



Ethnobotany of Weeds: Weed Flora of University of Maiduguri Teaching and Research Farm, Maiduguri Sudan Savanna, Borno State-

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Abstract

*A survey was conducted at the University of Maiduguri Teaching and Research Farm (Sudan Savanna region of Nigeria) Maiduguri Borno State, between July and September, 2019. With aim of identifying weed species at the site, frequency of occurrence, morphological characteristics and their uses. The outcome of the survey shows that 51 (fifty-one) different weed species were identified belonging to 23 families (twenty-three). Most of the weeds identified have annual life cycle in nature except for some few weeds from tree seedlings which have perennial life cycle. Twenty (20) weeds species have high occurrence (above 70%). Morphologically, only the Poaceae families are among the grass type, Cyperaceae belonging to sedge type. All other 21 families are from the broad leaved type but further classified as shrubs, semi woody and woody plants. Almost all the weeds identified have medicinal, fodder, soup and mulch cover value to animals and man. Most important among them are *Corchorus olitorius* L., *Panicum maximum* Linn, *Chloris pilosa* Schumach., *Faidherbia albida* A. Cahev., *Crotalaria medicaginea* L., *Calotropis procera* (Aiton) W. T.*

Key words: Weed Flora, Ethnobotany, Families, Uses, Sudan Savanna.

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Introduction

Ethnobotany is 'the study of the relationships between plants and people' (Balick and Cox, 1996), It includes the study of local names and folk taxonomy of plants as well as the local knowledge of them (Berlin, 1992). Plants are generally rich sources of many natural herbal products which have mostly used for human welfare (plants possess curative effects) and also reduce the human pain and suffering from many diseases, Dhanam and Elayaraj (2014). Weeds tremendously grow in open areas and people are not aware that these weeds have medicinal value, used as forage and olericultural importance (Kajidu *et al.*, 2019). There are useful weeds; this was confirmed, most of the weeds have one or several uses. But many of these were trivial or required

very little plant material. One does not need a whole field of weeds to brew a cup of herbal tea. Ethno-botanists have documented the uses of plants, including weeds, as folk medicines Bentley *et al.* (2005). Weeds are almost everywhere which makes them outstanding in every environment, the richest soil if uncultivated produces the highest weeds species (Soladoye *et al.*, 2010). On the other hand, India is a leading exporter of the medicinal plants in the world trade. Therefore, one should understand the importance of weeds both human and livestock. It may be useful for taxonomists, agriculturists and scientists involved in the management of weeds. Dhanam and Elayaraj (2014) reported that from the ancient period man has been using several different plants to cure all body pain and different diseases. Now-a-days throughout the world several thousands of plants mostly weed plants are medicinal but very few drug plants are cultivated (Upma *et al.*, 2006). From the survey conducted by Soladoye, 2010, a total of seventy-three (73) weed species belonging to twenty-seven (27) families were identified as constituting the major part of the weed vegetation of both sites; Olabisi Onabanjo University and Ago-Iwoye. The family Poaceae has the largest number of species (twelve) followed by Asteraceae (ten) Amaranthaceae and Cyperaceae both have seven species each while Euphorbiaceae has six. Therefore, the aim of this survey is to identify and document the weed species of the University of Maiduguri Teaching and Research Farm.

Methodology

The survey was conducted at the University of Maiduguri Teaching and Research Farm located at long: 13⁰.21" and lat: 11⁰.80" (Sudan Savanna region of Nigeria) Maiduguri, Borno state, between July and September, 2019 (at the establishment of rainfall when almost all weeds have emerged and flowered for easy identification). Temperature ranged from 33.2⁰C to 33.7⁰C, the average rainfall 147.1 mm in July to 83 mm in September. The area being a research farm is characterized by numerous annual and perennial vegetation; among the tree crops are: *Acacia* species, neem *Azadiracta indica*, Desert date *Balanite aegyptiaca*, cashew *Anacardium occidentale*, Citrus plants, wet and dry season crops such as maize *Zea mays*, Amaranthus *Amaranthus* spp, Roselle *Hibiscus sabdariffa*, Okra *Hibiscus esculentus*, Kenaf *Hibiscus cannabinus*, sun flower *Helianthus annus*, Groundnut *Arachis hypogeal* and many more. Weed samples were collected from 1 m² quadrat around the farm including climbing weeds on wire fence and trees samples were collected from a total of 50 quadrats. These weed sample were

identified with the help of indigenous farmers, weed identification manual and elders around the community who have the knowledge about traditional medicine and are so familiar with these weeds.

