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Plants from Algoreer Region in North Sudan

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Abstract

The study aimed to clarify the diversity of vegetation in Algoreer area, which is located in Northern State in north Sudan. This work relied mainly on field surveys and personal contact with the people olderly of the region who were familiar with the plant species by their local names and their different uses. The ethnobotanical survey gave an idea about the vegetation cover, as the results included 108 plant species belonging to; 78 genera and 42 families. Ten varieties for Phoenix dactylifera L. and 8 varieties for Mangifera indica. Twenty five of these species belong to monocotyledonous plants, and the rest of the species (83 species) belong to dicotyledonous plants. In terms of plant habitat, the species varied between trees, shrubs, and herbs. Where about 47 trees, 29 shrubs and 32 herbs were found. The family with the largest representation in plant species was the Fabaceae (15 species). As for the use of plants, most of them were used as food and medicine, some of them for various handicrafts or other uses.

Keywords: Algoreer; Northern State; Northern Sudan; Sudan Vegetation

Introduction

Phytogeography is a branch of biological geography, concerned with the geographical distribution of plant species, their areas of cultivation and spread, and their impact on the surface of the Earth (Alshihabe, 2003). Muhammad's 2006 study reflected the human relationship with the environment and its impact in several aspects, such as grazing, agriculture, and the natural environment. From recent studies of the vegetation cover of Sudan, a study of Ali and Ahmed, et al. [1] in the Jebel Aulia area, south of Khartoum, resulted in 117 plant species. Sudan's native and aliens plants are documented in a book "The Plants of Sudan and South Sudan" by Darbyshire, et al. [2].

About Algoreer: Algoreer area is a village in northern Sudan located on the bend of the Nile, north of the city of Merewi and south of Korti, between the lines of longitude and latitude; 18.38 and 31.75. The area of Algoreer is about 46 square kilometers and the population is estimated at about 33576 thousand person.

Main character: The people of Algoreer work in agriculture and ranging in the valleys. Among the most important crops grown in Algoreer are the dates from palm date palms, which is harvested in December every year. In addition to

these crops, also find mango trees and vegetables that the people of the region need, corn, wheats and some types of herbs as folded for the animals of the area. There are weeds that trouble farmers, such as boos (Phragmites sp.) and buda (Striga sp). Vegetables such as molokhia (*Corchorus olitorius*), okra (*Abelmoschus esculentu*) and watercress (Eruca sativa) are grown either for self-sufficiency or for sale in nearby markets within the region. Onions are grown in large quantities and exported to nearby states. Some grasses grow near the excavations, such as Seida (Cyperus sp.), Nageela (*Cynodon dactylon*), and Halfa (*Pennisetum setaceum*)

Figure 1: Map showing the location of Algoreer.

Figure 2: A photo from Algoreer region.

Vegetation: The area is full of palm forests of various kinds, mango trees of all kinds, and citrus fruits such as oranges, lemons, grapefruits, tangerines, and guava trees also grow. Along the Nile shore, some trees grow, such as Alquarad (*Vachellia nilotica*), and the farther we get from the Nile, the fewer trees there are. As we move away from the Nile towards the desert, Almeskeat (*Prosopis juliflora*) trees grow, in addition to some desert plants such as Salam (*Vachellia ehrenbergiana*) and marakh (*Leptadenia pyrotechnica*).

Method

In a field study of Algoreer region, located in the northern state, a number of different plant species belonging to grasses, herbs, or trees and shrubs were identified. The identification of plants was done mainly through field surveys and then through personal contact with ancient people of the area who knew the local names of plants and their uses. These species were monitored, the local and scientific names were recorded, and each family to which these plants belong was explained, supported by some pictures. It was clarified whether each plant species belonged to monocots or dicots. The habit of each plant species was also explained. The percentage of families with the largest representation was worked out. The presence of trees, shrubs and grasses was also compared with graphs.

