



Check List of the Flora of Barakat Area (Gazira State) Sudan

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Authors' contributions

This work was carried out in collaboration between all authors. Authors AHA, NM and NE designed the study, wrote the protocol and wrote the first draft of the manuscript. Author AHA managed the literature searches, analyses of the study and discuss the conclusion. All authors read and approved the final manuscript.

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ABSTRACT

Here we present results of a study of floristic composition, carried out at the Barakat Area, Gazira State, Sudan. Plant specimens were collected randomly from different habitat during two field surveys. Samples were prepared and deposited in the Herbarium of Faculty of Science, University of Khartoum. We identified 127 species of angiosperm belonging to 43 botanical families. From these, 110 species were dicotyledons from 36 families; with Fabaceae, Euphorbiaceae, Mimosaceae, Convolvulaceae and Caesalpinaceae as the most richest-in- species families. Regarding the monocotyledons, there were found 17 plant species belonging to 7 families with Poaceae and Cyperaceae as the most representative families. The less frequent families were: Polygonaceae, Aristolochiaceae, Vitaceae, Cleomaceae and Commelinaceae. Parasitic plant

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belonging to the families Loranthaceae and Scrophulariaceae were also recorded. In summary the flora consisted of 26 trees, 15 shrubs, 81 herbs and 5 climbers. *Euphorbia* was the most common genus with 4 species followed by *Acacia* with 3 species. The cultivated species represented 21.3% of the total flora, while the indigenous flora represented 78.7%. The vegetation of Barakat area can be described as dominated by: *Acacia nubica* Benth., *Ziziphus spina-christi* (L.) Willd, *Calotropis procera* (Aiton) R.Br., *Acacia nilotica* (L.) Willd.exDelile. This study will contribute positively to regional floristic knowledge of the Sudan and stimulate further studies on the flora of Sudan.

Keywords: Barakat; flora; gazira; list of species.

1. INTRODUCTION

Exploration of biodiversity becomes more and more important than ever as to know the cause of rapid depletion of species and ecosystems [1]. Currently, the main issue is the management and conservation of species [2], as well as to study how it is affected by climate change, [3].

The flora of Sudan was first compiled by [4]. [5] who made important contributions which are still the main references covering the flowering plants of the Country. Studies on regional flora of the Sudan include: [6] who studied the flowering plants of Northern and Central Sudan; [7] who studied the flora of Erkwit, eastern Sudan; [8] studied the flora of central Sudan; [9] recorded important trees of northern Sudan; [10] studied the flora of the inundated Wadi Halfa reach of the Nile; [11] made an illustrated guide to the plant of Erkwit, Eastern Sudan; [12] studied the flora of Jebel Marra, Western Sudan; [13] gave an illustrated (drawings and/or pictures) account on the common weeds of central Sudan. Recently, [14] updated the trees and shrubs of Sudan.

Gazira State is Sudan's major agricultural region with more than 2.5 million acres (10,000 km²) under cultivation. The state lies between the Blue Nile and the White Nile in the east-central region of the country. However the flora of the Gazira received very little attention by researchers and published information is very scanty.

This study was designed to provide a comprehensive list of up-to-date record of the flora of Barakat (South Gazira) which adds to our knowledge of its floristic composition. This study will contribute to the knowledge of regional floristic diversity of the Sudan and stimulate further studies on the flora of Sudan.

2. MATERIALS AND METHODS

2.1 Study Area

The floristic survey was conducted in the area located between the two Niles, the Blue Nile east 33°-30' and the White Nile west 32°- 40', about eleven kilometers south of Wad Madani town (Fig. 1).

The Gazira falls within the zone of arid climate [15]. A short rainy season extends from July to September with a well defined peak during August [16]. The southern part of the area receives relatively higher rainfall ranging from 400 to 500 mm, while the northern part receives the lower annual rainfall ranging from 200 to 300 mm, with an average annual rainfall of about 300 mm. The mean temperature and mean relative humidity are 29°C and 39% respectively and the annual evaporation is about 2500 mm year [17].

