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Ethnobotanical and Use Value of Plant Species raised in home garden in some communities in Southern Kaduna, Kaduna State, Nigeria

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A B S T R A C T

Use Value of Plant Species raised in home gardens in some communities in Southern Kaduna, Kaduna State, Nigeria was determined. A semi-structured questionnaire was used to engage 90 respondents from three communities for data collection on species grow in home gardens in the areas and their traditional or cultural medicine application. Results show that Stomach pain, malaria fever, and typhoid fever diseases were treated with the highest diversity of plant species, including 67, 59, and 40 species respectively. Moringa oleifera had 46 mentions for ailments like stomach pain, malaria fever, typhoid fever, and diarrhea. Azadirachta indica had 42 mentions for malaria fever, typhoid fever, stomach pain, and skin problems. Other species most mentioned were Carica papaya with 34 mentions for typhoid fever, stomach pain, cancer, and diarrhea, while M. indica had 32 mentions for malaria fever, heart disease, and diarrhea. Also, Persea americana was mentioned 29 times predominantly for heart disease and cholesterol reduction. M. oleifera, M. indica, A. indica, P. americana, C. papaya and E. camaldulensis have the highest use value of 0.700, 0.633, 0.61, 0.489, 0.456 and 0.367

respectively. In was concluded that M. oleifera, M. indica and A. indica were most mentioned for treating common diseases in southern Kaduna. It is therefore recommended that these and other species be conserved in the area for sustainability.

Keywords: Disease, home garden, plant species, Southern Kaduna, Use value

Introduction

Ethnobotany is a multidisciplinary field that studies the relationships between plants and human cultures, encompassing various aspects such as anthropology, botany, medicine, and economics [1]. It involves documenting traditional medicinal knowledge and the application of medicinal plants by indigenous communities. Ethnobotanical surveys have been conducted in diverse regions, including Iran, Turkey, Ethiopia, and India, to record the use of plants for treating various ailments [2,3.4,5]. The documentation of ethnobotanical knowledge is crucial for preserving indigenous wisdom and identifying potential leads for drug development [6]. However, this traditional knowledge is at risk of erosion due to factors such as agricultural expansion and disinterest among younger generations [5].

Use Value (UV) is a quantitative measure used in ethnobotanical studies to evaluate the relative importance of plant species based on their reported uses. It integrates both the frequency of a species' mention and the number of its reported uses, often serving to highlight species of particular significance. Use value in ethnobotany refers to the importance or utility of a plant species to a particular cultural group or community. It is also defined as a measure of the plant's usefulness, versatility, and significance to the people who use it.

Several studies have employed UV to assess the significance of medicinal plants in different communities

Materials and Methods

Description of the study area

The survey was done in in Jema'a is a Local Government Area located in southern Kaduna State, Nigeria, with its headquarters in Kafanchan. Covering an area of 1,384 square kilometers, Jema'a had a population of 278,202 according to the 2006 census. Map of Jema'a is a LGA is shown in Figure 1.

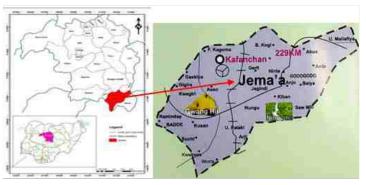


Figure 1: Jema'a Local Government, Kaduna State Source: Magaji and Hummingbird [7]

Experimental Design

A semi-structured questionnaire was used to engage 90 respondents from three communities for data collection on species grow in home gardens in the areas and their traditional or cultural medicine application.

Determination of Use Value (UV)

Use Vakue of species is a quantitative method that highlights the relative importance of species within local knowledge systems [8]. It is often employed, where the use value is calculated with the formula below described by Zenderland [9].

UV= $\Sigma Ui/n$.

Here,

Ui = number of uses mentioned by each informant for a particular species, and

n = the total number of informants

Results

Table 1 shows results on diseases treated and the Diversity plant species used in Jema'a Local Government Area (LGA). From the results, 76 different disease categories were being treated, reflecting the extensive reliance on traditional medicine in the region. The survey identified over 150 plant species employed across various disease treatments, with outstanding representation from species like *Moringa oleifera, Azadirachta indica (Neem)*, and *Carica papaya*. Diseases such as stomach pain, malaria fever, and typhoid fever were treated with the highest diversity of plant species, including 67, 59, and 40 species respectively.

Other notable ailments addressed include hypertension, diabetes, and skin infections. In contrast, conditions like anemia, inflammatory diseases, and eye disorders showed more limited use of plant species. This study highlights the invaluable role of traditional knowledge in local healthcare, advocating for the conservation and integration of these practices into formal medical systems to enhance healthcare delivery and biodiversity preservation.

The most frequently mentioned plant species in Jema'a LGA and their respective citation counts across various diseases are as follows: Moringa oleifera (46 mentions) for ailments like stomach pain, malaria fever, typhoid fever, and diarrhea; Azadirachta indica (Neem) (42 mentions) for malaria fever, typhoid fever, stomach pain, and skin problems. Other species most mentioned were *Carica papaya* (Pawpaw) (34 mentions) for typhoid fever, stomach pain, cancer, and diarrhea; Mangifera indica (Mango) (32 mentions) for malaria fever, heart disease, and diarrhea; and Persea americana (Avocado) (29 mentions), predominantly for heart disease and cholesterol reduction. Other notable mentions include Annona muricata (Soursop) (20 mentions) for cancer and arthritis. The result further revealed Khaya senegalensis (Mahogany) (18 mentions) for diarrhea and blood sugar reduction, Curcuma longa (Turmeric) (17 mentions) for hepatitis and liver disorders, and Ocimum gratissimum (Scent Leaf) (16 mentions) for diarrhea, malaria, and stomach pain. These figures highlight the extensive use and importance of these species in traditional medicine practices within the region.

Table 1: Diseases and the Diversity of Plant Species in home garden in Jema'a LGA Used for their Treatment

S/No.	Disease treated	S/No. of Species reported for each disease	Plant species used for	Frequency of species reported
3/NU.	Disease ti eateu	S/NO. OF Species reported for each disease	treatment	by respondents
1	Cancer	1.	Acacia nilotica	1
		2.	Annona muricate	6
		3.	Brassica oleracea	1
		4.	Carica papaya (Pawpaw)	1
		5.	Erythrina senegalensis	1
		6.	Khaya senegalensis	1
		7.	Mangifera indica (Mango)	2
		8.	Morinda citrifolia	1
		9.	Moringa oleifera	5
		10.	Musa sapientum	2
		11.	Persea americana	3
		12.	Psidium guajava (Guava)	2
		13.	Vernonia amygdalina (Bitter	1
			leaves)	1
	Prostate cancer	14.	Blighia sapida (Ackee)	1
	Trostate cancer	15.	Cactus sp.	1
	Breast cancer	16.	Cocos nucifera	1
			Total	30
2	Diarrhea	1)	Acacia nilotica	1
		2)	Adansonia digitate (Baobab	2
			tree)	
		3)	Aloe barbadensis	1
		4)	Moringa oleifera	5
		5)	Anacardium occidentale	1
			(Cashew)	
		6)	Cactus sp.	2
		7)	Calotropis procera (Sodom	3
			Apple)	1
		8)	Carica papaya	1