Results

Through the field survey of Algoreer region, the study monitored the scientific and vernacular of the species in the region, where 108 plant species were identified, with an explanation of each family to which they belong, The results also provided information about the uses of plants, whether medicinal, food, grazing, or otherwise. Likewise, each plant is monocotyledonous or dicotyledonous, in addition to the nature of each plant as in the table below.

S. No.	Local name Var.	Scientific name	Plant taxonomy	Familly	Plant habitat	Uses
1	Var. Nakheel, Gawa Balah	*Phoenix dactylifera L.*	Monocots	Arecaceae (Palmae)	Tree	food، medicine ، building ، industry
2	Var. Nakheel, Barakawy Balah	*Phoenix dactylifera L.*	Monocots	Arecaceae (Palmae)	Tree	food، medicine ، building ، industry
3	Var. Nakheel, Gondeel Balah	*Phoenix dactylifera L.*	Monocots	Arecaceae (Palmae)	Tree	food، medicine ، building ، industry
4	Var. Nakheel, Wad lagai Balah	*Phoenix dactylifera L.*	Monocots	Arecaceae (Palmae)	Tree	food، medicine ، building ، industry
5	Var. Nakheel, Alkorsh Balah	*Phoenix dactylifera L.*	Monocots	Arecaceae (Palmae)	Tree	food، medicine ، building ، industry

6	Var. Nakheel, Agwa Balah	*Phoenix dactylifera*	Monocots	Arecaceae (Palmae)	Tree	food، medicine ، building ، industry
7	Var. Nakheel, Alborhe Balah	*Phoenix dactylifera*	Monocots	Arecaceae (Palmae)	Tree	food، medicine ، building ، industry
8	Var. Nakheel, Hasaya Balah	*Phoenix dactylifera*	Monocots	Arecaceae (Palmae)	Tree	food، medicine ، building ، industry
9	Var. Nakheel, kolma Balah	*Phoenix dactylifera*	Monocots	Arecaceae (Palmae)	Tree	food، medicine ، building ، industry
10	Var. Nakheel, Tamoda Balah	*Phoenix dactylifera*	Monocots	Arecaceae (Palmae)	Tree	food، medicine ، building ، industry
11	Doom	*Hyphaena thebaica*	Monocots	Arecaceae (Palmae)	Tree	food ، medicine ، industry
12	Var. Mango, Baladia, kitshiner	*Mangifera indica*	Dicots	Anacardiceae	Tree	Food
13	Var. Mango, Bizra	*Mangifera indica*	Dicots	Anacardiceae	Tree	Food
14	Var. Mango, Galb Altoor	*Mangifera indica*	Dicots	Anacardiceae	Tree	Food
15	Var. Mango, Alsinaria	*Mangifera indica*	Dicots	Anacardiceae	Tree	Food
16	Var. Mango, Ganoob Afrigia	*Mangifera indica*	Dicots	Anacardiceae	Tree	Food
17	Var. Mango, Almaygoma	*Mangifera indica*	Dicots	Anacardiceae	Tree	Food
18	Var. Mango, Abosamaka	*Mangifera indica*	Dicots	Anacardiceae	Tree	Food
19	Var. Mango, Altofaha	*Mangifera indica*	Dicots	Anacardiceae	Tree	Food
20	Allaloob, Higlig	*Balanites sp.*	Dicots	Balanitaceae	Tree	Food ، medicine
21	Nabak, Sidir	*Ziziphus spina-christi*	Dicots	Rhamneae	Tree	Food ، medicine ، industry ، cosmetics.
22	Alneem	*Azadirachta indica*	Dicots	Meliaceae	Tree	shelter ، industry
23	ALmeskeat	*Prosopis juliflora*	Dicots	Fabaceae	Tree	Shelter ، Stop the desert creep
24	Alnageela	*Cynodon dactylon*	Monocots	Poaceae	Herb	Medicine
25	Algameh	*Triticum aestivum*	Monocots	Poaceae	Herb	Food
26	Alzora Alrafeea	*Sorghum bicolor*	Monocots	Poaceae	Herb	Food
27	Alzora Alshamia	*Zea mays*	Monocots	Poaceae	Herb	Food
28	Alfool Almasry	*Vicia faba*	Dicots	Fabaceae	Herb	Food
29	Albasal	*Allium cepa*	Monocots	Alliaceae	Herb	Food
30	Aladasia	*Begun pea*	Dicots	Fabaceae	Shrub	Food
31	Altamr Hindi	*Tamarindus indica*	Dicots	Fabaceae	Tree	food ، medicine
32	Alsidaa	*Cyperus sp.*	Monocots	Cyperaceae	Herb	Medicine
33	Altorfa	*Tamarix sp*	Dicots	Tamaricaceae	Tree	Animal food
34	Dawar alshams	*Helianthus annuus*	Dicots	Asteraceae	Herb	industry ، medicine ، food
35	Alhaza	*Ducrosia anethifolia*	Monocots	Apiaceae	Herb	Medicine
36	Allemon	*Citrus limon*	Dicots	Rutaceae	Tree	food ، industry ، medicine
37	Alyousifi	*Cirtus reticulate*	Dicots	Rutaceae	Tree	Food
38	Aloshar	*Calotropis procera*	Dicots	Apocynaceae	Shrub	Medicine
39	Altaleh	*Vachellia sp.*	Dicots	Fabaceae	Tree	industry ، medicine

