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ETHNO-BOTANICAL SURVEY OF PLANTS USED BY THE LOCAL COMMUNITIES OF SUB-URBAN DISTRICT OF ZARIA, KADUNA STATE

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Abstract

The study was carried out to investigate the ethnobotanical uses of medicinal plants by the local people in the Zaria district. Regular study trips were arranged throughout the area under investigation and the data was collected during the spring, summer and winter seasons of the period for one year using a design questionnaire and the survey shows that 43 species belonging to 23 families were used by the inhabitants of the district. Among them, Asteraceae, Solanaceae, and Lamiaceae were represented by 5 species each, and Asclepiadaceae, Chenopodiaceae, Mimosaceae, Moraceae Papillionaceae, Rosaceae Zygophyllaceae and Euphorbiace were represented by 2 species each. Apocynaceae, amaranthaceae, cannabaceae, celastraceae, colchicaceae, convulvulaceae, elaeagnaceae, fumariaceae, liliaceae, meliaceae, oleaceae, salicaceae, sapindaceae, and simaroubaceae were represented by 1 specie each. Several diseases and ailments are cured using these species of plants. Different parts including the stem, flowers, fruits, leaves, roots and seeds of these plants are used by the local inhabitants. These species are collected from the wild and are regularly utilized by the local inhabitants. Human activities such as over-exploitation, over-harvesting, grazing, and improper collection are depleting the local flora thereby eroding the genetic diversity of the plant; hence the need to take various preventive measures.

Keywords: Ethnobotany, Medicinal plants, Over-exploitation, Zaria district

INTRODUCTION

It is believed that about 70-80% of the world's population use traditional medicine to cure their illness and ailments (Farnsworth and Soejarto, 1991; Pei, 2001). The percentage decreased in developed countries by 40-50% in Germany, 42% in the USA, 48% in Australia and 49% in France (Titz, 2004). It might be due to the decrease of the medicinal plants in the wild habitat. From 1991 to 2003, an average of 467,000 tonnes (valued at US $ 1.2 billion) of pharmaceutical plants were traded globally, with the dominance of a few countries (Lange, 2006). Human beings from ancient times were dependent on medicinal plants directly or indirectly. It has been reported that 35,000 to 70,000 plant species are used in folk medicine worldwide (Fazal *et al.* 2010; Ali and Qaiser, 2009). About 70-80% of the world's population use traditional medicine to cure their illness and ailments.

Plants have been playing a pivotal role in human life because man has been dependent on plants for his requirements and necessities like food, fodder, fuel, medicines, forage, shelter, aesthetics, etc (Zandial, 1994; Hamayun, 2005; Maqbool *et al*, 2019). In different regions of the world, particularly in rural areas medicinal plants have been utilized to cure and eradicate various diseases and epidemics (Kamal *et al*, 2009). About 80% of the population of developing countries of the world, primarily depends on traditional ethnomedicines (TEMs) or herbal medicines for the cure of different diseases (Abbasi *et al* 2009; Azam *et al*, 2017). TEM studies have been of vital significance in discovering contemporary and targeted allopathic drugs from indigenous medicinal plants (MPs). The ethnobotanical (EB) research on any area provides valuable information about the MP flora which may be harvested for novel drug discovery through pharmaceutical research (Njoroge, 2004; Mahmood, 2013). The previous studies provide reference that traditional medical phytonyms' knowledge has contributed keystone role in the development of many vital allopathic drugs from the plants (Cox, 2000; Gilani, 2005).

Various workers have carried out similar studies on various areas of the country regarding local and medicinal uses of plants Thomson and Shengji, 2003; Jan *et al*., 2011a; Jan *et al*., 2011b;). After thorough studies, it is evident from the previous research that no authentic herbarium specimens are collected by these workers from this area. The present research deals with the medicinal plant wealth, which is generally in practice by the local inhabitants. This study will help in the documentation of the indigenous knowledge regarding medicinal plants growing in the area and it will provide baseline information for further research. This study aims to aid in the documentation of the indigenous knowledge regarding medicinal plants growing in the area and it will provide ground information for further research on sustainable usage of the flora.