10) Corrent long (Turner): 2 11) Excupture scientisations 1 12) Kharp sergatorsi 4 13) Mongfers turbic scientisations 4 14) Morings oblights 4 15) Morings oblights 3 16) Corrent programs 2 17) Parica highbas (Locust (ever) 2 18) Person programs 2 19) Parica highbas (Locust (evers) 2 20) Vertons angelabs (Hitter) 3 Mucus diarthea 21) Khara versgatorsis 3 Mucus diarthea 21) Khara versgatorsis 1 1 - - 10 - 2 1 Accus distate 1 3 Dyamtery 1 - - 4 2 - - - 5 Maggfers turbics 1 - 6 Tree() 1 - 7 <			9)	Citrus limon	1
Image: state of the s			-		
12) Rhays ampighesit (Malogany) 4 13) Monglen indeo [Mango] 6 14) Mordad city[bit] 1 15) Mordag city[bit] 1 16) Interpole leftera 3 17) Both 2 18) Protein lightbox [Locust] 2 19) Protein lightbox [Locust] 2 19) Protein myselone [Attenta] 3 19) Protein myselone [Attenta] 3 10) Protein myselone [Attenta] 3 11) Acata infaitan 1 12) Acata infaitan 1 13) Prestinary 3 3 14) Acata infaitan 1 1 13) Dysentary 1. Acata infaitan 1 2 1. Acata infaitan 1 1 3 Dysentary 1. Acata infaitan 1 2 1. Acata infaitan 1 1 3					
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Image: second			13)		6
Image: second					
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Image: second			15)		5
Image: second			16)	leave)	2
19) Psidum guigreg (Guava) 2 20) Vermoia anygularia (Bitter lawes) 3 Mucous diarrhea 21) Khaya sanagulensi 3 Mucous diarrhea 1 47 47 3 Dysentery 1. Acada naltica 1 4 2. Adarsania digitute (Baobah tree) 1 5 Mangjera indica (Mang) 1 1 6. Perkia bighbosa (Locust beat) 2 2 7. Parkia bighbosa (Locust beat) 2 2 9. Reserved marcican (Avocado) 1 1 10. Vermoia anggalana (Botast beat) 3 2 4 Hepatitis 1. Acada naltica 1 10. Vermoia anggalana (Botast bighbosa (Locust beat) 3 2 6 Total 15 3 2 7 Total 1			17)	-	2
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Image: second			19)	Psidium guajava (Guava)	2
Mucoas diarrhea 21) Naya sengalwass (Mhogany) 3 Image: Constraint of the sengal wass (Mhogany) 3 3 Image: Constraint of the sengal wass (Mhogany) 47 Image: Constraint of the sengal wass (Mhogany) 1 Image: Consend wass (Mhogany) <td></td> <td></td> <td>20)</td> <td></td> <td>3</td>			20)		3
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2. Adansonia digitate (Baobab tree) 1 3. Alce barbadensis 1 4. Psilliam guajava (Guava) 1 5. Mangiera Inica (Mango) 1 6. Newbouldia leevis (Boundary Tree) 1 7. Parkia biglobsos (Locust bean) 2 9. Octimum gratissimum (Sent leave) 3 10. Vernonia amygdalina (Bitter leaves) 3 4 Hepatitis 1. 4 Hepatitis 1 2. Aloe barbadensis 7 7 Parkia biglobsos (Locust bean) 3 9. Octimum gratissimum (Sent leaves) 3 10. Vernonia amygdalina (Bitter leaves) 3 4 Hepatitis 1. Acata initicia 1 4 Hepatitis 1. Acata initicia 1 5 Jathropha sp. 2 2 2 6. Mangifera indica (Mango) 1 1 7. Parkia biglobsos (Locust bean) 1 1 8. Terminolia catappa (Indian almond) 1 <t< td=""><td> </td><td></td><td></td><td></td><td></td></t<>					
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Image: second			8.	Persea Americana (Avocado)	1
Interpretation 10. Vernonia amygdalina (Bitter leaves) 3 Image: Interpretation Image:			9.		3
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8.almond)1Image: Constraint of the second			7.	bean)	1
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6) (Tamarind) 1 Total 9 6 Malaria fever 1. 2 Adansonia digitate (Baobab)			5)	egg)	1
6 Malaria fever 1. Acacia nilotica 1 2 Adansonia digitate (Baobab) 4			6)	(Tamarind)	
Adansonia digitate (Baobab				Total	9
Adansonia digitate (Baobab					
	6	Malaria fever	1.		1
			2.	tree)	4
3. Anacardium occidentale (Cashew) 2			3.	Anacardium occidentale	2

		4.	Azadirachta indica (Neem)	16
		5.	Carica papaya (Pawpaw)	6
		6.	<i>Citrus aurantiifolia</i> (Lime)	1
		7.	Eucalyptus calmadulensis	4
			Khaya senegalensis	
		8.	(Mahogany)	4
		9.	Mangifera indica (Mango)	1
		10.	Moringa oleifera	5
		11.	<i>Newbouldia laevis</i> (Boundary Tree)	1
		12.	<i>Ocimum gratissimum</i> (Scent leave)	5
		13.	<i>Parkia biglobosa</i> (Locust bean)	3
		14.	Psidium guajava (Guava)	2
		15.	Saccharum officinarum	2
		15.	(Sugarcane)	2
		16.	Vernonia amygdalina (Bitter leaves)	2
			Total	59
7	Typhoid fever	1)	Acacia nilotica	1
		2)	Adansonia digitate (Baobab	2
			tree)	
		3)	Aloe barbadensis	1
		4)	Anacardium occidentale (Cashew)	1
		5)	Azadirachta indica (Neem)	10
	1	6)	Cactus sp.	1
		7)	Carica papaya (Pawpaw)	6
			Citrus sinensis (Sweet	
		8)	orange)	2
		9)	Eucalyptus calmadulensis	1
		10)	Khaya senegalensis	2
			(Mahogany)	
		11)	Mangifera indica (Mango)	1
		12)	Moringa oleifera Newbouldia laevis (Boundary	4
		13)	Tree)	1
	1		Ocimum gratissimum (Scent	
		14)	leave)	2
		15)	Psidium guajava (Guava)	1
		16)	Tamarindus indica	1
			(Tamarind)	-
		17)	<i>Vernonia amygdalina</i> (Bitter leaves)	2
	+	18)	Zingiber officinale (Ginger)	1
	1)	Total	40
	1			
0	Cholesterol	1	Am ananthus amount	2
8	reduction	1.	Amaranthus cruentus	2
		2.	Cactus sp.	1
		3.	Cocos nucifera (Coconut)	1
		4.	Zingiber officinale (Ginger)	1
		5.	Psidium guajava (Guava)	2
		6.	Mangifera indica (Mango)	3
		7.	Moringa oleifera	1
		8.	Persea Americana (Avocado)	7
		9.	Vitex negundo (Chaste tree) Total	1 19
				17
9	Hypertension	1)	Amaranthus cruentus	1
-	ing percension	2)	Annona muricate (Soursop)	2
	+	3)	Curcuma longa (Turmeric)	3
	1		<i>J</i> (1

		4)	Khaya senegalensis	1
			(Mahogany)	
		5)	Moringa oleifera	6
		6)	Musa sapientum (Banana)	4
		7)	Zingiber officinale (Ginger)	2
			Total	19
	Swelling of throat			
10	and mouth	1.	Amaranthus cruentus	1
		2.	Eucalyptus calmadulensis	1
		2.	Total	2
			Total	2
11	Intestinal/stomach	1)	Amaranthus cruentus	1
	Ulcer			
		2)	Azadirachta indica (Neem)	4
		3)	Musa sapientum (Banana)	1
		4)	Carica papaya (Pawpaw)	4
		5)	Eucalyptus calmadulensis	2
		6)	Psidium guajava (Guava)	1
		7)	Moringa oleifera	5
			Persea Americana (Avocado)	2
		8)	Musa paradisiaca (Plantain)	
		9)		1
		10)	Calotropis procera (Sodom	3
		,	Apple)	
		11)	Vernonia amygdalina (Bitter	2
		11)	leaves)	-
			Total	26
	Heart		Anacardium occidentale	
12	disease/problem	1.	(Cashew)	3
		2.	Annona muricate (Soursop)	3
		3.	Azadirachta indica (Neem)	
				1
		4.	Blighia sapida (Ackee)	1
		5.	Cactus sp.	1
		6.	Carica papaya (Pawpaw)	1
		7.	Citrus limon (Lemon)	1
		8.	Citrus paradise (Frape fruit)	1
			Colocasia esculenta	
		9.	(Cocoyam)	1
			Cucurbita moschata	
		10.	(Pumpkin)	1
		11.	<i>Curcuma longa</i> (Turmeric)	1
		12.	Mangifera indica (Mango)	5
		13.	Moringa oleifera	2
		14.	Musa sapientum (Banana)	6
		15.	Persea Americana (Avocado)	17
		16.	Vitex negundo (Chaste tree)	1
			Total	46
			1	
			Adansonia digitate (Baobab	
13	Anemia	1.		1
			tree)	
		2.	Citrus limon (Lemon)	1
			Total	2
14	Bladder/Kidney	1)	Citrus limon (Lomon)	3
14	stones	1)	Citrus limon (Lemon)	3
		2)	Cocos nucifera (Coconut)	2
		3)	Moringa oleifera	1
		4)	Persea Americana (Avocado)	2
		TJ		
		5)	Tamarindus indica	2
			(Tamarind)	
			Total	10
15	Asthma	1.	Adansonia digitate (Baobab	2