40	Algaraa	*Cucurbita sp.*	Dicots	Cucurbitaceae	Herb	Food
41	Alhanzal	*Citrullus sp.*	Dicots	Cucurbitaceae	Herb	Medicine
42	Algorom, Hanzal hilo	*Citrullus sp.*	Dicots	Cucurbitaceae	Herb	Food
43	Albatekh	*Citrullus lanatus*	Dicots	Cucurbitaceae	Herb	Food
44	Alleef	*Luffa sp.*	Dicots	Cucurbitaceae	Herb	Industry
45	Alkarkade	*Hibiscus sabdariffa*	Dicots	Malvaceae	Shrub	food ، medicine ، industry
46	Allabakh	*Mimusops laurifolia*	Dicots	Sapotaceae	Tree	Shelter ، ornamental plant
47	Albrazeel	*Hevea brasiliensis*	Dicots	Euphorbiaceae	Tree	Shelter ، ornamental plant
48	Ward Alhameer, Dafla	*Nerium oleander*	Dicots	Apocynaceae	Tree	ornamental plant
49	Algahanameya	*Bougainvillea sp.*	Dicots	Nyctaginceae	Tree	ornamental plant
50	Alarak	*Salvadora persica*	Dicots	Salvadoraceae	Tree	Shelter ، medicine
51	Alderesa	*Tribulus terrestris*	Dicots	Zygophyllaceae	Shrub	Medicine
51	Alhargal	*Solenostemma argel*	Monocots	Apocynaceae	Herb	Medicine
53	Almahareeb	*Cymbopogon citratus*	Monocots	Poacea	Shrub	Medicine
54	Alinab	*Vitis vinifera*	Dicots	Vitaceae	Herb	Food
55	Algodeem	*Grewia tenax*	Dicots	Tiliaceae	Tree	food , medicine
56	Alroman	*Punica granatum*	Dicots	Punicaceae	Tree	Food
57	Altondob	*Capparis decidua*	Dicots	Capparidaceae	Shrub	Medicine
58	Altabalde	*Adansonia sp.*	Dicots	Malvaceae	Tree	medicine ، food
59	Alhena	*Lawsonia inermis L*	Dicots	Lythraceae	Shrub	medicine ، industry ، cosmetics
60	Alban	*Moringa olifera*	Dicots	Moringaceae	Tree	medicine Shelter,
61	Albagdoonis	*Petroselinum crispum*	Dicots	Apiaceae	Herb	Food
62	Alarkaweet	*Dittrichia viscosa*	Dicots	Asteraceae	Tree	Shelter, ornamental plant
63	Alhilba	*Trigonella foenum-graecum*	Dicots	Fabaceae	Shrub	medicine ، food
64	Albatates	*Solanum tuberosum*	Dicots	Solanaceae	Shrub	Food
65	Altoom	*Allium sativum*	Monocots	Alliaceae	Herb	Food
66	Allooba	*Vigna unguiculata*	Dicots	Fabaceae	Shrub	Food
67	Alshamam	*Cucumis melo*	Dicots	Cucurbitaceae	Herb	Food
68	Alaswad, Bazingan	*Solanum melongena*	Dicots	Solanaceae	Shrub	Food
69	Alfilfil	*Capsicum annuum*	Dicots	Solanaceae	Shrub	Food
70	Alshata	*Capsicum sp.*	Dicots	Solanaceae	Shrub	Food
71	Alkasbara	*Coriandrum sativum*	Dicots	Apiaceae	Shrub	Food
72	Alagoor	*Cucumis melo flexuosus*	Monocots	Cucurbitaceae	Herb	Food
73	Algirgir	*Eruca sativa*	Dicots	Brassicaceae	Herb	Food
74	Alfigil	*Raphanus sativus*	Dicots	Brassicaceae	Herb	Food
75	Lisan Altair	*Ailianthus altissima*	Dicots	Simaroubaceae	Tree	Food
76	Rigla Barya	*Portulaca oleracea*	Dicots	Portulacaceae	Herb	Animal food
77	Sabar	*Aloe vera*	Monocots	Asphodelaceae	Shrub	، cosmetics medicine ، ornamental plant
78	Sabar	*Cactus sp.*	Dicots	Cactaceae	Shrub	ornamental plant
79	Shamar Akhdar	*Foeniculum vulgare*	Dicots	Apiaceae	Herb	Food

