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Ethno-botanical survey of medicinal plants used for the management of depression by Hausa tribes of Kaduna State, Nigeria

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The objective of this study is to conduct an ethnobotanical survey of medicinal plants used in management of depression among Hausa tribes in order to establish an informational data base. An ethnobotanical survey was conducted in December 2015 in Zaria, Kaduna State, Nigeria. Data were collected based on an oral interview with the aid of semi structured questionnaire. Only data from willing respondents were obtained and documented. Plant specimens were collected along the line, they were subsequently dried and mounted. It was then taken for identification and authentication in the Herbarium Section of Biological Sciences, Ahmadu Bello University, Zaria where specimen voucher numbers were deposited. Information on sources, safety, methods of preparation and administrations, identity, local and botanical names of medicinal plants used in the management of depression among Hausa tribe of Kaduna State was obtained. An informational database was established and specimen with voucher numbers was deposited in the herbarium.

Key words: Ethnobotanical survey, depression, botanical names, medicinal plants, safety.

INTRODUCTION

Medicinal plants have always been the source of treatment and prophylaxis (Petrovska, 2012) and the use of plants in curing illness has long history in man (Alfred, 2013). It has been stated severally that traditional medicine often provides culturally familiar techniques that treat both physical and spiritual conditions (Maroyi, 2011). This has prompted researchers to conduct ethnobotanical surveys among African tribes and different parts of the world in search of plants with antibacterial, antimalarial, antifungal and antiviral properties (Khan and Rashid, 2006; Ajaiyeoba et al., 2006; Traore et al., 2013). Ethnobotanical surveys are important in determining the social, cultural and economic factors in regard to ideas and action concerning health and illness. It also helps in gathering information on type of disease and health problems, prevalent among people of certain localities (Lawal et al., 2010). Depressive disorder is a long term relapsing condition associated with high levels of disability

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and mortality (Stein, 2008) and very common in African countries (Ward and Jackson, 2013). In Nigeria, depression was found to be common among people (Chikezie et al., 2013) and was also observed to be more in females than in males during an overview of the socio-cultural and psychiatric aspects of female's reproductive health (Aina, 2007). Traditional medicinal plants have received recognition and patronage especially in the treatment of mental and psychiatric illnesses (Magaji et al., 2008) where many of them are often toxic (Igoli et al., 2005). Most of the reported poisoning cases from traditional medicines have been attributed to misidentification of the form in which they are identified, prepared and even administration by incompetent personnel (Fennell et al., 2004). In view of the foregoing facts, an ethno-botanical survey of the used medicinal plants in the management of depression among Hausa tribes of Kaduna State, Nigeria was conducted.

MATERIALS AND METHODS

Ethnobotanical survey

An ethnobotanical survey was conducted in December 2015 in order to obtain relevant information about the use of medicinal plants in the treatment of depression in Zaria, Kaduna State, Nigeria. Data were collected based on an oral interview with the aid of semi structured questionnaire. Only data from willing respondents were obtained and documented. Plant specimens were collected along the line; subsequently, dried and mounted (Burkill, 1985; Sofowora, 1996). It was then taken for identification and authentication in the Herbarium Section of Biological Sciences, Ahmadu Bello University, Zaria where specimen voucher numbers were deposited.

Study areas

The survey was carried out in Zaria, Kaduna State, Nigeria. The occupation, tribe and population of the inhabitants of these areas formed part of the bases for selection.

Ethical approval

The objectives of the study were explained to the respondents (traditional herb sellers, traditional medical practitioners and herbalists) and informed consent was obtained from each respondent.

Inclusion criteria

Well known and established traditional herb sellers, traditional medical practitioners and herbalists who are healthy and mentally stable, practicing their jobs at the time of the study were selected.

Exclusion criteria

Unrecognized traditional herb sellers, traditional medical practitioners and herbalists with poor patronage, mentally ill and not practicing their jobs at the time of the study were selected.

Administration of questionnaire

The survey covered a period of one month. Ethno-medicinal information was obtained by consulting traditional medical practitioners, herb sellers and herbalists using semi-structured questionnaire and an oral interview. The questionnaire was divided into three sections.

Section 1 dealt with demographic information such as age, sex, religion, nationality, practice specification, duration of practice and educational background; Section 2 consisted of professional experience on the treatment of depression and included questions like type of depression treated, frequency of treatment, use of herbal therapy alone or otherwise, duration of treatment, accompanied side effects, accompanied verbal instructions, plant part(s) used, availability of plant or plant part(s) and knowledge of treatment; Section 3 focused on plants and recipes used in the treatment of depression and included questions like types of herbal preparation, arrangement of plant part(s) ingredient, traditional solvent of choice, traditional extraction methods or method of preparation and method of administration were all considered.