1 2 And a spectral (stablage) 3 1 3. direction approve (traveray) 1 1 4. direction approve (traveray) 1 1 5. Ministrate approve (traveray) 1 1 7. (traveray) 1 1 - Total 1 1 - Total 1 1 - 1 - 1 1 - 1 - 1 - 1 - 1 - - - - 1 - 1 - - - - - 1 - - - - - - - - - - - - - - - <th></th> <th></th> <th>2</th> <th>Muse seriesture (Denses)</th> <th>2</th>			2	Muse seriesture (Denses)	2
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17 rue 1. tree] 1 I 2. Aloe barbadensis 1 I 3. Annon muricate (Soursop) 2 I 4. Caricu papya (Panyaw) 1 I 5. Curcuna baga (Turmeric) 1 I 6. (Malogany) 2 I 7. Mangiera indica (Mango) 1 I 7. Mangiera indica (Mango) 1 I 9. Parkia biglobosa (Locust bean) 1 I 10. Persea Americana (Avacado) 1 I 11. Tamarindus indica 2 I 11. Tamarindus indica 2 I 11. Tamarindus indica 2 I 1 Adassonia digitate (Baoba) 1 I 2. Aloe barbadensis 5 I 3. Anacardium occidentale (Cashew) 3 I 2. Aloe barbadensis 5 I 5. Azadirachta indica (Neem) 7 I 5. Azadirachta indica (Neem					
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3(Cashew) 3 4 Annoa muricate (Soursop) 1 5 Azadirachta indica (Neem) 7 6 Calotropis procera (Sodom Apple) 6 7 Canarium schweinfurthii (Elemi) 1 8 Carica papaya (Pawpaw) 4 9 Cocos nucifera (Cocont) 1 10 0 $Carica papaya (Pawpaw)$ 4 11 10 $Carica papaya (Pawpaw)$ 4 11 10 $Cocos nucifera (Cocont)$ 1 12 11 $Maya senegalensis$ (Mahogany) 7 11 12 $Margifera indica (Mango)$ 4 13 $Moringa oleifera$ 6 14 0 $Cinum gratissimum (Scentleave)$ 5 16 16 7 7 16 17 $Vernonia amygdalina (BitterVernonia amygdalina (BitterMargalina (BitterMargalina (Bitter4$	18	Stomach pain	1.	Total Adansonia digitate (Baobab tree)	14 1
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6. Calotropis procera (Sodom Apple) 6 7. Canarium schweinfurthii (Elemi) 1 8. Carica papaya (Pawpaw) 4 9. Cacos nucifera (Coconut) 1 10. Curcuma longa (Turmeric) 4 11. Khaya senegalensis (Mahogany) 7 12. Mangifera indica (Mango) 4 13. Moringa oleifera 6 14. Ocimum gratissimum (Scent leave) 5 15. Psidium guajava (Guava) 2 16. Tamarindus indica (Tamarind) 5	18	Stomach pain	1. 2. 3.	Total Adansonia digitate (Baobab tree) Aloe barbadensis Anacardium occidentale (Cashew)	14 1 5 3
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/(Elemi)1 $	18	Stomach pain	1. 2. 3. 4. 5.	Total Adansonia digitate (Baobab tree) Aloe barbadensis Anacardium occidentale (Cashew) Annona muricate (Soursop) Azadirachta indica (Neem) Calotropis procera (Sodom	14 1 5 3 1 7
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14. Ocimum gratissimum (Scent leave) 5 15. Psidium guajava (Guava) 2 16. Tamarindus indica (Tamarind) 5 17. Vernonia amygdalina (Bitter	18	Stomach pain	1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11.	TotalAdansonia digitate (Baobab tree)Aloe barbadensisAnacardium occidentale (Cashew)Annona muricate (Soursop)Azadirachta indica (Neem)Calotropis procera (Sodom Apple)Canarium schweinfurthii (Elemi)Carica papaya (Pawpaw)Cocos nucifera (Coconut)Curcuma longa (Turmeric)Khaya senegalensis (Mahogany)	14 1 5 3 1 7 6 1 4 1 4 7 7
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16. Tamarindus indica (Tamarind) 5 17. Vernonia amygdalina (Bitter 4	18	Stomach pain Stomach pain	1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13.	TotalAdansonia digitate (Baobab tree)Aloe barbadensisAnacardium occidentale (Cashew)Annona muricate (Soursop)Azadirachta indica (Neem)Calotropis procera (Sodom Apple)Canarium schweinfurthii (Elemi)Carica papaya (Pawpaw)Cocos nucifera (Coconut)Curcuma longa (Turmeric)Khaya senegalensis (Mahogany)Mangifera indica (Mango) Moringa oleiferaOcimum gratissimum (Scent	14 1 5 3 1 7 6 1 4 7 4 7 4 6 1 4 6
16. (Tamarind) 5 17. Vernonia amygdalina (Bitter	18	Stomach pain Stomach pain	1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14.	TotalAdansonia digitate (Baobab tree)Aloe barbadensisAnacardium occidentale (Cashew)Annona muricate (Soursop)Azadirachta indica (Neem)Calotropis procera (Sodom Apple)Canarium schweinfurthii (Elemi)Carica papaya (Pawpaw)Cocos nucifera (Coconut)Curcuma longa (Turmeric)Khaya senegalensis (Mahogany)Mangifera indica (Mango)Moringa oleifera Ocimum gratissimum (Scent leave)	14 1 5 3 1 7 6 1 4 1 4 7 4 5 5
17 Vernonia amygdalina (Bitter	18	Stomach pain Stomach pain	1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14.	TotalAdansonia digitate (Baobab tree)Aloe barbadensisAnacardium occidentale (Cashew)Annona muricate (Soursop)Azadirachta indica (Neem)Calotropis procera (Sodom Apple)Canarium schweinfurthii (Elemi)Carica papaya (Pawpaw)Cocos nucifera (Coconut)Curcuma longa (Turmeric)Khaya senegalensis (Mahogany)Mangifera indica (Mango) Moringa oleiferaOcimum gratissimum (Scent leave)Psidium guajava (Guava)	14 1 5 3 1 7 6 1 4 1 4 7 4 5 5
	18	Stomach pain Stomach pain	1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15.	TotalAdansonia digitate (Baobab tree)Aloe barbadensisAnacardium occidentale (Cashew)Annona muricate (Soursop)Azadirachta indica (Neem)Calotropis procera (Sodom Apple)Canarium schweinfurthii (Elemi)Carica papaya (Pawpaw)Cocos nucifera (Coconut)Curcuma longa (Turmeric)Khaya senegalensis (Mahogany)Mangifera indica (Mango)Moringa oleifera Ocimum gratissimum (Scent leave)Psidium guajava (Guava)Tamarindus indica	14 1 5 3 1 7 6 1 4 1 4 7 4 5 2
leaves)	18	Stomach pain Stomach pain	1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15.	TotalAdansonia digitate (Baobab tree)Aloe barbadensisAnacardium occidentale (Cashew)Annona muricate (Soursop)Azadirachta indica (Neem)Calotropis procera (Sodom Apple)Canarium schweinfurthii (Elemi)Carica papaya (Pawpaw)Cocos nucifera (Coconut)Curcuma longa (Turmeric)Khaya senegalensis (Mahogany)Mangifera indica (Mango)Moringa oleiferaOcimum gratissimum (Scent leave)Psidium guajava (Guava)Tamarindus indica (Tamarind)	14 1 5 3 1 7 6 1 4 1 4 7 4 5 2
		Stomach pain Stomach pain	1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16.	TotalAdansonia digitate (Baobab tree)Aloe barbadensisAnacardium occidentale (Cashew)Annona muricate (Soursop)Azadirachta indica (Neem)Calotropis procera (Sodom Apple)Canarium schweinfurthii (Elemi)Carica papaya (Pawpaw)Cocos nucifera (Coconut)Curcuma longa (Turmeric)Khaya senegalensis (Mahogany)Mangifera indica (Mango)Moringa oleifera Ocimum gratissimum (Scent leave)Psidium guajava (Guava)Tamarindus indica (Tamarind)Vernonia amygdalina (Bitter	14 1 5 3 1 7 6 1 4 7 4 7 4 5 2 5

		18.	Vitex negundo (Chaste tree)	1
			Total	67
			Adansonia digitate (Baobab	
19	Yellow fever	1)	tree)	2
		2)	Azadirachta indica (Neem)	2
		3)	Carica papaya (Pawpaw)	3
		4)	Erythrina senegalensis	1
		5)	Moringa oleifera	2
			Parkia biglobosa (Locust	4
		6)	bean)	1
		7)	Psidium guajava (Guava)	1
		8)	Tamarindus indica	2
		8)	(Tamarind)	2
			Total	14
	Arthritis/	1.		
20	Rheumatoid		Aloe barbadensis	1
20	arthritis/	2.	moe burbuuensis	1
	Rheumatism			
		3.	Annona muricate (Soursop)	4
		4.	Annona muricate (Soursop)	5
		5.	Eucalyptus calmadulensis	2
		6.	Moringa oleifera	4
		7.	Moringa oleifera	1
		8.	Persea americana (Avocado)	4
		9.	Zingiber officinale (Ginger)	2
			Total	22
21	Diabetes	1.	Aloe barbadensis	1
		2.	Anacardium occidentale	1
		2.	(Cashew)	1
		3.	Azadirachta indica (Neem)	4
		4.	Cactus sp.	2
		5.	Carica papaya (Pawpaw)	1
		6.	Cocos nucifera (Coconut)	2
		7.	Cucurbita moschata	1
		7.	(Pumpkin)	1
		8.	Khaya senegalensis	1
		0.	(Mahogany)	1
		9.	Mangifera indica (Mango)	9
		10.	Moringa oleifera	6
		11.	Musa sapientum (Banana)	3
		12.	Parkia biglobosa (Locust	3
			bean)	
		13.	Persea americana (Avocado)	1
		14.	Psidium guajava (Guava)	2
		15.	Solanum melongena (Garden	1
		13.	egg)	*
		16.	Vernonia amygdalina (Bitter	1
		10.	leaves)	
			Total	39
22	Heart	1)	Anacardium occidentale	3
	disease/problem		(Cashew)	
		2)	Annona muricate (Soursop)	3
		3)	Azadirachta indica (Neem)	1
		4)	Blighia sapida (Ackee)	1
		5)	Cactus sp.	1
		6)	Citrus limon (Lemon)	1
		7)	Citrus paradisi (Grape fruit)	1
		8)	Colocasia esculenta	1
		-)	(Cocoyam)	
		9)	Cucurbita moschata	1
			(Pumpkin)	