Results and Discussions

Table 1 shows information on the weed species available at the experimental farm. These weeds were categorized based on their scientific names, family, common names and life cycle. Fifty-one (51) different weed species were identified belonging to 23 (twenty-three families). Most of the weeds identified have annual life cycle (38 weed species) in nature except for some weeds from tree seeds which have perennial life cycle (13 weed species). Out of the perennial types some are seedling grown from the scattered seeds of their parent trees. This investigation is in tandem with (Berlin, 1992) which says ethno-botany includes the study of local names and folk taxonomy of plants as well as the local knowledge of them.

The frequency of weed species occurrence on the experimental site is presented on Table 2. A total of 50 (fifty) quadrats samples were collected and later identified as mentioned earlier. Out of the 51 weed species, any weed specie that appears in 40 quadrats and more were given (***) three stars 70% and above, those weed samples that occurred in 20- 39 quadrats were given (**) two stars 50%-70% and the remaining weed samples that occurred in 1-19 quadrats were given (*) less than 50%.

Fig 1 (pie chart) shows the distribution of weed flora based on family; the dominant family among the weed species is the Fabaceae family comprising of 23.53%, followed by the Poaceae family with 17.64%, and Malvaceae family with 5.88%. All other different families were in the range of 3.92 % and 1.96 % weed species this supports the fact that weeds are distributed based on their family as presented by Solodoye *et al.* (2010).

The distribution of weed flora based on the uses is presented on table 3; the uses ranging from forage, medicinal, pot herbs are some of the various used on which the weeds were beneficial to the local people around the community. Uses such as highly medicinal are as a result of responses based on the people of the community, meaning that it served as very medicinal as compared to other medicinal plants. Again some weeds are fair as forage, this is because they are only beneficial at a certain stage of their life cycle; that's once they reach maturity they are no longer palatable to the animals this finding is in line with the sayings of Dhanam and Elayaraj

(2014); (Kajidu *et al.*, 2019) where they stated plants are generally rich sources of many natural herbal products which have mostly used for human welfare especially in tonic to loss of viability and also reduce the human pain and suffering from many diseases. Weeds are tremendously grown in open areas and people are not aware for medicinal value of weeds, forage and olericultural importance.

Conclusion

In conclusion, the survey shows that 51 (fifty-one) different weed species were identified belonging to 23 families (twenty-three). Most of the weeds identified have annual life cycle in nature except for some weeds from tree seedlings which have perennial life cycle. Twenty (20) weeds species have high occurrence (above 70%). Morphologically, only the Poaceae family is among the grass type Cyperaceae belonging to sedge type all other 21 families are from the broad leaved type but further classified as shrubs, semi woody and woody plants. Almost all the weeds identified have medicinal, fodder, soup and mulch cover value to animals and man, most important among them are *Corchorus olitorius* L., *Panicum maximum* Linn, *Chloris pilosa* Schumach., *Faidherbia albida* A. Cahev., *Crotalaria medicaginea* L., *Calotropis procera* (Aiton) W. T.

Recommendation

Further studies should be conducted about the allelopathic effects of these weeds and their benefits as all plants are important in one way or the other.

Table 1: Weed Flora at University of Maiduguri Teaching and Research Farm, Maiduguri Borno State.

