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Ethnomedicinal studies of medicinal plants with antifungal activities in Keffi local government, Nasarawa state, Nigeria

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ABSTRACT

Over 50% of all current medical drugs are of natural product origin and thus these products play important roles in drug development in the pharmaceutical sciences.The traditional Nigerian system of medicine includes many natural plants with anti- fungal activity. In the current study, the plants used for the treatment of fungal infections in Keffilocal government, Nasarawa state, Nigeria are discussed. A total number of around twenty-three plants such as Parkiabiglobosa Jacqbenth, Annonasenegalensis Pers., Combretumlamprocarpum Diels, Stereo spermumkunthianumcham., Celosia argentea Linn., Sterculiasetigera Del. and Allium cepaetc. from various families used locally against fungal infections and related disorders are being covered, which includes Botanical names, family, plant part used,common name, local name and use for all the plants. This comprehensiveinformation will be helpful for the pharmacist, ethno- botanist, pharmacologist, medicinal chemist and pharmacognosist for more scientific research.

Key words: Ethno-medicinal, Herbal drugs, Anti-fungal, Keffi local government, Nasarawa state, Nigeria

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INTRODUCTION

Folkloric medicine is the primogenital way of healthcare recognised to man. Nigeria has abundanttherapeutic plants of more than 8000 species. Over 50% of all current medicaldrugs are of natural product origin and thus these products play important roles in drug development in the pharmaceutical sciences. The compounds found in the plants that are not required for normal working of the body, but have a valuable effect on health or play an active role in amelioration of diseases. Now-a-days, the demand for more and more drugs from plant sources is continuously increasing. It is therefore essential to evaluate plants of medicinal value systematically for various ailments that are used in traditional medicine.

Overthe last 600- 700 years, plants were an important source of raw material for treatment. Later, different methods were developed to create synthetic substitutes for many of the medicines that had been derived from the jungle. But lately, problems with microorganisms that are unaffected by drugs, side effects of orthodox drugs, and developing diseases where no medicines are obtainable, have inspired an awareness and curiosity in plants once again as a significant source of novel medicines. Present-day scientists are coming to recognise fully the vast medicinal knowledge of the indigenous people.

The knowledge of herbal treatment has very deep roots in Hausa/ Fulanisociety. People living in rural area depend on plant drug methods for primary health care. The current paper deals with the direct information of the conventional medicinal claims referring to medicinal plants with Anti- fungal activities in Keffi Local Government, Nasarawa State, Nigeria. The objective of this ethno- medicinal studyis to gather information on Botanical names,

common name, local name, plant part use, active chemical constituent, native and therapeutic uses (traditional use) and thisstudy is to know about the naturalmedicinalplantswith Anti- fungal activities.

MATERIALS AND METHODS

Study area

Keffi local government is one of the 13 local governments in Nasarawa state, Nigeria, Africa. It is situated at an altitude of 338 meters above sea level and its population amounts to 85,911. Its coordinates are 8°50'55" N and 7°52'25" E in Degrees Minutes.The climate is tropical with three different seasons in a year viz., summer (April-mid May), rainy (mid May- Oct), winter (Nov – March). November and Aprilrepresent that change months between the rainy and winter seasons and winter and summer seasons correspondingly.

The current study is based on the intensive field of the area during the period of March-August 2012. Regular field studies were made in the study area during the period. The information about the medicinal plants with Anti- fungal was gathered through interviews and discussion with the elderly people and folkhealers were also consulted. Vegetal plants referred by these people were authentically identified with the help of taxonomist and botanist at the unit of Plant Science and Biotechnology, Department of Biological Sciences, Faculty of Natural and Applied Sciences, Nasarawa State University, Keffi, Nigeria.

COMMON FUNGAL INFECTIONS OCCURRING IN THE STUDY AREA

The fungal infections considered in the current study were Abnormal vaginal discharge, Skin itch and skin rash, mental confusion, Seizures, Chest pain, Cough, Malady, Dysentery, Vaginal thrush, headache, fever, Oral thrush, Diarrhea, Skin infection and Sore throat(Table 1) were described to the elderly people and folk healers so as to enable them to give the suitable plant species they usually use to manage the infections.

TABLE 1: Signs/symptoms of common fungal infections occurring in the study area

Common fungal infections	Category
Sore throat	Respiratory system disorders
Skin infection	Skin/subcutaneous cellular tissue Disorders
Diarrhea	Digestive system disorders
Oral thrush	Infections/Infestations
Abnormal vaginal discharge	Infections/Infestations
Skin itch and skin rash	Skin/subcutaneous cellular tissue Disorders
Mental confusion	Brain dysfunction
Seizures	Ill-defined conditions
Chest pain	Respiratory system disorders
Cough	Respiratory system disorders
Malady	Ill-defined conditions
Dysentery	Digestive system disorders
Vaginal thrush	Infections/Infestations
Headache	Ill-defined conditions
Fever	Ill-defined conditions

RESULTS

All together plants belonging to different families have been documented for their nativeuses. The collected information's are arranged in the serial order of the plant botanical name, collection number, with the common name, local names, parts used, local use, active constituents (Table 2) and pictures for each plant showing the part used (Figure I) .

