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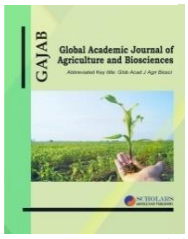

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Research Article

Frequency of Utilization of Medicinal Plants Grown in Home gardens of Traditional Medicine Practitioners in Benue State, Nigeria

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Abstract: Plants in Home gardens in Benue State are used locally to treat different illnesses but the frequency of their utilization is has not been documented. The study sought to identify and document the most frequently used medicinal plant species found in home gardens across the three agro-ecological zones of Benue State. About two local government areas from each of the three (3) Ecological Zones of the State were randomly selected for the study. Interviews with home garden owners (traditional medicine practitioners) were conducted using a semi-structured questionnaire. Data were subjected to descriptive statistics like frequency and percentage to determine the frequency of use of the medicinal plants. Variation in frequency of use of medicinal plants was done using one way Anova on SPSS version 20. A total of 16 plant species were found to be the most frequently used medicinal plants in home gardens in Zone A. About 18 plant species were identified as the most frequently used medicinal plants in home gardens in Zone B and 16 most frequently used medicinal plant species were identified in home gardens in Zone C. There were no significant differences in frequencies of use of medicinal plants found in home gardens of traditional medicine practitioners in Benue State at 0.05 level of significance. Most of the traditional medicine practitioners (53.33%) interviewed was elderly people. It was concluded that lack of interest by younger generations to participate in traditional medicine, can cause indigenous knowledge of plant medicine to be lost completely in the near future.

Keywords: Home gardens. Medicinal, plants, frequency, use.

INTRODUCTION

Home garden is an agroforestry practice that has been in existence since time immemorial. They play a great role in insitu conservation of plants including medicinal species in order to overcome the threat of extinction from natural sources [1]. Many people living in developing countries use medicinal plants for their health care needs. The utilization of medicinal plants has been found to be effective, cheap and practical [2]. A good number of plant species growing in home gardens have medicinal uses. Such species are exploited and used locally within the family and community because of their medicinal properties. Many people in rural areas in Nigeria use a number of plant species they grow in their home gardens for medicinal purposes [3]. Some of these plant species

found in home gardens are deliberately cultivated and others are found growing naturally. The use of plant species for medicinal purposes is based on indigeneous knowledge and customs which are passed down from generations [1]. Identification and documentation of these medicinal plant species will help to preserve the intellectual and indigenous knowledge system of the rural communities in Benue State about home garden flora especially the medicinal ones.

Objective of the Study

The main objective of the study was to identify and document the most frequently used medicinal plant species found in home gardens across the three agro-ecological zones of Benue State, Nigeria.

The Study Area: Benue State

Benue State inhabited predominantly by the Tiv and Idoma people, who speak the Tiv language and Idoma, respectively. There are other ethnic groups, including the Igede, Etulo, Akweya and Nyifon [4]. The capital of Benue is Makurdi. It is a rich agricultural region. Its geographic coordinates are longitude 7° 47' and 10° 0' East while the State further lies between Latitude 6° 25' and 8° 8' North. The State experiences two distinct seasons; the wet season and dry season. The rainy season starts from April to October with an annual rainfall of 100–200mm. The dry season begins in November and ends in March. Temperature fluctuates between 21-37^{o}C.

MATERIALS AND METHOD

Two local government areas from each of the three (3) Ecological Zones of the State were randomly selected for the study. The local government areas were Vandeikya and Katsina-Ala (both in Zone A), Gwer west and Gwer-East (both in Zone B), Ogbadibo, Oju (both in Zone C). Four (4) Council wards from each Local Government Area were purposively selected for ease of accessibility and detailed study because of insecurity problems in some parts of the State. In each Council ward, Five (5) home gardens belonging to traditional medicine practitioners were visited. Data were collected by making careful identifications of the plants, listing the plant species and the medicinal uses of such plants. Interviews with home garden owners (traditional medicine practitioners) were conducted using a semi-structured questionnaire based on [5, 6] methodologies. The traditional medicine practitioners were selected based on how they were considered by their communities as very knowledgeable about medicinal plants. During the interview, the traditional medicine practitioners were allowed to discuss what species of plants in their home-gardens are medicinal, how frequently were they used for treatment and for what kind of ailments were they used for treatment?

