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An ethnobotanical survey of medicinal plant used in treating wound infection in some selected Communities in Ogun state, south west Nigeria

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Abstract

An ethnobotanical survey of medicinal plants used in treating wound infection in Ado-Odo community of Ado-Odo Ota Local government area of Ogun State south west Nigeria, was carried out between February and July 2019. Ethnobotanical Information were collected from one hundred and five (105) respondents with the aid of a semi structure questioner and oral interview. The respondents are made up of traditional medical practitioners, herb sellers, farmers and artisan. From the survey a total of 23 plants species belonging to 17 families were found. Herbal remedies were either prepared from dry or freshly collected plants while the solvent of choice is water. The methods of preparation were squeezing, decoction and powdering, while method of administration ranges from application of paste to the infected area and drinking a cup full of decoction daily. Survey revealed that leaves form the major part of plant used for herbal preparations plants were collected from the forest and around the house, some were also purchased from the market duration of treatment ranges from 10 – 72 days.

Keywords: Ethno botany, survey, medicinal plants, Ogun, Nigeria

Introduction

Ethno botanical survey involves the study of how communities of a particular region make use of indigenous plants in the region for food, clothing and medicine. (Aiyeloja and Bello, 2006)^[2]. World Health Organisation (WHO) has defined medicinal plants as plants that contains properties or compounds that can be used for therapeutic purposes or those that synthesize metabolites to produce useful drugs (WHO 2008).

Most of the developing countries have adopted traditional medical practice as an integral part of their culture. Nonetheless, the documentation of medicinal uses of African plants and traditional systems is becoming a pressing need because of the rapid loss of the natural habitats of some of these plants due to anthropogenic activities and also due to an erosion of valuable traditional knowledge. It has been reported that Africa has some 216 million hectares of forest, but the African continent is also notorious to have one of the highest rates of deforestation in the world, with a calculated loss through deforestation of 1% per annum. (Gurib-Fakim and Mahomoodally, 2013^[1], (AAMPS), <http://www.aamps.org/>.)

Plants are not only indispensable in health care, but form the best hope of source for safe future medicines (Hamburger and Hostettmann, 1991)^[8].

The WHO endorses and promotes the addition of herbal drugs in national health care programs because they are easily accessible at a price within the reach of a common man and are time tested and thus considered to be much safer than the modern synthetic drugs (Singh, and Singh, 1981)^[16].

Thus, the research of pharmacologically/ biologically active agents obtained by screening natural sources such as plant extracts had led to the detection of many pharmaceutically valuable drugs that play a key role in the treatment of human diseases (Rastogi, and Meharotra, 1990)^[13].

Medicinal plants are regarded as rich resources of traditional medicines and from these plants many of the modern medicines are produced. (Dar *et al*, 2017)^[5].

An infected wound is a localized defect or excavation of the skin or underlying soft tissue in which pathogenic organisms have invaded into viable tissue surrounding the wound.

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Wound infection triggers the body's immune response, causing inflammation and tissue damage, as well as slowing the healing process. Many infections will be self-contained and resolve on their own, such as a scratch or infected hair follicle. Other infections, if left untreated, can become more severe and require medical intervention.

Pathogens will often displace some of the natural skin flora and colonize certain locations, but often this does not lead to infection and does not initiate an immune response. However, when the skin is broken or if the immune system becomes compromised, any of the microorganisms colonizing the skin or introduced to the wound can cause an infection. The microorganisms likely to infect a wound depend predominantly on what microorganisms are present on the skin, as well as the depth and location of the wound. (Erinosa and Aworinde, 2012)^[6].

Materials and Method

Ethno botanical survey was carried out between February 2019 and July 2019 to obtain relevant information about medicinal plants used in the treatment of wound infection in Ado odo area of Ado Odo Ota Local government area of Ogun State.

Data collected was by oral interview with the aid of semi structured questioner from respondent.

Plants specimens encountered were collected, identified and authenticated using their local names and standard text Gbile, (2002)^[7].

Furthermore, botanical literatures including Burkil (1985 and 1994)^[3] were consulted to cross-check useful information provided by the local people on the medicinal uses of collected plants. Information provided includes; local name, part used and specific ailment treated or managed by these plants.

Identification was done at the herbarium of Forest research institute of Nigeria

Ethical Approval

The purpose of the study was explained to the respondents in the area of study and informed consent was obtained from each of the respondents.

Administration of Questioner

Ethno botanical information were obtained from 105 respondents these constituted the traditional medical practitioners, herb sellers, farmers, and artisans.

