International Journal of Biology Research
www.biologyjournal.in
ISSN: 2455-6548
Received: 10-11-2024, Accepted: 11-12-2024, Published: 26-12-2024
Volume 9, Issue 1, 2024, Page No. 52-57

Plants from Algoreer region in north Sudan

Bara'ah Ali El-Tahir Sharaf El-Din[1], Naglaa Seed Ahmed Hamid Ahmed[2], Sayadat El-Tigani Mohamed[3]
[1] Assistant professor, Department of Biology, Faculty of Education, University of The Holly Quran and Islamic Sciences, Sudan
[2] Lecturer, Department of Biology, Faculty of Education, University of Aldalang, Sudan
[3] Professor of Plant Physiology, Department of Botany, Faculty of Science, University of Khartoum, Sudan

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 (2020) 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*. (2015) [3].

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*)

Fig 1: Map showing the location of Algoreer

Fig 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.

Table 1: plants list of Algoreer region

Uses	Plant habitat	Familly	Plant taxonomy	Scientific name	Local name Var.	No.
food ،medicine ،building ، industry	Tree	Arecaceae (Palmae)	Monocots	*Phoenix dactylifera* L.	Var. Nakheel, Gawa Balah	1
food ،medicine ،building ، industry	Tree	Arecaceae (Palmae)	Monocots	*Phoenix dactylifera* L.	Var. Nakheel, Barakawy Balah	2
food ،medicine ،building ، industry	Tree	Arecaceae (Palmae)	Monocots	*Phoenix dactylifera* L.	Var. Nakheel, Gondeel Balah	3
food ،medicine ،building ، industry	Tree	Arecaceae (Palmae)	Monocots	*Phoenix dactylifera* L.	Var. Nakheel, Wad lagai Balah	4
food ،medicine ،building ، industry	Tree	Arecaceae (Palmae)	Monocots	*Phoenix dactylifera* L.	Var. Nakheel, Alkorsh Balah	5
food ،medicine ،building ، industry	Tree	Arecaceae (Palmae)	Monocots	*Phoenix dactylifera*	Var. Nakheel, Agwa Balah	6
food ،medicine ،building ، industry	Tree	Arecaceae (Palmae)	Monocots	*Phoenix dactylifera*	Var. Nakheel, Alborhe Balah	7
food ،medicine ،building ، industry	Tree	Arecaceae (Palmae)	Monocots	*Phoenix dactylifera*	Var. Nakheel, Hasaya Balah	8
food ،medicine ،building ، industry	Tree	Arecaceae (Palmae)	Monocots	*Phoenix dactylifera*	Var. Nakheel, kolma Balah	9
food ،medicine ،building ، industry	Tree	Arecaceae (Palmae)	Monocots	*Phoenix dactylifera*	Var. Nakheel, Tamoda Balah	10
food ،medicine ،industry	Tree	Arecaceae (Palmae)	Monocots	*Hyphaena thebaica*	Doom	11
Food	Tree	Anacardiceae	Dicots	*Mangifera indica*	Var. Mango, Baladia, kitshiner	12
Food	Tree	Anacardiceae	Dicots	*Mangifera indica*	Var. Mango, Bizra	13
Food	Tree	Anacardiceae	Dicots	*Mangifera indica*	Var. Mango, Galb Altoor	14
Food	Tree	Anacardiceae	Dicots	*Mangifera indica*	Var. Mango, Alsinaria	15
Food	Tree	Anacardiceae	Dicots	*Mangifera indica*	Var. Mango, Ganoob Afrigia	16
Food	Tree	Anacardiceae	Dicots	*Mangifera indica*	Var. Mango, Almaygoma	17
Food	Tree	Anacardiceae	Dicots	*Mangifera indica*	Var. Mango, Abosamaka	18
Food	Tree	Anacardiceae	Dicots	*Mangifera indica*	Var. Mango, Altofaha	19
Food ،medicine	Tree	Balanitaceae	Dicots	*Balanites* sp.	Allaloob, Higlig	20
Food، medicine، industry ،cosmetics.	Tree	Rhamneae	Dicots	*Ziziphus spina-christi*	Nabak, Sidir	21
shelter ،industry	Tree	Meliaceae	Dicots	*Azadirachta indica*	Alneem	22
Shelter ،Stop the desert creep	Tree	Fabaceae	Dicots	*Prosopis juliflora*	ALmeskeat	23
Medicine	Herb	*Poaceae*	Monocots	*Cynodon dactylon*	Alnageela	24
Food	Herb	*Poaceae*	Monocots	*Triticum aestivum*	Algameh	25
Food	Herb	*Poaceae*	Monocots	*Sorghum bicolor*	Alzora Alrafeea	26
Food	Herb	*Poaceae*	Monocots	*Zea mays*	Alzora Alshamia	27
Food	Herb	Fabaceae	Dicots	*Vicia faba*	Alfool Almasry	28
Food	Herb	Alliaceae	Monocots	*Allium cepa*	Albasal	29
Food	Shrub	Fabaceae	Dicots	*Begun pea*	Aladasia	30
food ،medicine	Tree	Fabaceae	Dicots	*Tamarindus indica*	Altamr Hindi	31
Medicine	Herb	Cyperaceae	Monocots	*Cyperus* sp.	Alsidaa	32