Image: second			10)	Curcuma longa (Turmeric)	1
Image: second			-		
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Interpretation 141 Personal mathematical problem 17 Image: Problem of the second of the					
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1Informatory desce1Ascordum octionable (Cashew)123Informatory desce1124Shin problen/infection1724Shin problen/infection1Ascordum octionable (Cashew)224Shin problen/infection2]Ascordum octionable (Cashew)221Ascordum octionable (Cashew)2222Aschrowicht infection (Newny)2223Aschrowicht infection (Newny)2224Sin (Nahoginy)1225Eye disorder1Ascordum oction (Newny)226Paresitic infection1.Ascordum oction (Newny)227Paresitic infection1.Ascordum oction (Newny)128Eye disorder1Ascordum oction (Newny)129Caster (Sanogar (Newny))12220Ascordum otto (Newny)1121Paresitic worms11Ascordum otto (Newny)122Ascordum otto (Newny)1121SinCalter off process (Nodom Apple)2222Ascordum otto (Newny)1123Galer off process (Nodom Apple)1124SinCalter off process (Nodom Apple)125SinCalter off process (Nodom Apple)126Galer off process (Nodom Apple)1127Parasitic w			15)		
23 disease 1. (Caskrey) 1 1 2. Porks bigbbns Locust 1 1 Total 2 24 Shin - - 25 Shin 2 - 26 Shin 1 - 27 Amaranhan occidential 2 28 Shin 2 29 Shin 2 20 Atadirochab indica (Nesm) 2 21 Atadirochab indica (Nesm) 2 22 Statis - - 21 Atadirochab indica (Nesm) 1 22 Eyed scoreder 1 - 23 Eyed scoreder 1 - 24 Parsistic infection 1 - 25 Eyed scoreder 1 - 26 Parsistic infection 1 - 27 Parsistic infection 1 - 28 Parsistic infection 1 - 29 Parsistic infection 1 - 20 - - - - 21 Parsistic infection 1 - 22 Parsistic infection 1 <td< td=""><td></td><td></td><td></td><td>Total</td><td>15</td></td<>				Total	15
23 diseac 1 (Cabew) 1 2 2 Periob Sighbona (Locust bean) 1 4 Skin problen/infection 1 Amararhim occidentale (Cashew) 2 21 Skin problen/infection 11 Amararhim occidentale (Cashew) 2 11 21 Amararhim occidentale (Cashew) 2 2 12 Skin problen/infection 1 Amararhim occidentale (Malongany) 2 12 Amararhim occidentale (Newn) 2 2 2 13 Carlo propee (Prepare) 2 2 14 Amararhim occide (Newn) 1 2 15 By disorder 1 Amararhim occide (Newn) 1 16 Parasitic infection 1 Amararhim occide (Newn) 1 17 Parasitic infection 1 Amararhim occide (Newn) 1 18 Q Quarter proper (Prepare) 1 1 19 Parasitic infection 1 1 1 10 1		Inflammatory		Anacardium occidentale	
Parkat biglabout Parkat biglabout 1 2. Parkat biglabout 1 21 Foral 2 21 Skin 1 Assuration scelentals (Cashew) 2 21 Januar Antone Scheration 2 2 21 Assuration scelentals (Cashew) 2 2 21 Januar Antone Scheration 2 2 23 Optimization Scheration 1 2 24 Skin 7 7 25 Eye disorder 1 Assurationabundics (Nem) 2 26 Parasitic infection 1. Assurationabundics (Nem) 1 26 Parasitic infection 1. Assurationabundics (Nem) 1 27 Parasitic infection 1. Assurationabundics (Nem) 4 29 Assurationabundics (Nem) 4 2 2 21 Assurationabundics (Nem) 4 2 22 Assurationabundics (Nem) 1 2 31 C	23	-	1.		1
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24 Sime problem/Inforction 1 Ansamplian excidentalie (cashew) 2 2 31 Analyzich tarking Neurosci (billy service) 2 4 33 Carics pappa (Narpay) 2 5 Eye disorder 1 7 25 Eye disorder 1 Analization indica (Neen) 1 26 Parasitic infection 1. Analization indica (Neen) 1 26 Parasitic infection 1. Analization indica (Neen) 1 27 Parasitic infection 1. Analization indica (Neen) 1 28 Eye disorder 1 Analization indica (Neen) 1 29 Parasitic worms 1 Analization indica (Neen) 4 20 Analization indica (Neen) 4 Analization indica (Neen) 4 20 Analization indica (Neen) 4 Analization indica (Neen) 1 21 Analization indica (Neen) 4 Analization indica (Neen) 1 21 Parasitic worms 1 Caster a				-	2
24 problem/infection 11 (Cashew) 2 i i 2) Acadirochta under (Nem) 2 i i 3) Carica pagor (Pavpav) 2 i i i Many sengedratis 1 i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i i					
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Image: space s	24	problem/infection	1)		2
Image: space s			2)		2
Image Instrument 4) Marga sengalarits (Mahogary) 1 25 Eye disorder 1 7 25 Eye disorder 1 Azadirachta indica (Neem) 2 26 Parasitic infection 1. Azadirachta indica (Neem) 1 26 Parasitic infection 1. Azadirachta indica (Neem) 1 26 Parasitic infection 1. Azadirachta indica (Neem) 1 27 Parasitic worms 1) Antena murcate (Soursop) 1 20 Azadirachta indica (Neem) 4 2 21 Azadirachta indica (Neem) 4 2 22 1 Azadirachta indica (Neem) 4 23 Azadirachta indica (Neem) 4 2 24 9 0 Cabstrap appa (Paryaw) 1 25 Carac pappa (Paryaw) 1 1 26 9 1 Cabstrap attractive appa (Paryaw) 1 27 7 Tarainsi instasi (Sweet aranga) 1 1					2
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Image: space			4)		1
26 Parasitic infection 1. Andiracha indica (Neem) 1 2 Carica papaga (Pawpaw) 1 70al 2 70al 7					7
26 Parasitic infection 1. Andiracha indica (Neem) 1 2 Carica papaga (Pawpaw) 1 70al 2 70al 7					
26 Parasitic infection 1. Andiracha indica (Neem) 1 2 Carica papaga (Pawpaw) 1 70al 2 70al 7	25	Eye disorder	1	Azadirachta indica (Neem)	2
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27 Parasitic worms 1) Annona muricate (Soursop) 1 20 Azadiracha indica (Neem) 4 2 3) Calotropis procera (Sodom Apple) 2 2 4) Capsicum annuum (Sweet pepper) 1 2 5) Carica papus (Pawpaw) 1 1 6) Eyythrina sengalensis 1 1 7) Tamarindus indica (Tamarindus indica (Tamarindus indica (Tamarindu 1 1 8) Vernonia arnygdalina (Bitter reduction 1 1 28 Blood pressure reduction 1 Citrus sinensis (Sweet orange) 1 28 Blood pressure reduction 1 Citrus sinensis (Sweet orange) 1 4. Cocos nucifra (Coconut) 1 1 5. Curcuma longa (Turmeric) 2 6. Mangifera indica (Mango) 3 7. Morinda citriphia (Noni) 2 6. Mangifera indica (Mango) 3 7. Morinda citriphia (Noni) 2 9.					
Image: constraint of the second state of the seco					
Image: constraint of the second state of the seco	27	Parasitic worms	1)	Annona muricate (Sourson)	1
a3)Calotropis procera (Sodom Apple)24)Capsicum annuum (Sweet pepper)15)Carica papya (Pawpaw)16)Erythrina senegalensis17)Tamarindus indica (Tamarind)17)Tamorindus indica (Tamarind)18)Vernonia amygdalina (Bitter leaves)18)Vernonia amygdalina (Bitter leaves)18)Carage)128Blood pressure reduction12.Coccos nucliera (Coconut)12.Coccos nucliera (Coconut)12.Coccos nucliera (Coconut)11.Carage)129S.Carage asulenta (Constigation)12010.Moringa olegiera52110.Moring and singe aligna (Parmplia)12211.Persea americana (Avocado)3232410.Moringa olegiera52410.Moringa olegiera52511.Persea americana (Avocado)32611.Persea americana (Avocado)329Constipation1)Calotropis procera (Sodom Apple)329Constipation1)Calotropis procera (Sodom Apple)329Constipation1)Calotropis procera (Sodom Apple)329Constipation1)Calotropis procera (Sodom Apple)329Constipation1)Calotropis pro					
AppleApple2 $[1]$ (1) (2) <td></td> <td></td> <td></td> <td></td> <td></td>					
4Capsicum annuum (Sweet pepper)1 $ 5$ $Carica papaya (Pawpaw)$ 1 $ 6$ $Erythrina senegalensis$ 1 $ 6$ $Erythrina senegalensis$ 1 $ 7$ $Tamarindus indica(Tamarind)1 0Vernonia anygdalina (Bitterleaves)1 0Total12 28Blood pressurereduction 2.Cocos nucljera (Cocont)1 2.Cocos nucljera (Cocont)1 3.Colocasia esculenta(Cocoyam)1 4.Cucurbita moschata(Pumpkin)1 6.Margifera indica (Mango)3 7.Morinda citrifolia (Noni)2 6.Moringa oleffera5 0.Musa garadisiaca (Plantain)1 1.Persea americana (Avocado)3 1.Vernonia anygdalina (Bitterleaves)1 1.Persea americana (Avocado)3 1.Vernonia anygdalina (Bitterleaves)1 1.Vernonia anygdalina (Bitterleaves)1 1.Vernonia anygdalina (Bitterleaves)1 1.Vernonia anygdalina (Bitterleaves)1 1.Vernonia anygdalina (Bitterleaves)$			3)		2
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$ \begin{array}{ c c c c c c } \hline Carica papaya (Pawpaw) & 1 \\ \hline Carica pa$			4)		1
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8) Vernonia amygdalina (Bitter leaves) 1 Image: I			7)		1
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Total1228Blood pressure reduction1.29Carbon and an analysis of the second sec			8)		1
28reduction1.orange)1reduction2.Cocos nuclfera (Coconut)1Colocasia esculenta (Cocoyam)1S.Colocasia esculenta (Cocoyam)1Currita moschata (Pumpkin)1S.Cucurbita moschata (Pumpkin)1S.Curcuma longa (Turmeric)2S.Curcuma longa (Turmeric)2S.Curcuma longa (Turmeric)2S.S.Morinda citrifolia (Noni)2S.Norinda citrifolia (Noni)2S.Noringa oleifera5S.11.Persea americana (Avocado)S.12.Vernonia amygdilina (Biter leaves)1S.ICalotropis procera (Sodom Apple)3S.S.Moringa oleifera1S.S.Noringa oleifera1S.ICalotropis procera (Sodom Apple)3S.S.Moringa oleifera1S.S.Moringa oleifera1S.S.Moringa oleifera1S.S.Moringa oleifera1S.S.Moringa oleifera1 <td></td> <td></td> <td></td> <td>Total</td> <td>12</td>				Total	12
28 reduction1.orange)112.Cocos nucifera (Coconut)113.Colocasia esculenta (Cocoyam)113.Colocasia esculenta (Cocoyam)114.Cucurbita moschata (Pumpkin)115.Curcuna longa (Turmeric)216.Marifera indica (Mango)317.Morinda citrifolia (Noni)218.Moringa oleifera5110.Musa paradisiaca (Plantain)1111.Persea americana (Avocado)3111.Persea americana (Avocado)3112.Total2329Constipation1)Calotropis procera (Sodom Apple)329Constipation1)Musa sapientum (Banana)22011Total232117Moringa oleifera12311Musa sapientum (Banana)229Constipation1)Musa sapientum (Banana)22011Total232111112211123111241112511126131271333133113313					
reductionorangeorangereduction2. $Cool constic for a (Coconut)1Cool casi esculenta(Cocoyam)11S.Cucurbita moschata(Pumpkin)1Cool casi esculenta(Cocoyam)11S.Cucurbita moschata(Pumpkin)1S.Cucurbita moschata(Pumpkin)1S.Cucurbita moschata(Pumpkin)2S.S.Mangifera indica (Mango)3S.Morinda citrifolia (Noni)2S.Noringa oleifera5S.9.Musa paradisiaca (Plantain)1S.10.Musa sapientum (Banana)2S.12.Vernonia amygdalina (Bitterleaves)1LaInternetInternet1S.Calotropis procera (SodomApple)3S.2)Moringa oleifera1S.1Internet1S.InternetInternetS.InternetInternetS.InternetInternetS.InternetInternetS.InternetInternetS.InternetInternetS.InternetInternetS.InternetInternetS.InternetInternetS.InternetInternetS.InternetInternetS.InternetInternetS.InternetInternetS.InternetInternetS.<$	20	Blood pressure	1	Citrus sinensis (Sweet	1
Image: Second	28	reduction	1.	orange)	1
$ <			2.		1
Image: ConstipationImage: ConstipationImage: ConstipationImage: Constipation4. $Cucurbita moschata (Pumpkin)$ 1Image: Constipation5. $Curcuma longa (Turmeric)$ 2Image: Constipation6. $Mangifera indica (Mango)$ 3Image: Constipation7. $Morinda citrifolia (Noni)$ 2Image: Constipation9. $Moringa oleifera$ 5Image: Constipation10. $Musa paradisiaca (Plantain)$ 1Image: Constipation11. $Persea americana (Avocado)$ 3Image: Constipation12. $Vernonia amygdalina (Bitter leaves)$ 1Image: Constipation11 $Calotropis procera (Sodom Apple)$ 3Image: Constipation11 $Calotropis procera (Sodom Apple)$ 3Image: Constipation11 $Musa sapientum (Banana)$ 2Image: Constipation11 $Calotropis procera (Sodom Apple)$ 3Image: Constipation11 $Musa sapientum (Banana)$ 2Image: Constipation3 $Musa sapientum (Banana)$ 2Image: Constipation3 $Musa sapientum (Banana)$ 2Image: Constipation3 $Musa sap$			2		1
$ <			J.	(Cocoyam)	1
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8.Moringa oleifera59.Musa paradisiaca (Plantain)110.Musa sapientum (Banana)211.Persea americana (Avocado)312.Vernonia amygdalina (Bitter leaves)112.Total2329Constipation1)Calotropis procera (Sodom Apple)329Constipation1)Musa sapientum (Banana)220A4)Tamarindus indica (Tamarind)3					
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29 Constipation 1) Apple) 3 1 2) Moringa oleifera 1 1 3) Musa sapientum (Banana) 2 1 4) Tamarindus indica (Tamarind) 3				Total	23
29 Constipation 1) Apple) 3 1 2) Moringa oleifera 1 1 3) Musa sapientum (Banana) 2 1 4) Tamarindus indica (Tamarind) 3					
AppleApple2)Moringa oleifera13)Musa sapientum (Banana)24)Tamarindus indica (Tamarind)3	29	Constinution	1)		3
3)Musa sapientum (Banana)24)Tamarindus indica (Tamarind)3		Consupation		Apple)	
4) Tamarindus indica (Tamarind) 3					
4) (Tamarind) 3			3)		2
(Tamaring)			4)		3
Total 9			-,		
			1	Total	0