DATA ANALYSIS

After data collection, data were subjected to descriptive statistics like frequency and percentage to determine the frequency of use of the medicinal plants. One way Anova was used to test for significant differences in frequency of use of medicinal plants using SPSS version 20.

RESULTS

Table 2 showed the socio-economic attributes of traditional medicine practitioners. Majority of the traditional medicine practitioners were men with a percentage of 70.83% and women (29.17%). A greater percentage of the traditional medicine practitioners were within the age range of 50years and above (53.33%) followed by the age range of 40–50years (41.67%), 29–39 (4.17%) and the age range of 18–28 (0.83%). Traditional medical knowledge may be lost in the nearest future hence the involment of youths in the practice of traditional medicine was low. Most of the traditional medicine practitioners were married (80.00%) and Single practitioners had a percentage of 2.50%. The household size of more than 12 members had the greatest percentage (26.67). While household size of 1–2 was the least with a percentage (8.33%). High level of illiteracy was recorded among the traditional medicine practitioners (64.17%). 16.67% of the traditional medicine practitioners had secondary education. 1.67% of the respondents had degree or HND.

Table-1: Socio-economic characteristics of Traditional medicine Practitioners in Benue State

Variables	Frequency	Percentage (%)
Sex		
Male	85	70.83
Female	35	29.17
Age		
18 – 28	1	0.83
29 – 39	5	4.17
40 – 50	50	41.67

50 and above	64	53.33
Marital Status		
Single	3	2.5
Married	96	80.00
Widowed	18	15.00
Separated	3	2.5
Divorced	0	0
Household Size		
1 – 2	10	8.33
4 – 6	31	25.83
7 – 9	25	20.83
10-12	22	18.33
More than 12	32	26.67
Educational Status		
No formal education	77	64.17
Primary education	9	7.50
Secondary education	20	16.67
NCE/OND	12	10.00
HND/Degree	2	1.67
Postgraduate	0	0

A total of 16 plant species were found to be the most frequently used medicinal plants in home gardens in Zone A which comprised of Vandeikya and Katsina-Ala Local Government Areas that were visited during the study. *Ceiba petandra* was the most frequently used home garden medicinal plant with percentage use of 21.25% followed by *Moringa oleifera* (17.50%) and *Erythrina sengalensis* and *Jatropha curcas* (11.25%) each. *Cymbopogon citratus* had a percentage use of 10.00%. *Hibiscus sabdariffa* had the frequency of use of 7.50%. *Ceratotheca sesamoides* and *Spermacoce octodon* had the frequency of use of 3.75%. While *Chasmanthera dependens*, *Psidium guajava*, and *Spondias mombin* had frequency of use of 2.50%. *Newbouldia laevis*, *Aloe vera, Ocimum gratissimum*, *Eurphorbia hirta*, and *Morinda lucida* had the least frequency of use (1.25%) each.

Table-2: Most Frequently used medicinal Plant Species in Home Gardens in Zone A Local government Areas of Benue State

S/No.	Plant species	Frequency	Percentage (%)
1.	*Ceiba petandr*a	17	21.25
2.	*Moringa oleifera*	14	17.50
3.	*Erythrina senegalensis*	9	11.25
4.	*Jatropha curcas*	9	11.25
5.	*Cymbopogon citratus*	8	10.00
6.	*Hibiscus sabdariffa*	6	7.50
7.	*Ceratotheca sesamoides*	3	3.75
8.	*Spermacoce octodon*	3	3.75
9.	*Chasmanthera dependens*	2	2.50
10.	*Psidium guajava*	2	2.50
11.	*Spondias mombin*	2	2.50
12.	*Newbouldia laevis*	1	1.25
13.	*Ocimum gratissimum*	1	1.25
14.	*Eurphorbia hirta*	1	1.25
15.	*Aloe vera*	1	1.25
16.	*Morinda lucida*	1	1.25

Table 3 showed the most frequently used medicinal plant species in home gardens in Zone B (Ogbadibo and Oju) Local Government Areas of Benue State. About 18 plant species were identified as the most frequently used medicinal plants. *Ceiba petandra* had the highest frequency of medicinal use (30.00%) followed by *Cymbopogon citratus* (13.75%) and *Moringa oleifera* (6.25%). *Erythrina senegalensis*, *Carica papaya*, *Jatropha curcas*, *Azadirachta indica* and *Psidium guajava* had

medicinal use of (5.00%) each. *Morinda lucida* and *Newbouldia laevis* had the same frequency of use of 3.75%. *Hibiscus sabdariffa*, *Sterculia setigera*, *Mangifera indica*, *Ceratotheca sesamoides*, *Aloe vera* and *Ocimum gratissimum* had the frequency of use of 2.50 each. While *Musa sapientum* and *Spondias mombin* (1.25%).