Animal food	Tree	Tamaricaceae	Dicots	*Tamarix* sp	Altorfa	33
industry ، medicine ، food	Herb	Asteraceae	Dicots	*Helianthus annuus*	Dawar alshams	34
Medicine	Herb	*Apiaceae*	Monocots	*Ducrosia anethifolia*	Alhaza	35
food ، industry ، medicine	Tree	Rutaceae	Dicots	*Citrus limon*	Allemon	36
Food	Tree	Rutaceae	Dicots	*Cirtus reticulate*	Alyousifi	37
Medicine	Shrub	Apocynaceae	Dicots	*Calotropis procera*	Aloshar	38
industry ، medicine	Tree	Fabaceae	Dicots	*Vachellia* sp.	Altaleh	39
Food	Herb	*Cucurbitaceae*	Dicots	*Cucurbita* sp.	Algaraa	40
Medicine	Herb	*Cucurbitaceae*	Dicots	*Citrullus* sp.	Alhanzal	41
Food	Herb	Cucurbitaceae	Dicots	*Citrullus* sp.	Algorom, Hanzal hilo	42
Food	Herb	Cucurbitaceae	Dicots	*Citrullus lanatus*	Albatekh	43
Industry	Herb	Cucurbitaceae	Dicots	*Luffa* sp.	Alleef	44
food ، medicine ، industry	Shrub	Malvaceae	Dicots	*Hibiscus sabdariffa*	Alkarkade	45
Shelter ، ornamental plant	Tree	Sapotaceae	Dicots	*Mimusops laurifolia*	Allabakh	46
Shelter ، ornamental plant	Tree	Euphorbiaceae	Dicots	*Hevea brasiliensis*	Albrazeel	47
ornamental plant	Tree	Apocynaceae	Dicots	*Nerium oleander*	Ward Alhameer, Dafla	48
ornamental plant	Tree	Nyctaginceae	Dicots	*Bougainvillea* sp.	Algahanameya	49
Shelter ، medicine	Tree	Salvadoraceae	Dicots	*Salvadora persica*	Alarak	50
Medicine	Shrub	Zygophyllaceae	Dicots	*Tribulus terrestris*	Alderesa	51
Medicine	Herb	Apocynaceae	Monocots	*Solenostemma argel*	Alhargal	52
Medicine	Shrub	*Poacea*	Monocots	*Cymbopogon citratus*	Almahareeb	53
Food	Herb	Vitaceae	Dicots	*Vitis vinifera*	Alinab	54
food ,medicine	Tree	Tiliaceae	Dicots	*Grewia tenax*	Algodeem	55
Food	Tree	Punicaceae	Dicots	*Punica granatum*	Alroman	56
Medicine	Shrub	Capparidaceae	Dicots	*Capparis decidua*	Altondob	57
medicine ، food	Tree	Malvaceae	Dicots	*Adansonia* sp.	Altabalde	58
medicine ، industry ، cosmetics	Shrub	Lythraceae	Dicots	*Lawsonia inermis L*	Alhena	59
medicine Shelter,	Tree	Moringaceae	Dicots	*Moringa olifera*	Alban	60
Food	Herb	Apiaceae	Dicots	*Petroselinum crispum*	Albagdoonis	61
Shelter, ornamental plant	Tree	Asteraceae	Dicots	*Dittrichia viscosa*	Alarkaweet	62
medicine ، food	Shrub	Fabaceae	Dicots	*Trigonella foenum-graecum*	Alhilba	63
Food	Shrub	Solanaceae	Dicots	*Solanum tuberosum*	Albatates	64
Food	Herb	Alliaceae	Monocots	*Allium sativum*	Altoom	65
Food	Shrub	Fabaceae	Dicots	*Vigna unguiculata*	Allooba	66
Food	Herb	Cucurbitaceae	Dicots	*Cucumis melo*	Alshamam	67
Food	Shrub	Solanaceae	Dicots	*Solanum melongena*	Alaswad, Bazingan	68
Food	Shrub	Solanaceae	Dicots	*Capsicum annuum*	Alfilfil	69
Food	Shrub	Solanaceae	Dicots	*Capsicum* sp.	Alshata	70
Food	Shrub	Apiaceae	Dicots	*Coriandrum sativum*	Alkasbara	71
Food	Herb	Cucurbitaceae	Monocots	*Cucumis melo flexuosus*	Alagoor	72
Food	Herb	Brassicaceae	Dicots	*Eruca sativa*	Algirgir	73
Food	Herb	Brassicaceae	Dicots	*Raphanus sativus*	Alfigil	74
Food	Tree	*Simaroubaceae*	Dicots	*Ailianthus altissima*	Lisan Altair	75
Animal food	Herb	Portulacaceae	Dicots	*Portulaca oleracea*	Rigla Barya	76
،cosmetics medicine ، ornamental plant	Shrub	Asphodelaceae	Monocots	*Aloe vera*	Sabar	77
ornamental plant	Shrub	Cactaceae	Dicots	*Cactus* sp.	Sabar	78
Food	Herb	Apiaceae	Dicots	*Foeniculum vulgare*	Shamar Akhdar	79
Industry	Shrub	Malvaceae	Dicots	*Gossypium* sp.	Algotton	80
Food	Shrub	Moraceae	Dicots	*Morus nigra*	Altoot	81
ornamental plant	Shrub	Apocynaceae	Dicots	*Vinca roseus*	Winca	82
Food, ornamental plant	Tree	Myrtaceae	Dicots	*Syzygium cumini*	Zoonya	83
Shelter, ornamental plant	Shrub	Fabaceae	Dicots	*Sesbania sesban*	Sesaban	84
Industry	Shrub	Fabaceae	Dicots	*Tephrosia apollinea*	Amayoog	85
Shelter	Herb	Rosaceae	Dicots	*Rubus* sp.	Aleleeg	86
Industry	Herb	Poaceae	Monocots	*Phragmites* sp.	Alboos	87
Industry	Herb	Poaceae	Monocots	*Pennisetum setaceum*	Alhalfa	88
Animal food, Medicine	Herb	Apocynaceae	Dicot	*Leptadenia pyrotechnica*	Almarakh	89
Medicine	Shrub	Euphorbiaceae	Dicots	*Ricinus communis*	Alkhirwea	90
Medicine	Herb	Asteraceae	Dicots	*Echinops* sp.	Alhaskaneet	91
Medicine	Shrub	Fabaceae	Dicots	*Vachellia mellifera*	Alkitir	92