The underlying solid geology of this area is included in Mesozoic Nubian Sandstones [18,19]. The overlying unconsolidated mantle, which forms the soils, is believed to be of superficial alluvial origin laid down by the Blue Nile from the basic igneous rocks of the Ethiopian Plateau.

The land is almost a uniformly flat and leveled plain. These clays are thought to be deposits of alluvial nature originating from basic igneous rocks under more humid conditions [18].

The soil is divided into two types: the first is the Blue Nile alluvium, derived from the basic igneous rocks of the Ethiopian highlands and underlain by Mesozoic Nubian Sandstones, classified as Entisol order [17]. The other type is the dark clay soil. Generally its chemical fertility is low to moderate, non-saline and slightly sodic, classified as vertisols [20].



Fig. 1. Location of the study area of Barakat, Sudan

Vegetation of the Sudan, as a distinct country, has been described by [12,21,22], The most comprehensive of all these contributions is that of [22].

According to [21], the vegetation cover belongs to *Acacia* short grass scrub belt, while in [22] it is situated in the zone of semi desert grass land on clayey soils. The natural vegetation is absent due to cultural operation, burning and irrigated farming. Few scattered regenerated species of the original flora occur specially in cut out and fringe areas. These species include *Acacia nilotica* (Sunut), *Acacia nubica* (Laot), *Ziziphus spina-christi* (Sidr), *Calotropis procera* (Usher).

2.2 Sampling and Data Collection

Fresh plant specimens were collected randomly from different habitat in the field during a course of study from November 2007 to August 2013. Two field surveys were done from representative sites within the study area of Barakat. The whole plant was collected in case of herbs, whereas twigs with leaves and flowers and/or fruits were collected in case of shrubs and trees. Species were firstly verified using available taxonomical

references: [5,23-31,13]. In addition all botanical names were revised from the two webs [32] and [33]. The identified species were compared with already identified herbarium specimens from Faculty of Science Herbarium, University of Khartoum, and Medicinal and Aromatic Plants Research Institute Herbarium, National Center for Research. Plant specimens were collected, prepared and deposited in the Herbarium of Faculty of Science University of Khartoum.

3. RESULTS AND DISCUSSION

A total of 127 species of angiosperms belonging to 43 families were recorded. Results were shown in Table 1 and Table 2. One hundred of the recorded species were indigenous flora, while 27 were cultivated species (Tables 1 and 2). In fact, cultivated species represented 21.3% from the total flora, while the indigenous plants represented 78.7%. From the total plant species 110 species were dicotyledons belonging to 37 families. The richest-in-species families were Fabaceae (with 8 species), Euphorbiaceae (with 8 species), Mimosaceae (with 7 species), Convolvulaceae (with 7 species) and Caesalpiniaceae (with 6 species). In the

monocotyledons group 17 species were recorded belonging to 6 families. The richest-in-species were: Poaceae (with 7 species) and Cyperaceae (with 2 species), while Polygonaceae, Aristolochiaceae, Vitaceae, Cleomaceae and Commelinaceae had each one a single species. Parasitic plants were found among Loranthaceae and Scrophulariaceae families, with a single species each one.

The most abundant genus was *Euphorbia* (with 4 species), followed by *Acacia* (with 3 species). The most abundant cultivated species included *Gossypium* sp. L., *Sorghum* sp. Moench, *Zea mays* L. and *Corchorus olitorius* L. Cultivated herbs also include *Eurica sativa* Mill. and *Hibiscus esculentus* L. Among the cultivated tree species the most common were: *Adansonia digitata* L., *Bougavillea* Comm.ex Juss., *Citrus limon* (L.) Osbeck, and *Eucalyptus* sp. L. Her. Shrub: *Kajanus kajana*. Additionally, two parasitic plants were found: *Striga hermonthica* (Del.) Benth. and *Loranthus acacia* Zucc. No new species were reported. All these species were recorded in previous study of the Sudan flora such as [5].

Regarding the life form 26 trees (representing 20.5% of total plants), 15 shrubs (with 11.8%) and 81 herbs (representing 63.8% of the total plants recorded) were found. Additionally, 5 climbers that represent 3.9% of the total flora were documented.