The use of semi structured questioners and oral interview were adopted to obtain relevant ethno botanical data. Since most of the respondents were not learned, the questioners were read and interpreted to them and their responses filled into the questioner after each interview

The questioners was divided into 3 sections

Section 1 features demographic information such as sex, age, religion, educational background occupation, nationality

Section 2 consist of knowledge about medicinal plants, plant parts used for treatment availability and source of knowledge

Section 3 contains methods of preparation, solvents of extraction, mode of extraction, methods of administration, dosage and duration of treatment

Result

A total of 105 respondents made up of Farmers (11) Herb sellers (32), traditional medical practitioners (53) and artisans

(9). The demographic survey of respondents is presented in Table 1. Majority of the respondents are male (76). The survey revealed a total of 23 medicinal plants species from 17 families

Botanical names local/vernacular, English name, family, habits of plants are presented in Table 2. While Table 3 shows medicinal plants distributions according to family Table 4 shows plants parts used and their frequency

Table 1: Demographic information of Respondent

Parameter	Specification	N(%)
SEX	Male	76 (72)
	Female	29 (28)
Age (Years)	<20	0(0)
	20<40	14 (13)
	41<60	57 (54)
	>60	34 (32)
Occupation		
Farmer		11 (10)
Herb seller		32 (30)
Traditional medical practitioner		53 (50)
Artisan		9 (9)
Religion		
Christianity		15 (14)
Islam		41 (39)
Traditional		39 (37)
Others		10 (10)
Nationality		
Nigerian		105
Non Nigerian		0

N = Number of Respondents: % = percentage of Respondents

Discussion

Nigeria is endowed with an enormous diversity of animals and plants, both domesticated and wild, and an impressive variety of habitats and ecosystems. This heritage sustains the food, medicinal, clothing, shelter, spiritual, recreational, and other needs of her population (Odugbemi, and Akinsulire, 2006)^[11].

Medicinal plant data were collected by oral interview with a semi-structured questionnaire administered to 105 respondent. Local names of plants were given by the respondent. This was in accordance with Singh (2008)^[15] and Shosan *et al.* (2014)^[14] who reported that plants are generally known by their local names in every part of the world. From the survey, a total of 23 plant species belonging to 17 families were found to be useful.

The total number of respondent to the survey was 105, comprising of 76 male and 29 Female. The age range is from 20-60 years and above, with their occupation such as Farming (11), Herb seller (32), Traditional medical practitioners (53), Artisans (9)

The 23 medicinal plants mentioned were represented by three plant forms. Trees were found to be the most used plants (48%) followed by herbs (35%) then shrubs. (17%). Table 6, Fig 1.

The plant part mentioned are leaves; stem bark, seed and whole plants. Leaves were the most frequently used plant parts (78%) stem bark (9%) and seeds (4%) and whole plant (9%) Plant leaves are important ingredients in herbal remedies in traditional medicines this finding concurred with Oladunmoye (2011)^[12] and Shosan (2014)^[14].

Table 2: Plants used for the treatments of wound infections by the people of Ado odo, Ado odo Ota local Governments area

S/N	Scientific names	Local Names	English names	Family	Habit
1	<i>Adansonia digitata L.</i>	Epo ose	Baoba	Malvaceae	Tree
2	<i>Alchornea cordifolia (Schumach & Thon.) Mull.Arg</i>	Ijanoke		Euphorbiaceae	Tree
3	<i>Aloe vera (L) Burm.f</i>	Alofera	<i>Aloe vera</i>	Liliaceae	Shrub
4	<i>Aframomum melegueta k.Schum</i>	Atare	'Alligator peper	Zingiberaceae	Herb
5	<i>Azadirachta indica A. Juss.</i>	Ewe dongoyaro	Neem tree	Meliaceae	Tree
6	<i>Chenopodium ambrosioides L.</i>	Ewe arunpale	Worm seed	Chenopodiaceae	Herb
7	<i>Chromolaena odorata(L.) R.M.King&H.Rob.</i>	Anti ota	Sian weed	Asteraceae	Herb
8	<i>Cola acuminate Schott& Endl.</i>	Obi	Colanut	Malvaceae	Tree
9	<i>Croton zambesicusMüell. Arg.</i>	Ewe ajeofole	Bush reld	Euphorbiaceae	Tree
10	<i>Entedrophragma utile</i>	Epo ajebu	Deciduous	Meliaceae	Tree
11	<i>Erythrophleum suavolens (Guill. & Perr.) Brenan</i>	Epo obo	Anti-witches incense or Ordeal tree	Fabaceae (Casalpinodeae)	Tree
12	<i>Jatropha curcas L.</i>	Bontuje funfun	Physic or Pig nut	Euphorbiaceae	Shrub
13	<i>Macrosphora longistyle Hook</i>	Egunguneja		Rubiacea	Herb
14	<i>Mimosa pudica</i>	Ewe padimo	Touch me not	Fabaceae (Mimosoideae)	Herb
15	<i>Newbouldia laevis(P.Beauv.) Seem</i>	Ewe akoko	Fertility plant	Bignoniaceae	Tree
16	<i>Ocimum gratissimum Linn</i>	Efinrin	Scent leaf	Lamiaceae	Shrub
17	<i>Peperomia pellucida(L.) Kunth</i>	Ewe rinriin		Piperaceae.	Herb
18	<i>Petiveria alliacea L</i>	Ewe Taniya		Phytolacaceae	Herb
19	<i>Rauvolfia vomitoria afzel</i>	Asofeyeje	Serpent wood	Apocynaceae	Tree
20	<i>Trema orientalis (L) Blume</i>	Afoforo	Smooth tremere	Ulmaceae	Tree
21	<i>Sida acutaBurm.F</i>	Osootu	Broom weed	Malvaceae	Herbs
22	<i>Spondias mombin.L</i>	Ewe iyeye	Hong plum	Anacardiaceae	Tree
23	<i>Veronia amygdalina Del.</i>	Ewuro	Bitter leaf	Asteraceae	Shrub