Medicine	Shrub	Fabaceae	Dicots	*Vachellia nubica*	Allaoot	93
Medicine	Shrub	Fabaceae	Dicots	*Senna* sp.	Alsanamaca	94
Shelter	Tree	Combretaceae	Dicots	*Conocarpus lancifolius*	Aldamas	95
Food	Shrub	Solanaceae	Dicots	*Solanum lycopersicum*	Altamatim	96
Food ، medicine	Herb	Lamiaceae	Dicots	*Mentha pamiroalaica*	Alnaanaa	97
Food	Herb	Malvaceae	Dicots	*Corchorus olitorius*	Almolokhia	98
Food	Herb	Apiaceae	Dicots	*Daucus carota*	Algazar	99
Food ،medicine	Tree	Myrtaceae	Dicots	*Psidium guajava*	Algawafa	100
Food	Shrub	Malvaceae	Dicots	*Abelmoschus esculentus*	ALbamia	101
Shelter	Tree	Fabaceae	Dicots	*Albizia lebbeck*	Dign Albasha	102
Food ، medicine	Tree	Rutaceae	Dicots	*Citrus paradise*	Algreeb	103
Food	Tree	Rutaceae	Dicots	*Citrus aurantium*	Allaringa	104
Food	Shrub	Convolvulaceae	Dicots	*Ipomoea batatas*	Albambai	105
Parasite	Herb	Orobanchaceae	Dicots	*Striga* sp.	Albooda	106
medicine	Tree	Fabaceae	Dicots	*Vachellia nilotica*	Alquarad	107
Shelter, animal food	Tree	Fabaceae	Dicots	*Vachellia ehrenbergiana*	Alsalam	108

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. 3a. Eighty-two of the resulting species belong to dicotyledonous plants, while the rest of the species (26 species) belong to monocot plants (Fig. 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.