30	Depression	1.	Musa sapientum (Banana)	3
	2 oprocessin	2.	Annona muricate (Soursop)	2
			Total	5
31	Blood sugar	1)	Cactus sp.	1
51	reduction			
		2)	Carica papaya (Pawpaw)	1
		3)	Cymbopogon citratus (Lemon	1
		,	grass)	
		4)	Khaya senegalensis	1
		5)	(Mahogany) Mangifera indica (Mango)	1
		6)	Persea americana (Avocado)	1
		7)	Zingiber officinale (Ginger)	1
		,,	Total	7
32	Viral infection	1	Cactus sp.	1
01	virui inicettori	-		-
33	Bronchitis	1.	Carica papaya (Pawpaw)	1
		2.	Eucalyptus calmadulensis	3
			Total	4
34	Headache	1)	Carica papaya (Pawpaw)	2
		2)	Mangifera indica (Mango)	1
		3)	Newbouldia laevis (Boundary	1
			Tree)	1
			Total	4
35	Hookworm	1	Carica papaya (Pawpaw)	1
26				4
36	Menstrual pains	1.	Carica papaya (Pawpaw)	1
		2.	Psidium guajava (Guava) Total	2 3
			10tai	3
			Capsicum annuum (Sweet	
37	Vomiting	1)	pepper)	1
		2)	<i>Carica papaya</i> (Pawpaw)	2
			<i>Cymbopogon citratus</i> (Lemon	
		3)	grass)	1
		4)	Ocimum gratissimum (Scent	3
		4)	leave)	
			Total	7
40	Cold and catarrh	1.	Citrus limon (Lemon)	7
		2.	Citrus sinensis (Sweet	1
			orange)	1
		3.	Cocos nucifera (Coconut) Cymbopogon citratus (Lemon	1
		4.	grass)	4
		5.	<i>Eucalyptus calmadulensis</i>	7
		6.	Morinda citrifolia (Noni)	1
			Ocimum gratissimum (Scent	
		7.	leave)	3
		0	Saccharum officinarum	2
		8.	(Sugarcane)	2
		9.	Zingiber officinale (Ginger)	2
			Total	28
41	Cough	1)	Canarium schweinfurthii	1
			(Elemi)	
		2)	Citrus limon (Lemon)	7
		3)	<i>Cymbopogon citratus</i> (Lemon	5
			grass)	
		4) 5)	Eucalyptus calmadulensis Mangifera indica (Mango)	1 2
		6)	Mangijera inaica (Mango) Morinda citrifolia (Noni)	2 1
l	I	(U		1