Table-3: Most Frequently used Medicinal Plant Species in Home-gardens in Zone B Local government areas of Benue State

S/No.	Plant species	Frequency	Percentage (%)
1.	*Ceiba petandra*	24	30.00
2.	*Cymbopogon citratus*	11	13.75
3.	*Moringa Oleifera*	5	6.25
4.	*Erythrina senegalensis*	4	5.00
5.	*Carica papaya*	4	5.00
6.	*Jatropha curcas*	4	5.00
7.	*Azadirachta indica*	4	5.00
8.	*Psidium guajava*	4	5.00
9.	*Morinda lucida*	3	3.75
10.	*Newbouldia laevis*	3	3.75
11.	*Hibiscus sabdariffa*	2	2.50
12.	*Sterculia setigera*	2	2.50
13.	*Mangifera indica*	2	2.50
14.	*Ceratotheca sesamoides*	2	2.50
15.	*Aloe vera*	2	2.50
16.	*Ocimum gratissimum*	2	2.50
17.	*Musa sapientum*	1	1.25
18.	*Spondias mombin*	1	1.25

In Zone C Local Government Areas, 16 plant species were identified as the mostly used medicinal plants (Table 16). *Moringa oleifera* had the highest frequency (23.75%) of medicinal use followed by *Ceiba petandra* (18.75%) and *Carica papaya* (10.00%). The percentage of medicinal use of *Cymbopogon citratus* was (8.75%), *Azadirachta indica* and *Jatropha curcas* had the same frequency of use (7.50%) and *Spondias mombin* (5.00%). *Hibiscus sabdariffa* and *Aloe vera* had the frequency of use (3.75%) each. *Ocimum gratissimum* and *Psidium guajava* had the frequency of use of 2.75%. *Sterculia setigera*, *Citrus aurantifolia*, *Newbouldia laevis*, *Musa sapientum* and *Erythrina senegalensis* had the percentage of medicinal use (1.25%).

Table-4: Most Frequently used Medicinal Plant species in Home-gardens in Zone C

S/No.	Plant species	Frequency	Percentage (%)
1.	*Moringa oleifera*	19	23.75
2.	*Ceiba petandra*	15	18.75
3.	*Carica papaya*	8	10.00
4.	*Cymbopogon citratus*	7	8.75
5.	*Azadirachta indica*	6	7.50
6.	*Jatropha curcas*	6	7.50
7.	*Spondias mombin*	4	5.00
8.	*Hibiscus sabdariffa*	3	3.75
9.	*Aloe vera*	3	3.75
10.	*Ocimum gratissimum*	2	2.75
11.	*Psidium guajava*	2	2.75
12.	*Sterculia setigera*	1	1.25
13.	*Citrus aurantifolia*	1	1.25
14.	*Newbouldia laevis*	1	1.25
15.	*Musa sapientum*	1	1.25
16.	*Erythrina senegalensis*	1	1.25

Table 5 showed the Analysis of Variance for the differences in frequency of use of medicinal plant species found in home gardens in each ecological zone. The result indicated that there were no significant variations in the frequency of use of medicinal plant species in a particular Ecological Zone of the State at 0.05 level of significance. The use of a particular plant species for treatment of

ailments was commonly known among home garden owners and traditional medicine practitioners of the same community. A particular plant species would be used by different traditional medicine practitioners for the treatment of different ailments. In each ecological zone, the frequency of use of plant species for the treatment of ailments did not vary significantly as the home garden owners prefer to share their indigenous traditional medical knowledge. Even people who do not have certain medicinal plant species growing in their home gardens, use or collect freely from other people's home gardens. The use of these medicinal plant species was a common knowledge among traditional medicine practitioners.

Table-5: Analysis of Variance for Frequency of Use of Medicinal Plant species found in Home gardens in the Ecological Zones of Benue State

	SS	df	MS	F-cal	F-tab α=0.05
Between Groups 6.200	2		3.100	0.073	3.20
Within Groups	2007.206	47	42.707		
Total	2013.40649				

SS = Sum of Squares, df = degree of freedom, MS = Mean Square, F-cal = calculated value, F-tab = tabulated value.