S/N	Weed Scientific name	Family	Common name	Lifecycle
1	<i>Amaranthus retroflexus</i> L.	Amaranthaceae	Smooth pig weed	Annual
2	<i>Amaranthus spinosis</i> L.		Thorn pig weed	
3	<i>Leptadenia hastata</i> (Pers)	Apocynaceae	Akamongot	Annual
4	<i>Calotropis procera</i> (Aiton) W. T.		Sodom apple	Perennial
5	<i>Amorphophallus</i> spp.	Araceae	-	Perennial
6	<i>Tridax procumbens</i> Linn	Asteraceae	Tridax	Annual
7	<i>Heliotropium indicum</i> L.	Boraginaceae	English cock's comb	Annual
8	<i>Cleome gynandra</i> L.	Cleomaceae	Stink weed	Annual
9	<i>Commelina benghalensis</i> Schult. F.	Commelinaceae	Climbing day flower	Annual/perennial
10	<i>Commelina erecta</i> linn.		Wandering jew	
11	<i>Ipomoea eriocarpa</i> R. Br.	Convolvulaceae	Tiny morning glory	Annual
12	<i>Momordica balsamina</i> L.	Curcubitaceae	Balsam apple	Annual
13	<i>Cyperus rotundus</i> L.	Cyperaceae	Nutsedge	Perennial
14	<i>Euphorbia hirta</i> linn.	Euphorbiaceae	Asthma plant	Annual
15	<i>Chrozophora senegalensis</i> (Lam.)		Senegalese plant	
16	<i>Crotalaria mucronata</i> L.	Fabaceae	Rattle pod	Annual/perennial
17	<i>Crotalaria medicaginea</i> L.		Rattle pod	Annual
18	<i>Senna tora</i> L.		Sickle senna	Annual
19	<i>Senna occidentalis</i> L.		Coffee senna	Annual
20	<i>Tephrosia purpurea</i> (L.) Pers.)		Wild indigo	Annual
21	<i>Swartzia madagascariensis</i> L.		Snake bean	Annual
22	<i>Faidherbia albida</i> A. Cahev.		Acacia	Perennial
23	<i>Acacia nilotica</i>		Gum Arabic	Perennial
24	<i>Alysicarpus vaginalis</i> (L.) DC.		One-leaf clover	Perennial
25	<i>Indigofera astragalina</i> DC		Hairy indigo	Annual
26	<i>Piliostig mareticulatum</i> Hochst.		Camel's foot	Annual
27	<i>Sesbania sesban</i> (L.) Merr.		Egyptian pea	Annual
28	<i>Ocimum gratissimum</i> L.	Lamiaceae	African basil	Annual
29	<i>Leucas martinicensis</i> (Jacq.)		Wild tea bush	Annual
30	<i>Englerina gabonensis</i> (Engl.) Balle	Loranthaceae	Mistletoe	Perennial
31	<i>Waltheria americana</i> L.	Malvaceae	Sleepy morning	Annual
32	<i>Hibiscus asper</i> L.		wild sorrel	annual
33	<i>Sidacor difolia</i> L.		Flannel weed	annual
34	<i>Azadirachta indica</i> L.	Meliaceae	Neem	Perennial
35	<i>Boerhavia erecta</i> L.	Nyctaginaceae	Spiderling	Annual/perennial
36	<i>Sesamum radiatum</i> (Schumach and Thonn.)	Pedaliaceae	Black sesame	Annual
37	<i>Cenchrus biflorus</i> (Roxb.)	Poaceae	Indian sandbur	Annual
38	<i>Cenchrus ciliaris</i> (Roxb.)		Buffel grass	Annual
39	<i>Chloris pilosa</i> Schumach.		Finger grass	Perennial
40	<i>Cynodon dactylon</i> (L.) Pers.		Bermuda grass	Annual
41	<i>Eragrotis tenella</i> (A. Rich) Hoschst. Ex Steud.		Japanese love grass	Annual
42	<i>Eragrotis tremula</i> Hochst.		Love grass	Annual
43	<i>Panicum maximum</i> Linn.		Guinea grass	Annual
44	<i>Pennisetum pedicellatum</i> Linn.		Kyasuwa grass	Annual
45	<i>Pennisetum polystachyon</i> Linn		Mission grass	Annual
46	<i>Mitracarpus hirtus</i> (L.) DC	Rubiaceae	Girdle pod	Annual
47	<i>Borreria stadchydea</i> (DC) Hutch & Dalziel		-	Annual
48	<i>Solanum incanum</i>	Solanaceae	Bitter apple	Annual
49	<i>Corchorus oltorius</i> L.	Tiliaceae	White jute	Annual
50	<i>Tribulus terrestris</i> L.	Zygophyllaceae	Devils thorn	Annual
51	<i>Balanite aegyptiaca</i> L.		Desert date	Perennial