With respect to the vertical structure of plant communities, three layers of vegetation were observed in the study area: the upper most was the tree layer, dominated by *Acacia nilotica* (Sunut), *Acacia nubica* (Laot) and *Ziziphus spina-christi* (Sidir). The second (intermediate) layer was the shrubby layer, dominated by *Calotropis procera* (Ushar), and the third herbaceous layer, which was dominated by *Cynodon dactylon*. This agree with results found in previous vegetation surveys by [21]. Regarding the geographical origin of plant species recorded here, it might be sourced in central and northern Sudan, though some of the species recorded were widespread.

Our results indicated that dicots represent a large group of plants spread over the Gazira irrigated agricultural scheme. The dominance of Fabaceae family is recorded in the area, and several species that usually grow on clayey soils were noted. Among them there were numerous herbs that grow over the area favored by the

natural rainfall. The importance of Mimosaceae family in the study area agree with the natural belt of *Acacia* scrubs distribution within the Sudan region, described by [21], where *Acacia* and Poaceae short grasses were the main vegetation cover. *Gossypium* sp. was the most abundant cultivated plant recorded, since it was the most widespread cultivated plant in the Gazira scheme.

The high diversity of angiosperms recorded in this study, might be explained by the continuous field irrigation, which modify the natural water availability in the study area. Modifying the soil water balance as well, in such a semiarid region. Under such an scheme, where irrigated land is interspersed with land that only receive natural rainfall, some kind of mosaic occurred, under different uses and management strategies. It seems that biodiversity is enhanced by the environmental variability given in such a mosaic. It is of great importance to take this conclusion into account in order to inform future planning on biodiversity management and policy making.

Check list of the flora had already been prepared internationally in tropical areas in India by [1] studied Katerniaghat Wildlife Sanctuary, a tropical moist deciduous forest along the Indo-Nepal boarder comprises of 778 species of angiosperms, out of which 613 species are dicots under 386 genera and 91 families and 165 species are monocots under 103 genera and 23 families. Among the Savanna trees they found the genus *Grewia* and in the forest the genus *Ficus* were distributed. Many researchers studied Gazira area as a contribution to the regional flora of the central Sudan. [34] studied Fadasi area in Gazira state north to our study area Barakat she found a total number of 101 species belonging to 79 genera and 40 families (37 Dicot. and 3 monocot.). She found similar species to our flora in Fadasi area such as: *Zaleya pentandra*, *Amaranthus viridis*, *Calotropis procera*, *Sonchus cornatus*, *Balanites aegyptiaca*, *Francoeuria crispa*, *Heliotropium sudanicum*, *Heliotropium supinum*, *Senna alexandrina*, *Parkinsonia aculeate*, *Gynandropsis gynandra*, *Capparis deciduas*, *Merremia emarginata*, *Citrullus colocynthis*, *Cucumis Prophetarum*, *Cucumis melo*, *Luffa* sp., *Euphorbaia aegyptiaca*, *Euphorbia heterophylla*, *Euphorbia hirta*, *Ricinus communis*, *Indogifera hochstetteri*, *Rhynchosia minima*, *Tephrosia uniflora*, *Plicosepalus acacia*, *Abutilon pannosum*, *Azadirachta indica*, *Acacia seya*, *Acacia nilotica*, *Ficus* sp., *Eucalyptus* sp., *Ziziphus spina-christi*, *Striga hermontheca*,

Datura sp., *Physalis angulatum*, *Corchorus olitorius*, *Grewia tenax*, *Cissus quadrangularis*, *Phoenix sp.*, *Hyphaene sp.* and many species of Poaceae and Cyperaceae. The temperate flora is dominated by apophytes and differs considerably from arid zone flora. For Example, [35] studied the spontaneous flora of railway areas of the central-eastern part of Poland, in temperate zone

in Europe. It is composed of already recorded 950 vascular plants, of which 373 are recognized as usable, including 78 dye plants, 162 medicinal, 324 nectariferous or polleniferous taxons. Interestingly, some species: *Datura stramonium*, *Convolvulus arvensis*, and the genus *Euphorbia* are found in both temperate and arid zones.