RESULTS

Demography/Personal information on respondents

There was a total of 10 respondents made up of herb sellers 2 (20%), traditional medical practitioners 6 (60%) and herbalists 2 (20%). Majority of the respondents were males as observed from the demographic information of respondents (Table 1).

Professional experience of the respondents

The survey showed that only 2 of the respondents used incantation and divination to aid the cure of the disease. It was observed that a great percentage (90%) of respondents inherited the knowledge of herbs from their ancestors (Table 2).

Medicinal plants commonly used in management of depression in Zaria, Kaduna State

The survey also showed that a total of 10 medicinal plants species were used by different categories of practitioners. Botanical names, local names, English/ common names, family and plant part(s) mentioned are presented in Table 3.

Plant forms and parts used in the treatment of depression in the survey

Majority of the plant life forms and parts used are trees and root/bark, respectively. Other plant forms and their frequencies were reported (Table 4).

Distribution of the ethno-medicinal plants and their recipes

Most of the recipes were obtained from a single plant

Table 1. Demography of respondents.

Parameter	Specification	N (%)
Practice specification	Herb sellers	2 (20)
	Traditional medical practitioners	6 (60)
	Herbalists	2 (20)
Sex	Male	9 (90)
	Female	1 (10)
Age (years)	20-30	2 (20)
	31-40	2 (20)
	41-50	4 (40)
	51 above	2 (20)
Religion	Christianity	0 (0)
	Islam	8 (80)
	Traditional	2 (20)
Nationality	Nigerian	10 (100)
	Non Nigerian	0 (0)

N: Number, %: percentage.

Table 2. Professional experience of respondents.

Parameter	Specification	N (%)
Frequency of treatment	Regular	8 (80)
	Irregular	2 (20)
Duration of treatment (days)	2-3	0 (0)
	4-15	3 (30)
	6-14	7 (70)
Other treatment apart from herb	Divination/oracle/incantation	2 (20)
	None	8 (80)
Source of knowledge	Ancestral	90 (90)
	Training	5 (5)
	Ancestral/Training	5 (5)
	Divination	0 (0)
Availability of plant/ plant parts	Forest	6 (60)
	Home garden	1 (10)
	Market	3 (30)
Accompanied side effects	Nausea/vomiting	2 (20)
	Others	4 (40)
	None	4 (40)
Accompanied verbal instructions	Yes	10 (100)
	No	0 (0)

N: Number of respondents; %: percentage of respondents.

Table 3. Medicinal plants commonly used.

S/N	Botanical name	Local/Vernacular name	Voucher number	Family name	Part(s) used
1	*Olax manni*	Tsadar Biri	1697	Olacaceae	Root
2	*Adansonia digitata*	Kuka	2512	Bombaceae	Bark
3	*Acacia seyal*	Dumushi	-	Leguminosae	Root
4	*Tapinanthus dodoneifolius* (*Parkia biglobosa*)	Kaucen Dorawa	2838 (2846)	Loranthaceae	Whole
5	*Caralluma dalzielli*	Karan masallaci	217	Asclepiadaceae	Whole
6	*Senna occidentalis*	Rai dore	1047	Leguminosae	Root
7	*Combretum micranthum*	Geza	900257	Combretaceae	Leaves
8	*Pancrantum africanum*	Gadali mai nono	1203	Amaryllidaceae	Bulbs
9	*Tapinanthus globiferus* (*Vitellaria paradoxa*)	Kaucen Kade	1175 (900072)	Loranthaceae	Whole
10	*Ficus platyphylla*	Gamji	900106	Moraceae	Bark

Table 4. Plant forms, plant parts used and their frequencies.

Plant life forms	Plant parts used	Frequency
Tree	Root and Bark	6
Shrub	Whole	1
Climber	Whole	2
Creeper	Bulbs	1

source, while others were in combinations with other plants. Infusions and grinding were the most frequently used methods. Only 3 of the recipes were prepared using more than one method (Table 5).