Table 2: Distribution of Weed Flora According to Frequency of Occurrence

S/N	Weed Scientific Name	Frequency of occurrence
1	<i>Amaranthus retroflexus</i> L.	**
2	<i>Amaranthus spinosis</i> L.	**
3	<i>Leptadenia hastata</i> (Pers)	***
4	<i>Calotropis procera</i> (Aiton) W. T.	*
5	<i>Amorphophallus</i> spp.	*
6	<i>Tridax procumbens</i> Linn	**
7	<i>Cleome gynandra</i> L.	***
8	<i>Commelina benghalensis</i> Schult. F.	***
9	<i>Commelina erecta</i> linn.	***
10	<i>Ipomoea eriocarpa</i> R. Br.	**
11	<i>Momordica balsamina</i> L.	**
12	<i>Cyperus rotundus</i> L.	***
13	<i>Euphorbia hirta</i> linn.	***
14	<i>Chrozophora senegalensis</i> (Lam.)	*
15	<i>Crotalaria mucronata</i> L.	*
16	<i>Crotalaria medicaginea</i> L.	*
17	<i>Senna tora</i> L.	**
18	<i>Senna occidentalis</i> L.	*
19	<i>Tephrosia purpurea</i> (L.) Pers.)	***
20	<i>Swartzia madagascariensis</i> L.	*
21	<i>Faidherbia albida</i> A. Cahev.	*
22	<i>Acacia nilotica</i>	**
23	<i>Alysicarpus vaginalis</i> (L.) DC.	**
24	<i>Indigofera astragalina</i> DC	**
25	<i>Piliostigma reticulatum</i> Hochst.	*
26	<i>Sesbania sesban</i> (L.) Merr.	***
27	<i>Heliotropium indicum</i> L.	**
28	<i>Ocimum gratissimum</i> L.	***
29	<i>Leucas martinicensis</i> (Jacq.)	**
30	<i>Englerina gabonensis</i> (Engl.) Balle	**
31	<i>Waltheria Americana</i> L.	**
32	<i>Hibiscus asper</i> L.	**
33	<i>Sida cordifolia</i> L.	**
34	<i>Azadirachta indica</i> L.	**
35	<i>Boerhavia erecta</i> L.	**
36	<i>Sesamum radiatum</i> (Schumach and Thonn.)	**
37	<i>Cenchrus biflorus</i> (Roxb.)	***
38	<i>Cenchrus ciliaris</i> (Roxb.)	***
39	<i>Chloris pilosa</i> Schumach.	***
40	<i>Cynodon dactylon</i> (L.) Pers.	***
41	<i>Eragrotis tenella</i> (A. Rich) Hoschst. Ex Steud.	***
42	<i>Eragrotis tremula</i> Hochst.	***
43	<i>Panicum maximum</i> Linn.	***
44	<i>Pennisetum pedicellatum</i> Linn.	**
45	<i>Pennisetum polystachyon</i> Linn	**
46	<i>Mitracarpus hirtus</i> (L.) DC	***
47	<i>Borreria stadchydea</i> (DC) Hutch & Dalziel	***
48	<i>Solanum incanum</i>	**
49	<i>Corchorus olitorius</i> L.	***
K250	<i>Tribulus terrestris</i> L.	***
51	<i>Balanite aegyptiaca</i> L.	**

* = less than 50% (from 1-19 quadrats)