Table 1. Indigenous species found in the Barakat area, Sudán

No	Latin name	Local name	Family	Dic.Mon	Life form	Life span
1	<i>Abrus precatorius</i> L.	Hab Elaroos	Fabaceae	Dic.	Herb	
2	<i>Abutilon figarianum</i> Webb.	Gargadan	Malvaceae	Dic.	Herb	
3	<i>Abutilon pannosum</i> (G-Forst.)Schldl	Gargadan/Hambouk	Malvaceae	Dic.	Herb	
4	<i>Acacia nilotica</i> (L.) Willd. ex Delile	sunot	Mimosaceae	Dic.	Tree	
5	<i>Acacia nubica</i> Benth.	laut	Mimosaceae	Dic.	Tree	
6	<i>Acacia radiana</i> Savi.	Seyal	Mimosaceae	Dic.	Tree	
7	<i>Acacia seyal</i> Delile	Taleh	Mimosaceae	Dic.	Tree	
8	<i>Achyranthes aspera</i> L.	Abu EILusigg	Amaranthaceae	Dic.	Herb	
9	<i>Aerva javanica</i> (Burm.f.) Juss	Ras ElShaip	Amaranthaceae	Dic.	Herb	
10	<i>Amaranthus viridis</i> L.	Lisan el tair Kabir	Amaranthaceae	Dic.	Herb	
11	<i>Antignon leptopus</i> Hook and Arn.	Antignon	Polygonaceae	Dic.	Climber	
12	<i>Aristolochia bracteolata</i> Lam.	Um Galagil, Irg el agrab	Aristolochiaceae	Dic.	Herb	
13	<i>Balanites aegyptiaca</i> (L.) Delile	Higlig	Balanitaceae	Dic.	Tree	
14	<i>Basilicum polystachyum</i> (L.)	Reihan	Labiatae	Dic.	Herb	
15	<i>Boerhavia erecta</i> L.	Taraba	Nyctaginaceae	Dic.	Herb	
16	<i>Caesalpinia pulcherrima</i> (L.) Sw.	Sisaban	Caesalpinacea	Dic.	Tree	
17	<i>Calotropis procera</i> (Aiton) R. Br.	Oshar	Asclepidaceae	Dic.	Shrub	
18	<i>Capparis decidua</i> (Forsk.) Edgew.	Tundub	Capparaceae	Dic.	Tree	
19	<i>Capparis tomentosa</i> Lam.		Capparaceae	Dic.	Tree	
20	<i>Cardiospermum haliacabum</i> L.		Sapindaceae	Dic.	Climber	
21	<i>Cassia tora</i> L.	Kawal	Caesalpinaceae	Dic.	Herb	
22	<i>Celosia argentea</i> L.		Amaranthaceae	Dic.	Herb	
23	<i>Cenchrus prieurii</i> (Kunth)Maire.		Poaceae	Monoc.	Herb	
24	<i>Chrozophora plicata</i> (Vahl) A.juss.ex Spreng.		Euphorbiaceae	Dic.	Herb	
25	<i>Cissus quadrangularis</i> L.	Salala	Vitaceae	Dic.	Climber	
26	<i>Citrullus colocynthis</i> (L.) Schard.	Handal	Cucurbitaceae	Dic.	Herb	
27	<i>Commelina</i> sp.	Ibrig Elfaki	Commelinaceae	Mon.	Herb	
28	<i>Corallocarpus gijef</i>		Cucurbitaceae	Dic.	Herb	