		7)	<i>Newbouldia laevis</i> (Boundary Tree)	1
			Ocimum gratissimum (Scent	
		8)	leave)	3
		9)	Psidium guajava (Guava)	2
		10)	Zingiber officinale (Ginger)	1
			Total	24
42	Hernia	1	Citrus sinensis (Sweet	1
42	петша	1	orange)	1
43	Jedi-jedi	1	Citrus sinensis (Sweet	1
	,	-	orange)	
			Total	2
44	Obesity reduction	1.	Cocce nucifora (Coccent)	1
44	Obesity reduction	2.	Cocos nucifera (Coconut) Mangifera indica (Mango)	3
		3.	Persea americana (Avocado)	1
		5.	Total	5
45	Pimples healing	1	Cocos nucifera (Coconut)	1
46	Tooth ache/pain	1)	Annona muricate (Soursop)	1
		2)	Calotropis procera (Sodom	4
			Apple)	
		3)	Cocos nucifera (Coconut)	1
		4)	Jathropha sp.	2
		5)	Khaya senegalensis	1
			(Mahogany) Parkia biglobosa (Locust	
		6)	bean)	3
			Total	12
47	De e et inconstitue	1)	Cucurbita moschata	1
47	Boost immunity	1)	(Pumpkin)	1
		2)	Curcuma longa (Turmeric)	1
			Total	2
48	Pregnancy	1	Cucurbita moschata	1
	improvement		(Pumpkin)	
			Cucurbita moschata	
49	Wound healing	1.	(Pumpkin)	1
			Parkia biglobosa (Locust	
		2.	bean)	1
			Total	2
50	Chills	1	Canarium schweinfurthii	1
			(Elemi)	
51	Digestive disorder	1	Canarium schweinfurthii (Elemi)	1
			Canarium schweinfurthii	
52	Joint pain	1)	(Elemi)	1
			Calotropis procera (Sodom	
		2)	Apple)	2
	1			
53	Sinusitis	1.	Canarium schweinfurthii	1
00			(Elemi)	
		2.	Eucalyptus calmadulensis	1
			Total	2
54	Boil	1	Eucalyptus calmadulensis	1
	DOIL	1		1
54				
54	Sexual			
55	Sexual transmission	1)	Eucalyptus calmadulensis	1

		1	Parkia biglobosa (Locust	
		2)	bean)	1
		3)	<i>Curcuma longa</i> (Turmeric)	2
		Total		4
				4
FC	Carry three at	1	Eventuritari entre entre del conte	1
56	Sore throat	1.	Eucalyptus calmadulensis	1
		2.	Solanum melongena (Garden	1
			egg)	2
			Total	2
F 7	Minutes	1		1
57	Migraines	1	Zingiber officinale (Ginger)	1
58	Nausea	1	Zingiber officinale (Ginger)	2
59	Stroke healing	1	<i>Citrus paradisi</i> (Grape fruit)	1
60	Improved weak rection	1	<i>Psidium guajava</i> (Guava)	1
61	Snake bite	1	Jathropha sp.	2
62	Syphilis	1	Khaya senegalensis	3
02	Syphins	1	(Mahogany)	5
63	Convulsion	1)	Cymbopogon citratus (Lemon	1
05	Convuision	1)	grass)	1
		2)	Newbouldia laevis (Boundary	1
		2)	Tree)	•
			Total	2
64	Apollo	1	Mangifera indica (Mango)	5
65	Body weakness	1.	Mangifera indica (Mango)	1
		2.	Moringa oleifera	2
		3.	Tamarindus indica	1
		5.	(Tamarind)	1
			Total	4
66	Stress relief	1	Mangifera indica (Mango)	4
67	Anxiety	1	Morinda citrifolia (Noni)	1
68	Body pain	1	Newbouldia laevis (Boundary	1
00	body pani	L	Tree)	1
69	Epilepsy	1	Newbouldia laevis (Boundary	1
07	присрзу	1	Tree)	1
70	Fibroid	1	Newbouldia laevis (Boundary	1
	101014	-	Tree)	-
71	Tooth aches	1	Parkia biglobosa (Locust	3
• •		- -	bean)	-
72	Cholera	1	Ocimum gratissimum (Scent	1
. –			leave)	-
73	Gall bladder	1	Tamarindus indica	1
			(Tamarind)	
74	Hemorrhage	1	Curcuma longa (Turmeric)	2
75	Sickle cell disease	1	Citrus aurantiifolia (Lime)	1
76	Virginal infection	1	Citrus aurantiifolia (Lime)	1

Table 2 reveals the relationship between plant species, the number of ailments they reportedly treat, and their Use Value (UV) in Jema'a LGA, highlighting the extensive utilization of traditional medicinal plants. A total of 44 species were documented, with *Moringa oleifera* emerging as the most versatile, treating 63 ailments and having the highest UV (0.700). *Mangifera indica* was also highly significant, treating 57 ailments (UV: 0.633), followed by *Azadirachta indica (Neem)* with 55 ailments (UV: 0.611) and *Persea americana (Avocado)* addressing 44 ailments (UV: 0.489). Other notable species include *Carica papaya (Pawpaw)* (41 ailments, UV: 0.456) and *Eucalyptus camaldulensis* (33 ailments, UV: 0.367). These plants were primarily used for treating common diseases such as malaria, typhoid, stomach pain, and diarrhea. The findings emphasize the cultural and therapeutic significance of these species, advocating for their conservation and further exploration in modern pharmacological studies.

Table 2: Plant Species, Number of Ailments Treated, and their Use Value (UV)

S/No.	Tree species	Name of Disease treated	No. diseases treated by a single species	Frequency of mention by respondents	Use Value (UV
		1) Cancer	by a single species	1	
		2) Diarrhea		1	_
		3) Dysentery		1	_
1		4) Hepatitis B.	7	1	_
1	Acacia nilotica	5) Liver disorder	7	1	0.078
		6) Malaria fever		1	-
		7) Typhoid fever		1	-
		Total		7	-
		Total		/	
		1. Cholesterol reduction		2	
		2. Diarrhea		2	
	Amaranthus cruentus	3. Hypertension		1	-
2		4. Swelling of throat and			-
-		mouth	5	2	0.089
		5. Intestinal/stomach			-
		Ulcer		1	
		Total		8	
		1) Heart disease/problem		1	
		2) Prostate cancer	2	1	0.022
3	Blighia sapida (Ackee)	Total		2	1
		1) Anemia		1	1
		2) Asthma		2	1
		3) Diarrhea		2	
		4) Dysentery		1	-
		5) Infectious disease	10	1	
4.	<i>Adansonia digitate</i> (Baobab tree)	6) Malaria fever		4	0.189
		7) Pile		1	
		8) Stomach pain,		1	1
		9) Typhoid fever		2	-
		10) Yellow fever		2	-
		Total		17	
		1) Arthritis		1	
		2) Diabetes		1	-
		3) Diarrhea		1	-
		4) Dysentery	11	1	-
		5) Hepatitis B		7	
5	Aloe barbadensis	6) Infectious disease		1	0.000
		7) Pile		1	0.233
		8) Rheumatism		1	
		9) Rheumatoid		1	1
		10) Stomach pain		5	1
		11) Typhoid fever		1	1
		Total		21	1
					Ī
		1) Diabetes		1	Ī
		2) Diarrhea		1	1
		3) Heart disease/problem		3	1
		4) Inflammatory disease		1	1
6	Anacardium occidentale (Cashew)	5) Malaria fever	8	2	0.154
		6) Skin problem/infection		2	0.156
		7) Stomach pain		3	1
		8) Typhoid fever		1	1
		Total		14	1
					1
		1) Diabetes		4	
		2) Eye disorder		2	1
		3) Heart			1
		disease/problem		1	
	1	4) Infectious disease	+	1	4

-					
		5) Intestinal/stomach	13	4	
		Ulcer	15	1	
_		6) Liver disorder		1	0.614
7	Azadirachta indica (Neem)	7) Malaria fever		16	0.611
		8) Parasitic infection		1	-
		9) Parasitic worms		4	
		10) Skin		*	-
		problem/infection		2	
					-
		11) Stomach pain		7	_
		12) Typhoid fever		10	_
		13) Yellow fever		2	
		Total		55	
		1) Asthma		3	
		2) Blood pressure			-
		reduction		2	
8	Musa sapientum (Banana)	3) Cancer		2	-
0	Musu suprencum (Danana)	4) Constipation		2	0.289
			0		-
		5) Depression	9	3	4
		6) Diabetes		3	4
		7) Heart disease/problem		6	
		8) Hypertension		4	
		9) Intestinal/stomach		1]
		Ulcer		1	
		Total		26	
		1) Asthma	2	1	
9	Pressient alarman (Calibratic)	-	2		0.022
	Brassica oleracea (Cabbage)	2) Cancer		1	0.022
		Total		2	
		1) Blood sugar reduction,		1	
		2) Cholesterol reduction		1	
		3) Diabetes		2	
		4) Diarrhea	8	2	-
10	Cactus sp.	5) Heart disease/problem		1	0.111
		6) Prostate cancer		1	
		7) Typhoid fever		1	-
					-
		8) Viral infection		1	_
		Total		10	
		1) Asthma		1	
		2) Blood sugar reduction		1	
		3) Bronchitis		1	1
		4) Cancer		1	1
		5) Diabetes		1	1
		6) Diarrhea		1	-
		-			4
		7) Headache		2	4
		8) Heart disease/problem		1	4
		9) Hepatitis B.		1	1
	Carica papaya (Pawpaw)	10) Hookworm	21	1	
		11) Intestinal/stomach		2	
11		Ulcer		3	0.456
		12) Malaria fever		6	1
		13) Menstrual pains		1	1
		14) Parasitic infection		1	1
		15) Parasitic worms		1	4
					4
		16) Pile		1	4
		17) Skin problem/infection		2	4
		18) Stomach pain		4	_
		19) Typhoid fever		6	
		20) Vomiting		2	
		21) Yellow fever		3	1
		Total		41	1
L	I		I		1