** = 50%-70% (from 20-39 quadrats)

*** = 70% and above (from 40 quadrats and above)

% was obtained from the total of 50 quadrats thrown

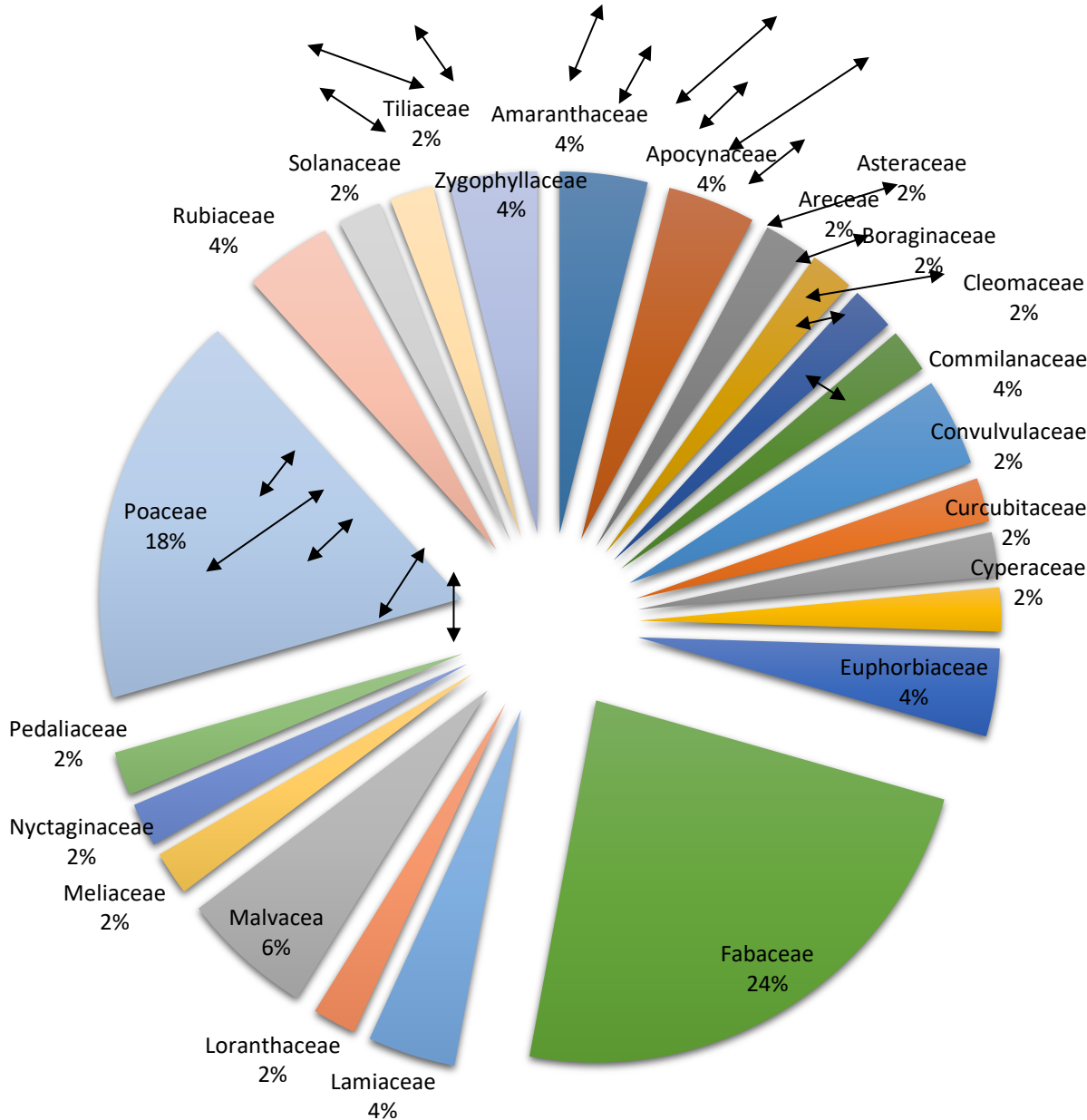


Fig 1. Distribution of Weed Flora Family Based on Percentage (%)