No	Latin name	Local name	Family	Dic.Mon	Life form	Life span
	<i>V.Tackholm</i> (forsk.) Hook.f.					
29	<i>Corchorus fascularis</i> Lam.		Tiliaceae	Dic.	Herb	
30	<i>Covolvulus arvensis</i> L.		Convolvulaceae	Dic.	Herb	
31	<i>Crotalaria senegalensis</i> (Pers.) Bacle ex Dc.	Sufira sagira	Fabaceae	Dic.	Herb	
32	<i>Cucumis Prophetarum</i> subsp. <i>Prophetarum</i> L.		Cucurbitaceae	Dic.	Herb	
33	<i>Cucumis dipsaceus</i> Ehrenb.ex.spach.	Agoor	Cucurbitaceae	Dic.	Herb	
34	<i>Cucumis melo</i> Var <i>argestis</i> Naudin	Humid	Cucurbitaceae	Dic.	Herb	
35	<i>Cynodon dactylon</i> (L.)Pers.	Nagila	Poaceae	Monoc.	Herb	
36	<i>Cyperus difformis</i> L.		Cyperaceae	Monoc.	Herb	
37	<i>Cyperus rotundus</i> L.	Siada	Cyperaceae	Monoc.	Herb	
38	<i>Datura innoxia</i> Mill	Sakaran	Malvaceae	Dic.	Herb	
39	<i>Datura stramonium</i> L.	Sakaran	Solanaceae	Dic.	Herb	
40	<i>Dichantium annulatum</i> (Forsk.)Stapf.		Poaceae	Monoc.	Herb	
41	<i>Digera muricata</i> (L.) Mart	Harrira	Amaranthaceae	Dic.	Herb	
42	<i>Digitaria Cilaris</i> (Retz.)koel		Poaceae	Monoc.	Herb	
43	<i>Euphorbia aegyptiaca</i> Boiss	Um libaina	Euphorbiaceae	Dic.	Herb	
44	<i>Euphorbia heterophylla</i> L.	Um ellaban kabir	Euphorbiaceae	Dic.	Herb	
45	<i>Euphorbia hirta</i> L.	Um ellaban	Euphorbiaceae	Dic.	Herb	
46	<i>Euphorbia indica</i> lam.	Um libaina	Euphorbiaceae	Dic.	Herb	
47	<i>Faiddherbia albida</i> (Del.)A.Chev	Haraz	Mimosaceae	Dic.	Tree	
48	<i>Francoeuria crispa</i> (Forsk) cass	El Tagar	Asteraceae	Dic.	Herb	
49	<i>Geigeria alata</i> (DC.)oliv.and Hiern		Asteraceae	Dic.	Herb	
50	<i>Glinus lotoides</i> L.		Aizoaceae	Dic.	Herb	
51	<i>Grewia tenax</i> (Forssk.) Fiori	Gudaim	Tiliaceae	Dic.	Shrub	
52	<i>Gynandropsis gynandra</i> (L.)Briq	Tamalika	Cleomaceae	Dic.	Herb	
53	<i>Heliotropium sudanicum</i> F.W.Andr	Danab elAgrab	Boraginaceae	Dic.	Herb	
54	<i>Heliotropium supinum</i> L.	Danab elAgrab	Boraginaceae	Dic.	Herb	
55	<i>Hibiscus</i> sp. L.		Malvaceae	Dic.	Herb	
56	<i>Indogifera hochstetteri</i> Baker	Dahassir-Sharaia	Fabaceae	Dic.	Herb	
57	<i>Indogifera oblonifolia</i> Forsk		Fabaceae	Dic.	Herb	
58	<i>Ipomea</i> sp. L.	Awir	Convolvulaceae	Dic.	Herb	
59	<i>Ipomea blepharosepala</i> Hallier .F.		Convolvulaceae	Dic.	Herb	
60	<i>Ipomea aquatica</i> Forssk		Convolvulaceae	Dic.	Herb	
61	<i>Ipomoea</i> sp.L.		Convolvulaceae	Dic.	Herb	
62	<i>Ixora radiata</i> Hierm		Rubiaceae	Dic.	Shrub	
63	<i>Jatropha</i> sp. L.	Shagarat Elsim	Euphorbiaceae	Dic.	Shrub	
64	<i>Lawsonia inermis</i> L.	Hina	Lytheraceae	Dic.	Shrub	
65	<i>Lemna</i> sp. L.	Ads Elma		Monoc.	Herb	