			•	-	
		1) Anemia		1	
		2) Bladder/Kidney stones		3	
12	Citaria linear (Lancar)	3) Cold and catarrh		7	0.211
	Citrus limon (Lemon)	4) Cough	6	6	0.211
		5) Diarrhea		1	
		6) Heart disease/problem		1	
		Total		19	
		1) Blood pressure			
		reduction		1	
				1	-
13	Citrus sinensis (Sweet orange)	-	-		0.000
		3) Hernia	5	2	0.089
		4) Jedi-jedi		2	
		5) Typhoid fever		2	-
		Total		8	
		1) Bladder/Kidney stones		2	
		2) Blood pressure		1	
14	Cocos nucifera (Coconut)	reduction		1	0.133
		3) Breast cancer		1	0.133
		4) Cholesterol reduction		1	┥ │
		5) Cold and catarrh	10	1	1
	1	6) Diabetes		2	
		7) Obesity reduction		1	1
		8) Pimples healing		1	1
		9) Stomach pain		1	1
					-
		10) Tooth ache/pain		1	
		Total		12	
		1) Blood pressure reduction		1	0.022
15	Colocasia esculenta (Cocoyam)	2) Heart disease/problem	2	1	
		Total		2	
		1) Blood pressure		1	
		reduction		T	0.022
		2) Boost immunity		1	
		3) Diabetes	6	1	_
16	Cucurbita moschata (Pumpkin)	4) Heart disease/problem		1	0.067
		5) Pregnancy			
		improvement		1	
		6) Wound healing		1	-
		Total		6	
		Total		0	
		1) Chille		1	
		1) Chills		1	4
		2) Cough		1	4
		3) Digestive disorder	6	1	4
17	Canarium schweinfurthii (Elemi)	4) Joint pain		1	0.067
		5) Sinusitis		1	1
		6) Stomach pain		1	1
		Total		6	
				4	
		1) Cancer		1	
		 Cancer Liver disorder 	4	1 1	-
18	Erythrina senegalensis	2) Liver disorder	4		0.044
18	Erythrina senegalensis	2)Liver disorder3)Parasitic worms	4	1 1	0.044
18	Erythrina senegalensis	2)Liver disorder3)Parasitic worms4)Yellow fever	4	1 1 1	0.044
18	Erythrina senegalensis	2)Liver disorder3)Parasitic worms	4	1 1	0.044
18	Erythrina senegalensis	2) Liver disorder 3) Parasitic worms 4) Yellow fever Total	4	1 1 1 4	0.044
18	Erythrina senegalensis	2) Liver disorder 3) Parasitic worms 4) Yellow fever Total 1) Arthritis	4	1 1 4 2	0.044
18	Erythrina senegalensis	2) Liver disorder 3) Parasitic worms 4) Yellow fever Total 1) Arthritis 2) Boil	4	1 1 1 4 2 1	0.044
18	Erythrina senegalensis	2) Liver disorder 3) Parasitic worms 4) Yellow fever Total 1) Arthritis 2) Boil 3) Bronchitis	4	1 1 1 4 2 1 3	0.044
18	Erythrina senegalensis	2) Liver disorder 3) Parasitic worms 4) Yellow fever Total 1) Arthritis 2) Boil 3) Bronchitis 4) Cold and catarrh	4	1 1 4 2 1 3 7	0.044
18	Erythrina senegalensis	2) Liver disorder 3) Parasitic worms 4) Yellow fever Total 1) Arthritis 2) Boil 3) Bronchitis 4) Cold and catarrh 5) Cough	4 	1 1 1 4 2 1 3 7 7	0.044
18	Erythrina senegalensis	2) Liver disorder 3) Parasitic worms 4) Yellow fever Total 1) Arthritis 2) Boil 3) Bronchitis 4) Cold and catarrh 5) Cough 6) Diarrhea	4	1 1 4 2 1 3 7	0.044
18	Erythrina senegalensis	2)Liver disorder3)Parasitic worms4)Yellow feverTotal1)Arthritis2)Boil3)Bronchitis4)Cold and catarrh5)Cough	4	1 1 1 4 2 1 3 7 7	0.044

19	Eucalyptus calmadulensis	8) Malaria fever		4	0.367
		9) Sexual transmission		1	1
		diseases		1	
		10) Sinusitis		1	
		11) Sore throat		2	1
		12) Swelling of throat and			-
		mouth		1	
		13) Typhoid fever		1	
		Total		33	
		Total		55	
		1) Diabetes		1	
		2) Liver disorder	3	1	_
20		-	3		0.022
20	Solanum melongena (Garden egg)	3) Pregnancy		1	0.033
		improvement Total		3	_
				3	
		1) Anthroitin		2	
		1) Arthritis		2	
		2) Blood sugar reduction		1	
21	Zingiber officinale (Ginger)	3) Cholesterol reduction		1	0.144
		4) Cold and catarrh		2	4
		5) Cough	9	1	4
		6) Hypertension		2	
		7) Migraines		1	1
		8) Nausea		2	1
		9) Typhoid fever		1	1
		Total		13	
22	Citrus paradici (Cropo fruit)	1) Heart disease/problem		1	
22	<i>Citrus paradisi</i> (Grape fruit)	2) Stroke healing	2	1	0.022
		Total		2	
		1) Cancer		2	
		2) Cholesterol reduction		2	
		3) Cough		2	
		4) Diabetes		2	
		5) Diarrhea		2	
		6) Dysentery	13	1	-
		7) Improved weak rection		1	_
23	<i>Psidium guajava</i> (Guava)	8) Intestinal/stomach			0.233
		Ulcer		1	
		9) Malaria fever		2	
		10) Menstrual pains		2	1
		11) Stomach pain		2	1
		12) Typhoid fever		1	1
		13) Yellow fever		1	1
		Total		21	1
24	Terminalia catappa (Indian almond)	1) Hepatitis B.	1	1	0.011
- 1		x, nepaddo b.		±	0.011
		1) Hepatitis B.		2	<u> </u>
25	Jathropha sp.	2) Snake bite	3	2	1
20	յսսու օրոս օր.	2)Shake bite3)Tooth ache/pain	5	2	0.067
					4
		Total		6	
		1) Plead		1	
		1) Blood sugar reduction		1	4
		2) Cancer		1	4
		3) Diabetes		1	4
		4) Diarrhea		4	4
		5) Hypertension		1	4
		6) Malaria fever		4	1
26	Khaya senegalensis (Mahogany)	7) Mucous diarrhea	13	3	0.344
L		8) Pile		2	
		9) Skin problem/infection		1]
<u> </u>		10) Stomach pain		7	

		11) Syphilis		3	1
		11) Syphilis 12) Tooth ache/pain		3	4
		12) Tooth ache/pain 13) Typhoid fever		2	4
		Total		31	-
		10(41		51	
		1) Blood sugar reduction		1	
		2) Cold and catarrh		4	
		3) Convulsion	5	1	
27	<i>Cymbopogon citratus</i> (Lemon grass)	4) Cough	5	5	0.133
		5) Vomiting		1	
		Total		12	-
		1) Apollo		5	
		2) Blood pressure reduction		3	-
		3) Blood sugar reduction		1	-
		4) Body weakness		1	-
		5) Cancer		2	-
28	Mangifera indica (Mango)	6) Cholesterol reduction		3	0.633
		7) Cough		5	1
		8) Diabetes		9	1
		9) Diarrhea		6	1
		10) Dysentery	19	1	1
		11) Headache		1	1
		12) Heart disease/problem		5	
		13) Hepatitis B.		1	
		14) Malaria fever		1	-
		15) Obesity reduction		3	
		16) Pile		1	
		17) Stomach pain		4	
		18) Stress relief		4	
		19) Typhoid fever		1	
		Total		57	
		1) Anxiety		1	
		2) Asthma		1	-
		3) Blood pressure reduction		2	-
29	Morinda citrifolia (Noni)	4) Cancer	6	1	0.078
		5) Cold and catarrh		1	-
		6) Cough		1	
		Total		7	
		1) Anth-111-		4	
		1) Arthritis		4	4
		2) Asthma		4	4
		3) Bladder/Kidney stones		1	4
		4) Blood pressure reduction		5	
				2	4
		5) Body weakness	18	5	4
		6) Cancer7) Cholesterol reduction	10	5	4
		7) Cholesterol reduction8) Constipation		1	4
		9) Diabetes		6	4
30	Moringa oleifera	10) Diarrhea		3	0.700
50	Moringa oleifera	10) Diarriea 11) Heart disease/problem		2	0.700
		12) Hypertension		6	4
		13) Intestinal/stomach			4
		Ulcer		5	
		14) Malaria fever		5	4
		15) Rheumatism		1	4
		16) Stomach pain		6	4
		17) Typhoid fever		4	4
		17)Typhold level18)Yellow fever		2	4
		Total		63	4
		i viai		00	1