Table 3: Distribution of Weed Flora According to Uses

S/N	Weed Scientific Name	*Uses
1	<i>Amaranthus retroflexus</i> L.	Good for forage
2	<i>Amaranthus spinosis</i> L.	Good for forage
3	<i>Leptadenia hastata</i> (Pers)	Good as pot herb
4	<i>Calotropis procera</i> (Aiton) W. T.	Highly medicinal
5	<i>Amorphophallus</i> spp.	Good for forage
6	<i>Tridax procumbens</i> Linn	Good for forage
7	<i>Heliotropiu mindicum</i> L.	Good as forage
8	<i>Cleome gynandra</i> L.	Good as pot herb
9	<i>Commelina benghalensis</i> Schult. F.	Good as forage, medicinal
10	<i>Commelina erecta</i> linn.	Good as forage, medicinal
11	<i>Ipomoea eriocarpa</i> R. Br.	Good as forage
12	<i>Momordica balsamina</i> L.	Good as potherb, medicinal
13	<i>Cyperus rotundus</i> L.	Good for forage
14	<i>Euphorbia hirta</i> Lin.	Good as forage, medicinal
15	<i>Chrozophora senegalensis</i> (Lam.)	Very good as forage
16	<i>Crotalaria mucronata</i> L.	Very good for forage and medicinal
17	<i>Crotalaria medicaginea</i> L.	Good as forage, highly medicinal
18	<i>Senna tora</i> L.	Good as forage, medicinal
19	<i>Senna occidentalis</i> L.	Good as forage, highly medicinal
20	<i>Tephrosia purpurea</i> (L.) Pers.)	Good as forage, medicinal
21	<i>Swartzia madagascariensis</i> L.	Good as forage
22	<i>Faidherbia albida</i> A. Cahev.	Excellent as forage, medicinal
23	<i>Acacia nilotica</i>	Excellent as forage, medicinal
24	<i>Alysicarpus vaginalis</i> (L.) DC.	Good as forage, medicinal
25	<i>Indigofera astragalina</i> DC	Good as forage, medicinal
26	<i>Piliostig mareticulatum</i> Hochst.	Good as forage, medicinal
27	<i>Sesbania sesban</i> (L.) Merr.	Good as forage, medicinal
28	<i>Ocimum gratissimum</i> L.	Good as forage and potherb
29	<i>Leucas martinicensis</i> (Jacq.)	Good as forage, medicinal
30	<i>Englerina gabonensis</i> (Engl.) Balle	Good as forage
31	<i>Waltheria americana</i> L.	Good as forage, medicinal
32	<i>Hibiscus asper</i> L.	Good as potherb
33	<i>Sida cordifolia</i> L.	Good as forage, medicinal
34	<i>Azadirachta indica</i> L.	Highly medicinal
35	<i>Boerhavia erecta</i> L.	Good as forage, medicinal
36	<i>Sesamum radiatum</i> (Schumach and Thonn.)	Good as forage and potherb
37	<i>Cenchrus biflorus</i> (Roxb.)	Fair as forage
38	<i>Cenchrus ciliaris</i> (Roxb.)	Good as forage
39	<i>Chloris pilosa</i> Schumach.	Good as forage
40	<i>Cynodon dactylon</i> (L.) Pers.	Very Good as forage
41	<i>Eragrotis tenella</i> (A. Rich) Hoschst. Ex Steud.	Good as forage
42	<i>Eragroti stremula</i> Hochst.	Good as forage
43	<i>Panicum maximum</i> Linn.	Good as forage
44	<i>Pennisetum pedicellatum</i> Linn.	Good as forage and highly medicinal
45	<i>Pennisetum polystachyon</i> Linn	Good as forage and highly medicinal
46	<i>Mitracarpus hirtus</i> (L.) DC	Good as forage
47	<i>Borreria stadchydea</i> (DC) Hutch & Dalziel	Good as forage
48	<i>Solanum incanum</i>	Good as forage
49	<i>Corchorus olitorius</i> L.	Very good as potherb
50	<i>Tribulus terrestris</i> L.	Fair as forage
51	<i>Balanite aegyptiaca</i> L.	Very good as forage and highly medicinal

*information sourced from indigents and textbook Akobundu *et al.* (2016)

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