No	Latin name	Local name	Family	Dic.Mon	Life form	Life span
66	<i>Loranthus acacia</i> <i>Plicosepalus acacia</i> Zucc.	Inab el-Nabag;Anaba	Loranthaceae	Dic.	Climber	
67	<i>Luffa aegyptiaca</i> Mill	Leef	Cucurbitaceae	Dic.	Climber	
68	<i>Maerua angolensis</i> DC.	Sarha	Capparaceae	Dic.	Shrub	
69	<i>Maerua duchesnei</i> (De Wild.) F. White	Sarha	Capparaceae	Dic.	Shrub	
70	<i>Maerua</i> sp. Forsk..	Sarha	Capparaceae	Dic.	Shrub	
71	<i>Melanthera abyssinica</i> (Schult.Bip. ex A. Rich.) Oliv and Hiern.		Asteraceae	Dic.	Herb	
72	<i>Merremia emarginata</i> (Burn.f.) Hallier f.		Convolvulaceae	Dic.	Herb	
73	<i>Parkinsonia aculeata</i> L.	Seisaban	Caesalpinaceae	Dic.	Tree	
74	<i>Peristrophe bicalyculata</i> (Retz.)Nees.		Acanthaceae	Dic.	Herb	
75	<i>Phragmites</i> sp. Adans.	Boss	Poaceae	Monoc.	Herb	
76	<i>Phyllanthus niruri</i> L.	Sorib Sagir	Euphorbiaceae	Dic.	Herb	
77	<i>Physalis angulata</i> L.		Solanaceae	Dic.	Herb	
78	<i>Pistia</i> sp.	Khas el ma			Herb	
79	<i>Portulaca quadrifida</i> L.	Lagab el Humar,Um Mamleikha.	Portulacaceae	Dic.	Herb	
80	<i>Prosopis chilensis</i> (Molina) Stuntz	Miskate	Mimosaceae	Dic.	Shrub	
81	<i>Pulicaria orientalis</i> Jaub. And Spach		Asteraceae	Dic.	Herb	
82	<i>Rhynchosia minima</i> (L.)DC	Adan El far	Fabaceae	Dic.	Herb	
83	<i>Ricinus communis</i> L.	Khiriwia	Euphorbiaceae	Dic.	Shrub	
84	<i>Ruellia patula</i> Jacq.	Tagtag	Acanthaceae	Dic.	Herb	
85	<i>Senna alexandrina</i> Mill. (<i>Cassia senna</i>)	Sanamaka	Caesalpinaceae	Dic.	Herb	
86	<i>Senna italica</i> Mill	Sanamaka	Caesalpinaceae	Dic.	Herb	
87	<i>Setaria acromelaena</i> (Hochst.) T.Dur.and Schinz		Poaceae	Monoc.	Herb	
88	<i>Sida alba</i> L.		Malvaceae	Dic.	Herb	
89	<i>Solanum dubium</i> Danal	Gubein	Solanaceae	Dic.	Herb	
90	<i>Solanum nigrum</i> L.	Enab El Deep	Solanaceae	Dic.	Herb	
91	<i>Sonchus cornutus</i> Hochst.ex.oliv.and Hiern		Asteraceae	Dic.	Herb	
92	<i>Sonchus oleraceus</i>	Molita	Asteraceae	Dic.	Herb	
93	<i>Striga hermonthica</i> (Del.)Benth	Boda	Scrophulariaceae	Mono.	Herb	
94	<i>Tamarindus indica</i> L.	Aradaib	Caesalpinaceae	Dic.	Tree	
95	<i>Tephrosia uniflora</i> Pers.	Um ragiga	Fabaceae	Dic.	Herb	
96	<i>Tribulus terrestris</i> L.	Draisa	Zygophyllaeae	Dic.	Herb	
97	<i>Trinthena portulacastrum</i> L.	Raba	Aizoaceae	Dic.	Herb	
98	<i>Vigna coerulea</i> Baker	Ibrig Elfaki	Fabaceae	Dic.	Herb	
99	<i>Zaleya pentandra</i> (L.) C.Jeffrey	Raba	Aizoaceae	Dic.	Herb	
100	<i>Ziziphus spina Christi</i> (L.) Willd.	Sidrr	Rhamnaceae	Dic.	shrub	