Table 3: Family distribution of medicinal plants encountered at ado-odo town. Ogun state

S/N	Family	Number of Species
1	Anacardiaceae	1
2	Apocynaceae	1
3	Asteraceae	1
4	Bignoniaceae	1
5	Cannabaceae	1
6	Chenopodiaceae	1
7	Compositae	1
8	Euphorbiaceae	3
9	Fabaceae	2
10	Lamiaceae	1
11	Liliacea	1
12	Malvacea	3
13	Meliacea	2
14	Petiveriaceae	1
15	Piperaceae	1
16	Rubiacea	1
17	Zingiberaceae	1

Table 4: List of medicinal plant used in treating wound infection and parts used

S/N	Scientific names	Part used
1	<i>Adansonia digitata L.</i>	stem bark
2	<i>Alchornea cordifolia (Schumach & Thon.) Mull.Arg</i>	Leaf
3	<i>Aloe vera (L) Burm.f</i>	Leaf
4	<i>Aframomum melegueta</i>	Seed
5	<i>Azadirachta indica A.Juss.</i>	Leaf
5	<i>Chenopodium ambrosioides L.</i>	Leaf
6	<i>Chromolaena odorata(L.)R.M.King&H.Rob.</i>	Leaf
7	<i>Cola acuminate Schottt&Endl.</i>	Leaf
8	<i>Croton zambesicusMüell. Arg.</i>	Leaf
9	<i>Enterodrophragma utile</i>	Stem bark
10	<i>Erythrophleum suavolens(Guill. & Perr.) Brenan</i>	Leaf
11	<i>Jatropha curcas L.</i>	Leaf
13	<i>Macrosphora longistyle Hook</i>	Whole plant
14	<i>Mimosa pudica</i>	Whole plant
15	<i>Newbouldia laevis(P.Beauv.) Seem</i>	Leaf
16	<i>Ocimum gratissimum Linn</i>	Leaf
17	<i>Peperomia pellucida (L.) Kunth</i>	Leaf
18	<i>Petiveria alliacea L</i>	Leaf
19	<i>Rauvolfia vomitoria afzel</i>	Leaf

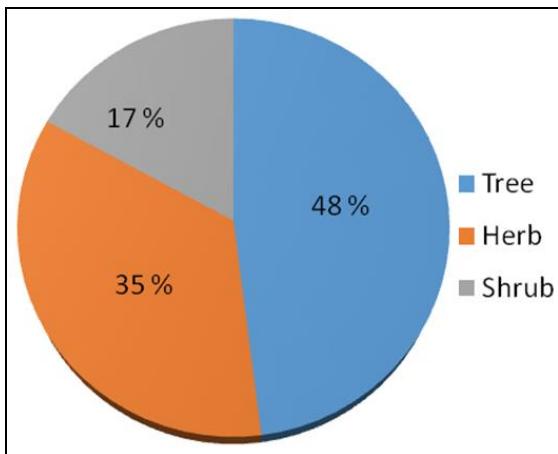
20	<i>Sida acuta</i> Burm.F	Leaf
21	<i>Spondias mombin</i> L	Leaf
22	<i>Trema orientalis</i> (L) Blume	Leaf
23	<i>Veronia amygdalina</i> Del.	Leaf

Table 5: Frequency of plant parts used for treatment

S/N	Plant part	Number	%
1	Leaf	18	78
2	Stem bark	2	9
3	Seed	1	4
4	Whole plant	2	9

Table 6: Frequency of plant forms encountered

S/N	Plant growth forms	N (%)
1	Tree	11(48)
2	Herb	8(35)
3	Shrub	4(17)

**Fig 1:** Frequency of plant forms encountered

Recipes are either prepared from dry or freshly collected plants while the solvents of choice is water. Methods of preparation were squeezing, decoction and powdering, while method of administration ranges from cleaning of wound, application of paste to the infected area and drinking a cup full of decoction daily.

Duration of treatment ranges from 10 – 72 days. Plants were collected from the forest and around the house, some were also purchased from the market.

Some of the challenges encounter from the survey is the unwillingness of the respondents to give out information, some claim that the knowledge was handled over by their ancestors and are reluctant to divulge it to non member of the family for fear of losing their means of livelihood.

Conclusion

The survey had helped in the documentation of ethno botanical knowledge of plants used in the treatment of wound infection by the indigenous people of Ado Odo area of Ogun State. Phytochemical screening of documented medicinal plant species for its bioactive component to ascertain the claim of traditional health practitioners is proposed.

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