80	Algotton	*Gossypium sp.*	Dicots	Malvaceae	Shrub	Industry
81	Altoot	*Morus nigra*	Dicots	Moraceae	Shrub	Food
82	Winca	*Vinca roseus*	Dicots	Apocynaceae	Shrub	ornamental plant
83	Zoonya	*Syzygium cumini*	Dicots	Myrtaceae	Tree	Food, ornamental plant
84	Sesaban	*Sesbania sesban*	Dicots	Fabaceae	Shrub	Shelter, ornamental plant
85	Amayoog	*Tephrosia apollinea*	Dicots	Fabaceae	Shrub	Industry
86	Aleleeg	*Rubus sp.*	Dicots	Rosaceae	Herb	Shelter
87	Alboos	*Phragmites sp.*	Monocots	Poaceae	Herb	Industry
88	Alhalfa	*Pennisetum setaceum*	Monocots	Poaceae	Herb	Industry
89	Almarakh	*Leptadenia pyrotechnica*	Dicot	Apocynaceae	Herb	Animal food, Medicine
90	Alkhirwea	*Ricinus communis*	Dicots	Euphorbiaceae	Shrub	Medicine
91	Alhaskaneet	*Echinops sp.*	Dicots	Asteraceae	Herb	Medicine
92	Alkitir	*Vachellia mellifera*	Dicots	Fabaceae	Shrub	Medicine
93	Allaoot	*Vachellia nubica*	Dicots	Fabaceae	Shrub	Medicine
94	Alsanamaca	*Senna sp.*	Dicots	Fabaceae	Shrub	Medicine
95	Aldamas	*Conocarpus lancifolius*	Dicots	Combretaceae	Tree	Shelter
96	Altamatim	*Solanum lycopersicum*	Dicots	Solanaceae	Shrub	Food
96	Alnaanaa	*Mentha pamiroalaica*	Dicots	Lamiaceae	Herb	Food ، medicine
98	Almolokhia	*Corchorus olitorius*	Dicots	Malvaceae	Herb	Food
99	Algazar	*Daucus carota*	Dicots	Apiaceae	Herb	Food
100	Algawafa	*Psidium guajava*	Dicots	Myrtaceae	Tree	Food ، medicine
101	ALbamia	*Abelmoschus esculentus*	Dicots	Malvaceae	Shrub	Food
102	Dign Albasha	*Albizia lebbeck*	Dicots	Fabaceae	Tree	Shelter
103	Algreeb	*Citrus paradise*	Dicots	Rutaceae	Tree	Food ، medicine
104	Allaringa	*Citrus aurantium*	Dicots	Rutaceae	Tree	Food
105	Albambai	*Ipomoea batatas*	Dicots	Convolvulaceae	Shrub	Food
106	Albooda	*Striga sp.*	Dicots	Orobanchaceae	Herb	Parasite
107	Alquarad	*Vachellia nilotica*	Dicots	Fabaceae	Tree	medicine
108	Alsalam	*Vachellia ehrenbergiana*	Dicots	Fabaceae	Tree	Shelter, animal food