DISCUSSION

Plants are more easily recognized by their local names in every part of the world. These local names play a vital role in ethnobotanical study of a specific tribe or region (Singh, 2008). Respondents interviewed gave local names of plants in recipes for treating depression. The local names mentioned were authenticated with their respective botanical names using standard texts. Although local names are not recommended directly for scientific accounts of plants as they lack uniformity and consistency (Singh, 2008), yet they may certainly be considered as a useful tool for obtaining useful information on plants especially if the information will be derived from local people. Local names provide means of reference by local people in a particular area (Erinoso and Aworinde, 2012). Information gathered showed that increasing number of people are turning to herbal remedies for cure of depression as also the practitioners are aware of what depressive illness is. The 10 medicinal plants species disclosed by the respondents covered different plant forms. Trees were found to be the most used plants followed by climber, then bulb and shrub. Plants are important in traditional treatment of various diseases including depression (Adekunle, 2008). The results of this survey showed that majority (90%) of the herb sellers/traditional medical practitioners (TMPs)/ herbalists claimed no occurrence of side effects following patients' use of herbal preparations. Some of the plants revealed in the survey have been cited in the ethnobotanical survey of some African countries (Jinju, 1990; Ayodele, 2005; Adekunle, 2008; Ajayeioba and Ogbole, 2010; Soladoye et al., 2010; Idowu et al., 2010; Oni, 2010) for other disease conditions. Thus, scientific studies on these plants would provide insights into their potentials and understanding the pharmacological actions of the active compounds found in them (Ramana, 2008). Most of the recipes obtained were from a single plant source, for example *Caralluma dalzielli*, while others were in combinations with other plants. Infusions and grindings were the most frequently used methods of preparation for the ethno-surveyed plants. Only 2 of the plants were prepared using more than one method because of the fact that they can be used both as fresh and dried. However, researches showed that there are quantitative and qualitative variations in the chemical components of fresh and dry plant materials (Okoh et al., 2008; Fatemeh et al., 2006). Thus, dried plant materials might not be as effective as freshly obtained herbs but even pharmacological experiment in laboratory employs drying techniques of plant parts to prepare plant extracts. There was a variation in solvent of herbal remedy preparation in this study. This could be based on the belief that some solvents are more efficient in eluting the phytoconstituents present in a particular plant than others and depending on the plant parts. Extraction procedures and

Table 5. Method of preparation and administration of the ethno-medicinal plants used in treatment of depression.

S/N	Taxa	Traditional solvent of choice	Method of preparation	Method of administration
1	*Olax manni*	Water/Pure honey	Infusion	Roots boiled, half-cup taken orally
2	*Adansonia digitata*	Water	Infusion/Powder	3 finger full powder taken with milk
3	*Acacia seyal*	Water	Infusion	Decoction taken 2-3 times daily
4	*Tapinanthus globiferus*	Water	Grinding/Powder	Powder taken with pap, fluid are taken orally
5	*Caralluma dalzielli*	Water	Grinding	Whole plants squeezed, low quantity taken once daily
6	*Senna occidentalis*	Water/Honey	Decoction	Extracts taken twice daily
7	*Combretum micranthum*	Water/Alcohol	Powder	Decoction 2-3 times daily
8	*Pancrantium africanum*	Water	Infusion	Half a cup, morning and night
9	*Tapinanthus dodeinofolius*	Water/Fresh milk	Grinding/ Powder	Powder taken with milk
10	*Ficus platyphylla*	Water	Decoction/Maceration	Take decoction in low quantity twice daily

phytochemistry had confirmed the efficacy of one solvent over another as solvent of extraction in relation to the pharmacological actions (Muthaura et al., 2007).

This study has provided additional information on the relevance of plants in the treatment of various diseases including depression in our society. It is a step forward towards investigating the medicinal plants diversity in Nigerian flora as well as informational data base for the plants. This informational data base developed if merged with scientific knowledge base will serve as a mechanism for accessing, benefit-sharing and documenting traditional knowledge for sustainable socioeconomic development and poverty alleviation in the country as proposed by Olajide (2003). There was high consensus among the respondents as well as the patronage reflecting the significance of medicinal plants to the people which further indicated their effectiveness. In addition, there are laboratory investigations on plant like *Tapinanthus dodoneifolius* that provided evidence to support the antidepressant activity locally (Foyet et al., 2014). Other plants like *Adansonia digitata* have been scientifically validated for several pharmacological activities including nutritional, anti-inflammatory, anti-bacterial and analgesic among others (De Caluwe et al., 2010). The plant *Ficus platyphylla* has been evaluated for other central nervous system and neurological disorders such as epilepsy and sedation (Chindo et al., 2014).

Ethnobotanical survey has been considered as one of the ways to identify, select and develop therapeutic drugs from medicinal plants (Pachter, 1994). Ethnobotanist and natural products chemist were able to link methods of preparation and administration of herbal preparations to efficacy in pharmacological evaluation (Lewis et al., 1998; Albers-Schonberg et al., 1997).

Conclusion

This study has provided information on the relevance of plants in treatment of depression in Kaduna State, Nigeria. It gave bases for the development of informational database for accessing and documenting traditional knowledge of medicinal plants used in management of depression. Further work is ongoing on the plants to validate the claim.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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