MATERIALS AND METHODS

Regular study trips were arranged throughout the area under investigation and the data was collected during the dry and rainy season of the period for one year i.e. 2019-2020 and studies were conducted at different localities. Preference was given to the unexplored and non-collected areas and the collection was made during the blooming and dry season period. Local inhabitants of different ages, belonging to different walks of life were interviewed regarding local names, parts used and local uses of the plants. The collected data was made authentic by comparing it with the collected data from diverse age groups. For data collection questionnaire was designed to collect data about plants on the spot (Croom, 1983 and Lipp, 1989). The collected specimens were pressed, dried and mounted on the standard herbarium sheets. Identification and nomenclature were carried out with the help of Flora of West Tropical Africa (Hutchinson and Dalziel, 1963) and other available literature (Ali and Qaiser, 1993-2012).

RESULTS

The area under study has a rich diversity of medicinal plants and the literacy rate is very low here, so people rely on medicinal plants for their health-related problems. More than 70% of the collection is performed by men and women, and twenty per cent of the collected material gets wasted during the process of collection, harvesting and marketing. Sixty per cent of the natural forest habitats have already been lost in the area. Thirty-four (43) plant species, belonging to 23 families were recorded for their various uses. Asteraceae, Solanaceae and Lamiaceae are represented by 5 species each.

Asclepiadaceae, Chenopodiaceae, Mimosaceae, Moraceae Papillionaceae, Rosaceae and Zygophyllaceae, Euphorbiace are represented by 2 species each. Apocynaceae, Amaranthaceae, Cannabaceae, Celastraceae, Colchicaceae, Convulvulaceae, Elaeagnaceae, Fumariaceae, Liliaceae, Meliaceae, Oleaceae, Salicaceae, Sapindaceae, Simaroubaceae are represented by 1 species each. Plant utilization by the isolated communities for curing various ailments has supplied tremendous knowledge which can be properly utilized in planning for utilization of the endemic knowledge for better planning of the plant natural resources for the well-being of the community in general and medicinal plants utilization in particular and details of their usage were given in table 1.

DISCUSSION

Medicinal plants have been used by human beings since long time immemorial (Lama *et al*., 2001 and Partel *et al*., 2005) while Rig Veda between 4500-1600 BC and Ayurveda between 2500-600 BC are the first medicinal books in the sub-continent. The medicinal plant practice is very old and in the present era of technology still people believe in the traditional use of medicinal plants. The people of these places use over 43 taxa for curing different ailments including hypertension, snake bites, dog bites, asthma, diabetes, skin diseases, malaria, earache, diarrhoea, dysentery, respiratory diseases, sedatives, aphrodisiac, anthelmintic, abdominal pain, treatment for piles, diuretic, blood purifier, antipyretic, sore throat, wounds, weakness, constipation, urinary bladder problems, toothache, headache and epilepsy. Other ethnobotanical uses of these plants include making edges of mud roofs, fresh fodder, fuel wood, ornamentation, aromatic, furniture, fencing, soil binder and for making agricultural implements.

The inhabitants of this area are more dependent on these plant species and need proper training/education regarding the importance of medicinal plants and proper harvesting techniques are of imminent importance for the proper exploitation and exploration of the plant natural resources growing in the area. It has been noticed that the majority of the collectors are small children or women and they are not aware of the proper collection, drying, storing and marketing procedure. Hence, it is suggested that proper measures should be taken to ensure the sustainable utilization and proper exploitation of these plants growing in the area.