DISCUSSION

Socio-economic attributes of traditional medicine practitioners

The result in table 1 showed that out of 120 respondents, majority of the traditional medicine practitioners were men (70.83%). While 29.17% were women. This means that men were more involved in the practice of plant medicine than women. This is because the practice of traditional medicine by women is perceived to be an unholy practice and women are not always allowed into it. The result agrees with Afolayan *et al*. [7], who reported that men were more involved in the practice of traditional medicine than women. But the result is contrary to the summation of Howard [8] who reported that more women were found in the practice of traditional medicine than men. The result also showed that majority of the traditional medicine practitioners (53.33%) were elderly people who were within the age range of between 50 years and above. This result agrees with [9]. Young people between the age of 18–28 years had 0.83% involvement in the practice of traditional medicine. The implication of this result in the near future is that indigenous knowledge of plant medicine will be eroded away because of the unwillingness of the youths to participate in traditional medicine. Lack of interest by the younger generation in sustaining indigenous knowledge of traditional medicine will cause the fear that knowledge of traditional medicine will die along with the aging generation of traditional medical practitioners [10]. About 80.00% of the traditional medicine practitioners were married people. About 2.5% the traditional medicine practitioners were single. This means many of the traditional medicine practitioners were married people who use medicinal plants found in their home gardens to provide health care to their family members and other members of the community.

Traditional medicine practitioners with family size of more 12 members were found to have the highest percentage (26.67%) use of plant medicine. About 8.33% of the respondents had household size of 1–2 members. This indicates that plant medicine is essential to the lives of people. It is also an indication that there is high level of utilization of plant medicine by the rural households in the selected Local Government areas in Benue State. The result agrees with Antwi-Baffour *et al*. [11], who reported that a greater percentage of African population depends on plant medicine for their primary health care option. Majority of the traditional medicine practitioners (64.17%) do not have formal education. Only 7.50% had primary education and 1.67% had Highest National Diploma or Degree. This implies that plant medicine will continue to be traditional. It will continue to be what is seen or considered to be some form of concoctions and what is considered to be superstitious unless there is application of science which is acquired through formal education. The result agrees with the findings of Alade *et al*. [12], who reported low level of formal education among the traditional medicine practitioners in Iwo and Ibadan, Nigeria but the result is contrary to the findings of Ancha *et al*. [9], who reported that majority of the traditional medicine practitioners were literate.

Frequency of Use of Medicinal Plants

The use of plants for medicinal purposes varies from place to place. A total of 18 plant species were found to be the most frequently used medicinal plant species in Zone B. A total of 16 plant species

were found in Zones A and C. However, the result of the study showed that *Ceiba petandra* (Kapok tree) was the most frequently used medicinal plant found in home gardens of traditional medicine practitioners in Zones A and B. Zones A and B are predominantly inhabited by Tiv people. They use *Ceiba pendandra* for many medicinal purposes. They use it for the treatment of hypertension, mystic diarrhoea, partial madness, stomach ache and fracture. In zone C Local Government areas (Oju and Ogbadibo) which are inhabited by Igede and Idoma people, *Moringa oleifera* was the most frequently used medicinal plant with percentage use of 23.75%. In these two places, *Moringa oleifera* was used for the treatment of ulcer, typhoid, fever, malaria, body ache, hypertension, diabetes, and general body weakness. The result of the study indicated that there were no significant differences in the frequency of use medicinal plant species. This could be as a result of the similarity in the cultural values attached to medicinal plants in Benue State. However, the result is contrary to the findings of Ngulde *et al.* [13] who reported significant differences in the frequency of utilization of medicinal plants.

Conclusion

Plants found in home gardens of traditional medicine practitioners had significant number of uses. Home garden owners showed great efforts in domestication of useful plant species. Lack of interest by younger generations to participate in traditional medicine, can cause indigenous knowledge of plant medicine to be lost completely in the near future. It was concluded that there were no significant variations in the frequencies of use of medicinal plants found in home gardens of traditional medicine practitioners in Benue State, Nigeria.

Recommendations

More young people should embrace traditional medicine practice. More research should be carried out on assessment of medicinal plants because the unwillingness of young people to practice traditional medicine poses a challenge to the future of traditional medical knowledge. The indigenous knowledge of medicinal plants is with the elderly people. This knowledge will be lost due to aging if no efforts are made to transfer it.

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