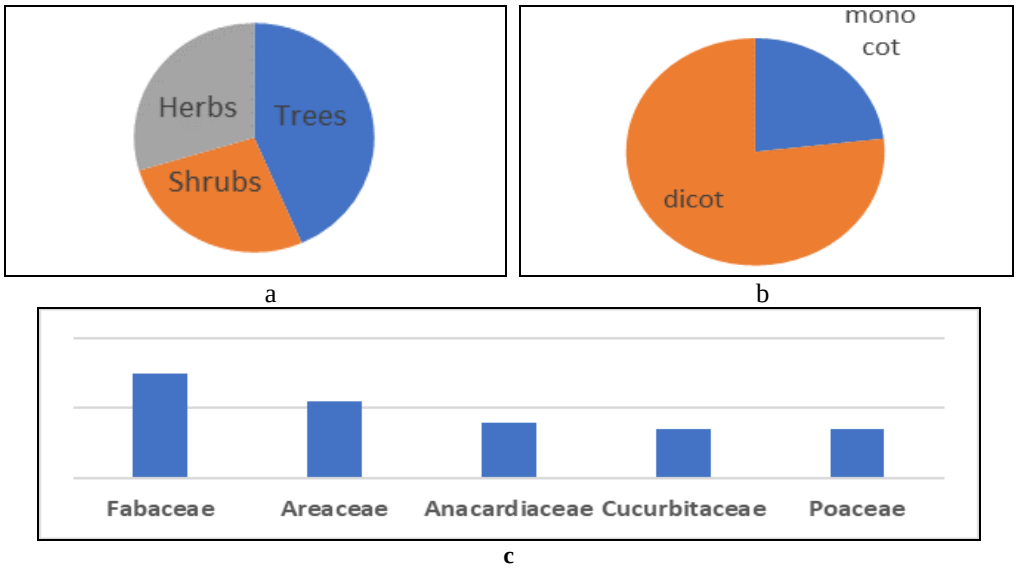


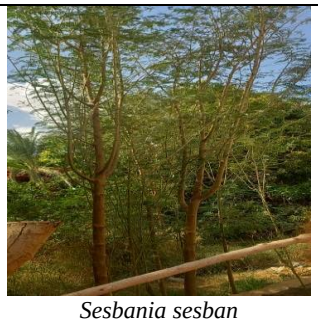
Fig 3: Plant habitat (a), plant taxonomy to monocotolydonous and dicotoledonous plants (b), families with the greatest representation (c)

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 (2006) 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*. (2015) [3]. Species *chilensis* is also recorded in the present study results. Ali and Ahmed (2020) 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.* (1997), 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.


Calotropis procera


Sesbania sesban


Azadirachta indica


Phoenix dactylifera


Tribulus terrestris


Hyphaena thebaica

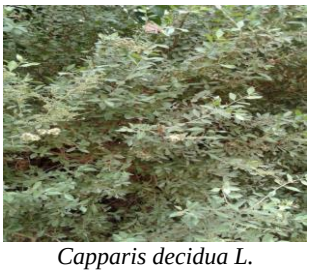

Vinca sp.


Syzygium cumini


Tamarix aucheriana


Pennisetum setaceum


Phragmites sp.


Capparis decidua L.


Psidium guajava


Tephrosia apollinea


Rubus sp


Capparis decidua


Pigeon pea


Mangifera indica


Morus nigra


Sorghum bicolor


Gossypium sp.

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. 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.

References

1. Ali MAB, Ahmed HAM. Ethnobotanical studies of flora of Jebel Aulia district, Khartoum state with emphasis on toxicity of the common medicinal plants. J Agric Environ Vet Sci,2020:4(3):67-85.
2. Alshehabi M. Al-Shehabi Dictionary of Agricultural Science Terms (in Arabic, English, and Latin). 5th ed. Beirut: Lebanon Library Publishers, 2003, 835. ISBN:978-9953-10-550-5. OCLC:1158683669.
3. Darbyshire I, Pickering H, Kordofani M, Farag I, Candiga R. The plants of Sudan and South Sudan: an annotated checklist, 2015.
4. Gamal El Ghazali, El Tohami MS, Elegami A, Abdalla WE. Medicinal Plants of the Sudan, Part IV: Medicinal Plants of Northern Kordofan. Khartoum: National Centre for Research: 1997.
5. Health Office, Algoreer Unit, Marawi Locality. Population Census 2010.
6. Flickr. Photograph from album: https://www.flickr.com/photos/57955639@N02/533248 7304/in/album-72157625640931327/.
7. Google Maps. Location data for Al-Kari - Al-Gareer, Sudan. Available from: https://www.google.com/maps/place/%D8%A7%D9%84%D9%83%D8%B1%D9%8A+-+%D8%A7%D9%84%D9%82%D8%B1%D9%8A%D8%B1%D8%8C+%D8%A7%D9%84%D8%B3%D9%88%D8%AF%D8%A7%D9%86%E2%80%AD/@18.330936,31.788705,13z/data=!4m6!3m5!1s0x16834e28f2d4cddb:0x77f8b7bf20655761!8m2!3d18.3300808!4d31.7565894!16s%2Fg%2F121_bwgn!5m1!1e4?entry=ttu
8. Mohamed HA. Transformation and change in rural economic systems in marginal areas of Sudan in the period from 1980-2005 AD. Case study: Kosti and Al-Jabalin localities (White Nile State) [PhD thesis], 2006.