Table 1: Medicinal plants used in Zaria district, Kaduna state, Nigeria

S/no	Family	Botanical name	Local name	Part(s) used	Uses
1	Asteraceae	*Calendula arvensis L*	Kalandula	Leaves, Flowers	Antihelminthic, tonic
		Cichorium intybus L		Whole plant	Jaundice, fever, tonic
		Zanthium strumarium		Leaves, fruit	Malaria, diarrhoea and dysentery
		Artemisia scoparia Waldst & Kit	Tazargade	Aerial part	Malaria, respiratory problem
		Artemesia indica Wild		Aerial part	Antihelmintth
2	Lamiaceae	*Mentha spicata L*	Ciyawar minti	Whole plant	Stimulant, carminative
		Origanum bulgare		Shoots	Diuretic, tonic
		Isodon rugosus (Wall ex Benth)		Leaves	Antiseptic, antihelmentic
		Teucrium stocksianum Bois		Leaves	Expectorant

		Ajuga perviflora		Whole plant	Jaundice, astringent
3	Solanaceae	*Datura Inoxia* Mill	zakami	Leaves, seeds	Narcotic, antipyretic, toothache
		Hyocyamus niger L		Leaves, seeds	Sedative, narcotic, respiratory disease
		Solanum surratense Burm.F	datta	Whole plant	Fever, headache
		Atropha acuminate	atirofa	Leaves	Sedative, narcotics
		Withania somniferum	wutaniya	Leaves	Wound healing
4	Asclepiadaceae	*Corallum tuberculata*	karalam	Leaves, stem	Hypertension, antidiabetic
		Calotrois procera	tunfafiya	Leaves	Anti-asthma, dog-bite
5	Chenopodiaceae	*Chenopodium murale* Linn		Whole plant	Aphrodisiac, diuretic, pile
		Chenopodium botys L		Whole plant	Antihelmenthic, asthma
6	Mimosaceae	*Acacia modesta* Wall	Farar kaya	Stem, gum, leaves	Anti-dysentery
		Acacia nilotica	bagaruwa	Stem, fruit	Stringent activity
7	Moraceae	*Morus niger* L		Fruits	Astringent, emollient
		Morus alba L		Fruits	Astringent, emollient
8	Fabaceae	*Indigofera heterantha*	baba	Shoots, branches	Anti-inflammatory,
		Trigonella formum L		Leaves, seeds	Aphrodisiac, tonic , demulcent.
9	Zygophyllaceae	*Tribulus terrestris* L	tarabulus	Fruits, roots	Aphrodisiac,
		Peganum harmala		Seeds, leaves	Eye disease
10	Euphorbiaceae	*Euphorbia prostrata*	aguna	Whole plant	Skin disease
		Euphorbia wallichi	yufobiya	Latex, leaves	Laxative
11	Rosaceae	*Rubus fruticoas*	rabus	Fruits	Diarrhea, fever, diuretic
		Rubus ulmifolius		Fruits	Carminative
12	Apocyanaceae	*Nerium oleander*		Leaves, roots	Skin diseases
13	Canabaceae	*Celtis africana*		Leaves, stem	Narcotic, sedative, tonic
14	Celestraceae	*Gymnosporia royleana*		Whole plant	Headache, antiinflammatory
15	Colchinaceae	*Colchicum luteum*		Rhizome	Laxative, blood purifier
16	Elaeagnaceae	*Elaeagnus angustifolia* L	elega	Fruit	Heart disease, tonic
17	Salicacaceae	*Salix tetrasperma*		Leaves	Fever, headache
18	Liliaceae	*Asparagus officinalis*	Ciyawwar asfaragas	Shoot, root	Dysentery, diarrhea, tonic
19	Sapindaceae	*Dodonaea viscose* L	dodoniya	Leaves, stem	Skin disease
20	Meliaceae	*Azadirachta indica* L	darbejiya	Leaves	Headache, fever, malaria
21	Simaroubaceae	*Allanthus altisima*	altasima	Leaves, trunk, bark	Anti-inflammatory, fever
22	Convulvulaceae	*Convulvulus arvensis* L	konbulus	Shoot	Skin disease, anti-inflammation
23	Amaranthaceae	*Amaranthus viridis* L	zarangade	Leaves, stem	Anti-oxidant, heart disease

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