons. subf. Asclepidoideae																
Calotropis procera (Aiton) Dryand.	Usher	Sh/T	+		+	+		+	+	+	+	+	+		+	+
Sarcostemma pyrtechnicum (Forssk.) Schult	Marekh	Sh	+	+	+			+	+			+	+			
Boraginales Juss. ex Bercht. & J.Presl																
Boraginaceae Juss.																
Cordia Africana Lam	Gembeel	T	+	+	+	+	+	+	+	+	+	+	+	+		
Solanales Juss. ex Bercht. & J.Presl																
Convolvulaceae Juss.																
*Ipomoea fistulosa*Mart. ex Choisy*	EL Aweer	Sh		+	+	+		+	+	+	+	+	+			+
Lamiales Bromhead																
Bignoniaceae Juss.																
Kigelia africana (Lam) Benth.	Umshtor	T	+	+	+	+	+	+	+		+	+	+	+		+
Verbinaceae																
Lantana camara L.*	Lantana	CSh		+	+	+			+	+		+	+	+		+

Life form: T = Tree, Sh/T = Tree or Shrub, Sh = Shrub, CSh = Climbing Shrub,PSh= Parasitic Shrub
Economic Uses: Fd = Fodder, E=Edible, M= Medicinal, Fu = Fuel wood, C= Charcoal production, I= Industrial, En= Environmental
Part Used: St = Stem, B= Branches, L= Leaves, F= Fruits, Se= Seeds, Ex = Execretions
*= Exotic species