Table 1: plants list of Algoreer region.

According to the table that shows a list of plants in the Algoreer region, the results of the field survey of the region included 108 plant species that were recorded with their scientific names and local names known to the people of the region.

These species belong to 42 plant families, 94 species belonging to 81 genera. 7 varieties of palm trees and 5 varieties of mangoes were counted. The flora of the area consists of 47 trees, 29 shrubs, and 32 herbs as shown in Fig.ure3a. Eighty two of the resulting species belong to dicotyledonous plants, while the rest of the species (26 species) belong to monocot plants (Figure 3b).

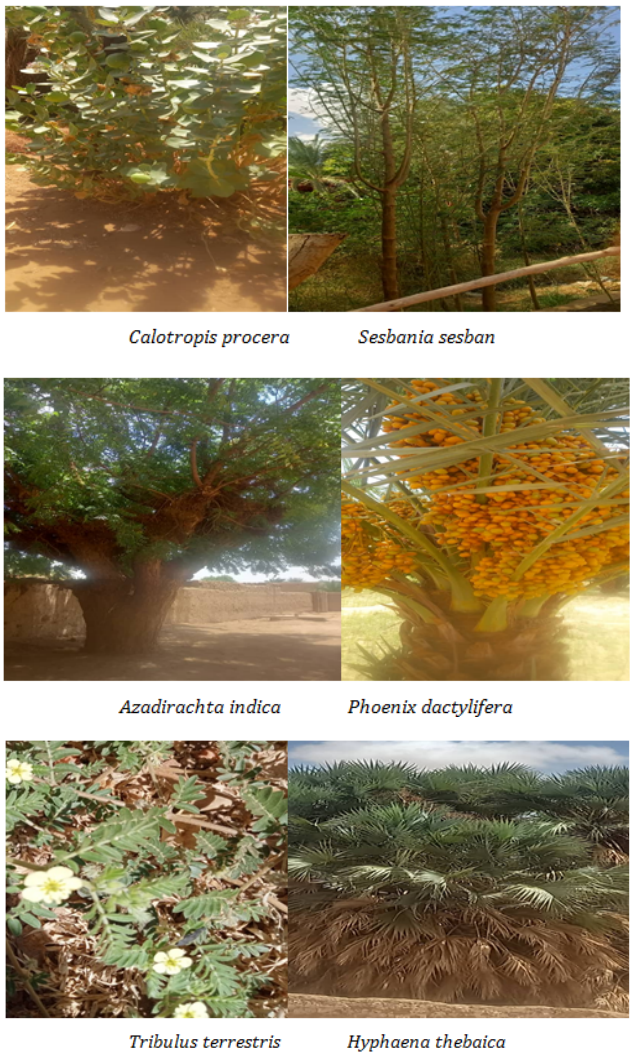
The uses of plants varied, as I found 67 species used for food, 43 species used for medicine, and 23 species used in local handicrafts for the people of the region, while 10 species are used in construction, 11 species are used for their shade, and the rest of the species have other benefits such as decoration and cosmetic, as food for animals, or to stop desert encroachment, or may It causes damage as a parasite to the plants of the area.