Table 2. Cultivated species

No.	Species latin name	Local name	Family	Type of plant	Life form
1	<i>Adansonia digitata</i> L.	Tabaldi	Bombacaceae	Dicot.	Tree
2	<i>Bougainvillea</i> Comm. ex Juss.	Gahanamia	Nyctaginaceae	Dicot.	Shrub
3	<i>Brazillia</i> sp.	Brazillia		Dicot.	Tree
4	<i>Citrus limon</i> (L.) Osbeck	limon	Rutaceae	Dicot.	Tree
5	<i>Cucurbita</i> sp. L.	Agor	Cucurbitaceae	Dicot.	Herb
6	<i>Dodonaea viscosa</i> Jacq	Erkwit	Sapindaceae	Dicot.	Shrub
7	<i>Eucalyptus</i> sp. L'Hér.	Ban	Myrtaceae	Dicot.	Tree
8	<i>Eurica sativa</i> Mill.	Gergeer	Crucifera	Dicot.	Herb
9	<i>Gossipium</i> sp. L.	cotton	Malvaceae	Dicot.	Herb
10	<i>Hibiscus esculentus</i> L.	Bamia	Mavaceae	Dicot.	Herb
11	<i>Hyphaene thebaica</i> (L.) Mart.	Dom	Poaceae	Monoc.	Tree
12	<i>Kajanus kajan</i>	Adasi	Fabaceae	Dicot.	Shrub
13	<i>Nerium oleander</i> L.	Ward El Hamir	Apocynaceae	Dicot.	Tree
14	<i>Roystonea oleracea</i> L.H. Bailey	Nakhil malaki	Arcaceae	Monoc.	Tree
15	<i>Phoenix dactylifera</i> L.	Nakheel	Arcaceae	Monoc.	Tree
16	<i>Solanum lycopersicum</i> (L.)	Tamatim	Solanaceae	Dicot.	Herb
17	<i>Sorghum</i> Moench	Zura	Poaceae	Monoc.	Herb
18	<i>Thephtia</i> sp.	Ward Elhamir	Apocynaceae	Dicot.	Tree
19	<i>Zea mays</i> L.	Zura shami	Poaceae	Monocot	Herb
20	<i>Albizia lebbek</i> Benth	Dign Elbasha	Mimosaceae	Dicot.	Tree
21	<i>Azadirachta indica</i> A. Juss.	Neem	Meliaceae	Dicot.	Tree
22	<i>Corchorus olitorius</i> L.	Molokhia	Tiliaceae	Dicot.	Herb
23	<i>Ficus bengalensis</i> L.	Labakh	Moraceae	Dicot.	Tree
24	<i>Ficus sycomorus</i> L.	Gumiz	Moraceae	Dicot.	Tree
25	<i>Ficus vasta</i> Forsk.		Moraceae	Dicot.	Tree
26	<i>Khaya senegalensis</i> (Desr.)A.Juss.	Mahogani	Meliaceae	Dicot.	Tree
27	<i>Opuntia dillenii</i> (Ker-Gaw.L.)Haw.	Tin Shawki	Cactaceae	Monoc.	Shrub

4. CONCLUSION

The Barakat area had a diverse floristic composition. The high diversity recorded seems to be favored by the presence of the Gazira agricultural scheme, where artificial irrigation has modified the water availability, enhancing plant diversity. Most of the plants recorded were dicots, with herbaceous species dominating throughout the area. The most dominant families were Fabaceae, Euphorbiaceae, Mimosaceae, Convolvulaceae and Caesalpinaceae, and Poaceae and Cyperaceae within the monocots group. Most of the plants recorded were indigenous, and around 21% were cultivated. *Gossipium* sp. is the dominant species among cultivated ones. Three life form of vegetation trees, shrubs and herbs were identified in the study area, showing also the presence of some complexity in the vertical structure of plant communities present in the study area. This study contributes positively to regional floristic studies of the Sudan and stimulate further studies on the flora of the country.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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