		1) Body pain		1	
		2) Convulsion		1	-
		3) Cough		1	_
		4) Dysentery	10	1	
		5) Epilepsy		2	
31	Newbouldia laevis (Boundary Tree)	6) Fibroid		1	0.122
		7) Headache		1	-
					_
		8) Malaria fever		1	
		9) Pile		1	
		10) Typhoid fever		1	
		Total		11	
		Total			
	ļ				
		1) Diabetes		3	
		2) Diarrhea		2	
		3) Dysentery		2	
		4) Hepatitis B.		1	0.122
		5) Infectious disease		3	
32	Dawlia higlet (1 +1)	6) Inflammatory disease		1	
	Parkia biglobosa (Locust bean)	7) Malaria fever		3	
		8) Pile	13	1	
			15	- ¹	4
		9) Sexual transmission		1	0.278
		diseases			
		diseases 10) Tooth ache/pain 3	3		
		11) Tooth aches		3	1
		12) Wound healing		1	1
		13) Yellow fever		1	4
L	<u> </u>	Total		25	
		1) Arthritis		4	
		2) Bladder/Kidney stones		2	1
				<u> </u>	4
		3) Blood pressure		3	0.489
		reduction			
		4) Blood sugar reduction		1	
		5) Cancer	1	3	
			+	7	
		-	1.0		4
33	Persea americana (Avocado)	7) Diabetes	13	1	0.489
55		8) Diarrhea		1	0.109
		9) Dysentery		1	1
		10) Heart disease/problem	1	17	1
					-
		11) Intestinal/stomach		2	
		Ulcer			
		12) Obesity reduction		1	
		13) Pile		1	1
		Total		44	1
		1) Blood pressure	2	1	
		reduction	L 2	1	
34	<i>Musa paradisiaca</i> (Plantain)	2) Intestinal/stomach	1		0.022
		Ulcer		1	0.022
					4
		Total		2	
[1) Asthma		1	
		2) Cholera		1	1
					-
		3) Cold and catarrh		3	4
		4) Cough		3	
		5) Diarrhea	11	2	
		6) Dysentery	1	3	1
35	Ocimum gratissimum (Scent leave)		+		0.322
				1	4
		8) Malaria fever		5	
		9) Stomach pain		5	
		10) Typhoid fever		2	1
		11) Vomiting		3	-
					4
		Total		29	

		r			•
36		1) Constipation		3	
		2) Diarrhea		3	-
		3) Intestinal/stomach		2	
		Ulcer		3	
	Calotropis procera (Sodom Apple)	4) Joint pains	7	2	0.256
		5) Parasitic worms	,	2	0.250
					-
		6) Stomach pain		6	
		7) Tooth ache/pain		4	_
		Total		23	
		1) Arthritis		4	
		2) Cancer		6	
		3) Depression		2	
		4) Heart disease/problem		3	
				2	-
		5) Hypertension	44		-
37	Annona muricate (Soursop)	6) Infectious disease	11	2	0.322
		7) Parasitic worms		1	
		8) Pile		2	
		9) Rheumatism		5	
		10) Stomach pain		1	1
		11) Tooth ache/pain		1	1
		Total		29	1
		- Jour			
				2	
		1) Cold and catarrh		2	
38	Saccharum officinarum (Sugarcane)	2) Infectious disease	3	1	0.056
		3) Malaria fever		2	
		Total		5	
		1) Parasitic worms		1	
39	Capsicum annuum (Sweet pepper)	2) Vomiting	2	1	0.022
57	saporeani annuani (oweet pepper)	Total	-	2	
	<u> </u>			-	
				2	
		1) Bladder/Kidney stones		2	4
		2) Body weakness		1	0.322
		3) Constipation		3	
		4) Gall bladder		1	
		5) Liver disorder	10	1	
		6) Parasitic worms		1	0.211
40	Tamarindus indica (Tamarind)	7) Pile		2	
				5	
					4
		9) Typhoid fever		1	4
		10) Yellow fever		2	
		Total		19	
		1) Blood pressure reduction		2	
		2) Boost immunity		1	1
		3) Diarrhea		2	1
			11	1	4
			11		4
		5) Hemorrhage		2	4
		6) Hepatitis B.		4	0.278
41	<i>Curcuma longa</i> (Turmeric)	7) Hypertension		3	
		8) Liver disorder		4	
		9) Pile		1	1
		10) Sexual transmission			1
		diseases		1	
		11) Stomach pain		4	1
		Total		25	
				20	
ļ					
		1) Blood pressure		1	
		reduction			
		2) Cancer		1	
i i		3) Diabetes		1	0.222
		4) Diarrhea		3	
		4)Diarrhea5)Dysentery		3 3	

42	Vernonia amygdalina (Bitter leaves)	6) Intestinal/stomach Ulcer	10	2	
		7) Malaria fever		2	
		8) Parasitic worms		1	0.222
		9) Stomach pain		4	
		10) Typhoid fever		2	0.222
		Total		20	
		1) Cholesterol reduction		1	
43	<i>Vitex negundo</i> (Chaste tree)	2) Heart disease/problem	3	1	0.033
45	Vitex negunuo (Ghaste ti ee)	3) Stomach pain		1	
		Total		3	0.033
		1) Malaria fever		1	
44	<i>Citrus aurantiifolia</i> (Lime)	2) Sickle cell disease	3	1	0.033
44		3) Virginal infection		1	- 0.035
		Total		3	

Discussion

The most frequently mentioned plant species in Jema'a LGA were *M. oleifera* (46 mentions) for ailments like stomach pain, malaria fever, typhoid fever, and diarrhea; and *A. indica* (42 mentions) for malaria fever and typhoid. This confirms why *M. oleifera* is widely cultivated and utilized in Northern Nigeria, particularly for its nutritional and medicinal as reported by Idris, and Raubilu [10,11]. Aisha [12] reported that *A. indica* medicinal properties are well-recognized in Nigeria, with its leaves being popularly used for treating malaria fever. A survey conducted in Lagos State, Nigeria by Ishola [13] identified *A. indica* as one of the most frequently used plants (25.5%) for local antimalarial herbal recipes. Similarly, Odugbemi [14] study in Okeigbo, Ondo State reported *A. indica* among the top plants used for malaria therapy.

In this study, M. oleifera, M. indica, A. indica, P. americana, C. papaya and E. camaldulensis have the highest UVs of 0.700, 0.633, 0.61, 0.489, 0.456 and 0.367 respectively. In a study conducted in Turgutlu, Turkey, Rosa canina (0.75), Ficus carica subsp. carica (0.74), Tilia platyphyllos (0.71), and Vitex agnuscastus (0.70) were identified as the most important plants based on UV calculations [3]. These UV values falls within the range obtained in this study. Similarly, in Rawalpindi, Pakistan, UV ranged from 0.125 for Asparagus racemosus to 0.34 for Syzygium aromaticum [15] which are also within the range recorded in this research. Interestingly, some studies reported significantly higher UV values. For instance, in Sri Lanka, Aerva javanica had the highest UV of 1.67 for antidiabetic remedies [16]. In contrast, a study in Pakistan found UV values ranging from 0.23 to 0.02, with Mentha arvensis (0.23) having the highest value [17] which are below the ones obtained in this study. Interestingly, UV calculations have revealed some contradictions in plant usage across different regions of Nigeria. While *Rosa canina* had the highest UV in southwest Nigeria, it was not reported as a significant medicinal plant in other surveyed areas. This suggests regional variations in ethnobotanical knowledge and practices within the country [3,18,19] as also recorded in this study.

Conclusion

The study revealed that M. oleifera, M. indica, A. indica, P. americana, C. papaya and E. camaldulensis species have the highest use value. M. oleifera and A. indica were most mentioned for treating common diseases in southern Kaduna. It is therefore recommended that these and other species be conserved in the area for sustainability.

Authors' contributions

Designed, coordinated the study and the work, A.S.I.N; analyzed and wrote the article, D.O.E; carried out the study P.I.T.

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Availability of data and materials

All data will be made available on request according to the journal policy.

Conflicts of interest

The authors confirm that there is no conflict of interest to declare

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