Figure 3: Plant habitat (a), plant taxonomy to monocotolydonous and dicotoledonous plants (b), families with the greatest representation (c).

Discussion

The local plants in the area in general are forests of palm trees of different varieties, as well as mango trees of different varieties as well, and Doom trees (*Hyphaena thebaica*). There are also farmed plants such as corn, cowpea, and vegetables such as tomatoes, eggplant, and peppers. By analyzing the table of results for plants growing in Algoreer area in the Northern State, the percentage of presence of trees in the region is 43.5%, the percentage of presence of herbs is equal to 29.6%, while the percentage of presence of shrubs is equal to 26.9%. That is, trees represent the largest percentage of plants growing in the area. The plant families with the greatest representation in order are: Fabaceae (15 species), Arecaceae (11 and varied), Anacardiaceae (8 species), Cucurbitaceae (7 species), poaceae (7 species), Malvaceae (5 species), Solanaceae (5 species) and Apocynaceae (5 species). Top five families (with the greatest representation) were shown in Fig. 3c. The percentage of monocotyledonous plants relative to dicotyledonous plants is 24.1%: 75.9%. The most common uses of plants were for food (67 species), medicine (43 species), local industries (23 species) and some other uses.

The study of Mohamed HA [3] showed that the dominant plants in the localities of Kosti and Al-Jabalin in the White Nile State are the Sidr trees (Zizphus spina-christi), the Hieglig) Balanites aegyptiaca (Alhaskaneet (*Cenchrus biflorus*) the Kiter (*Vachellia mellifera*), and Alla'out (*Vachellia orebera*). These species were also monitored in the study area. As for invasive plants in Sudan, tree species *Prosopis glandulosa* and *Prosopis chilensis* are considered to be highly invasive weed in the Sudan according to Darbyshire, et al. [2]. Species chilensis is also recorded in the present study results. Ali, et al. [1] have studied vegetation in the Jebel Aulia area, south of Khartoum, resulted in the documentation of 117 plant species belonging to 100 genera and 45 plant families. The family Poaceae was found to be the richest (13species). But in this study family Fabaceae was the richest one (13species) also. From studies of vegetation in North Darfur by El Ghazali, et al. [4], some of the species mentioned in the region were similar to species from the study area, such as Neem and La'loub. While there are other species that do not match the species of the study area, such as: *Blepharis ciliaris* and *Aerva javanica* from the families Acanthaceae and Amaranthaceae respectively.



Vinca sp. *Syzygium cumini*

Tamarix aucheriana *Pennisetum setaceum*

Phragmites sp. *Lawsonia inermis L*

Psidium guajava *Tephrosia apollinea*

Rubus sp *Capparis decidua*

Pigeon pea *Mangifera indica*

Morus nigra *Sorghum bicolour*

Gossypium sp.

Figure 4: Some photographs of plants growing in Algoreer area in the Northern State.

Conclusion

The study provided information about the distinctive vegetation of Algoreer area in the northern state, where different types of plants were counted. The diversity of plant species reflects the region's richness in plant diversity. Algoreer area is considered an important location and

environmentally different from the surrounding areas [5,6]. It requires attention to the area through cooperation and attention to agricultural extension, the necessity of raising the productivity of vegetable crops, grains, palm trees, citrus fruits, and developing agricultural investment in it. This study is considered one of the studies that support the overall picture of the form of plant diversity in northern Sudan in particular and in all of Sudan in general, which makes it easier for researchers and those interested in plant cover and plant diversity to take information from it and continue researching it.

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