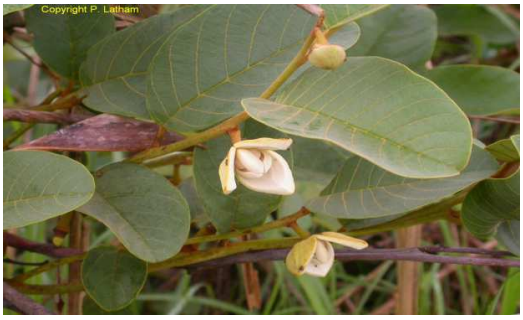
TABLE II: List of medicinal plants with anti- fungal activities

S.N.	Botanical name (family)	Collection number	Common name	Local name	Plant part used	Active chemical constituent	Native uses
01	*Parkiabiglobosa*Jacqbenth (Fabaceae)	06BMB	African locust bean	Ɗ□□ρ□ω□ (H)/ naree-hi (F)	Bark	Sterols, triterpenes, phenolic compound (tanins, flavonoids, coumarins, anthocyanidins)	Oral thrush
02	*Annonasenegalensis*Pers. (Annonaceae)	17BMB	African custard apple	Gwándàndàájìì (H)/ dukuu-hi (F)	Leave	Sterols, triterpenes, carotenoids, flavonoids (rutin and isoquercetrin), anthocyanosides, saponosides, tannins,	Chest pain, cough
03	*Combretumlamprocarpum*Diels(Combrataceae)	11BMB		Bauli (H)/ßuskidaneehi (F)	Bark	Alkanoids	Sore throat
04	*Stereospermumkunthianum*cham. (Bignoniaceae)	21BMB	Pink jakaranda	Jìrìí (H)/ golombi (F)	Bark	Iridoid, phenylpropanoid	Skin infections
05	*Celosia argentea*Linn. (Amaranthaceae	01BMB	Plumed cockscomb	Rìùmìì (H)/	Leave	Flavonoids, tannins, steroids, glycosydes	Abnormal vaginal discharge
06	*Sterculiasetigera* Del.(Malvaceae)	08BMB	Gum tree	Kûkkúúkì (H)/ boɓo-ri (F)	Leave	Alkaloids, flavonoids, phenolic, glycosides.	Vaginal thrush
07	*Allium cepa*Linn. (Amaryllidaceae)	20BMB	Onion	Àlbásàà (H)/ albassa (F)	Leave	Flavenols, selenium, xylose, thiosulfinates, flavonoids	Malady
08	*Carica papaya* L. (Caricaceae)	13BMB	Pawpaw	Gwándà (H)/ dukku-hi (F)	Leave	saponins, cardiac glycoside alkaloids	Seizures
09	*Mangiferaindica(Anacardiaceae)*	02BMB	Mango tree	Màngwàrò (H)/ mangoroo-hi (F)	Bark	isomangiferin, tannins and gallic acid derivatives, polyphenolics, flavonoids, triterpenoids, protocatechic acid, catechin, alanine, glycine, γ-aminobutyric acid, kinic acid, shikimic acid.	Mental confusion
10	*Azadirachtaindica*A. Juss. (Meliaceae)	10BMB	Neeem	Dar bejiyaª(H)/ ganyi (F)	Leave	Melianol, Flavonoids, saponins, Polyphenols.	Oral thrush
11	*Vernoniaamygdalina*Del. (Asteraceae)	23BMB	Bitterleaf	Shìwáákáá (H)/ kadkadɗe (F)	Leave	saponinsand alkaloids, terpenes, steroids, coumarins, flavonoids, phenolic acids, lignans, xanthones, anthraquinones, edotidesand sesquiterpenes.	Vaginal thrush
12	*Pterocarpuserinaceus*Poir. (Fabaceae)	14BMB	Barwood	Shààjínií (H)/ (m)banuhi (F)	Bark	friedelin, lupeol and epicathechin.	Malady
13	*Khayasenegalensis*(Desr.) A. Juss. (Meliaceae)	04BMB	African Mahogany	Mádàácíí (H)/ dàalee-hi (F)	Root	Saponins, glycoside, Flavonoids, Tannins, alkalois.	Cough, chest pain
14	*Naucleadiderrichii (*(De Wild) Merrill. (Rubiaceae)	09BMB	African peach	Tàfáashííyà (H)	Root	Alkaloids, saponins	Fever
15	*Aristolochiaalbida*Duch. (Aristolochiaceae)	19BMB	Dutchman's pipe	Dúmándúútsèè (H)/	Leave	Alkaloids, saponins	Headache
16	*Alchorneacordifolia*Müll. Arg. (Euphorbiaceae)	16BMB		Bámbámí (H)/	Leave	Tannins, saponins, anthraquinones, flavonoids, sterols and cardiac glycosides	Oral thrush
17	*Entadaafricana*Steudel ex A. Rich. (Fabaceae)	22BMB	Tree entada	Tàáwátsáá (H)/ fadɗowaanduuhi (F)	Bark	Alkaloids, flavonoids, tannins, saponins and cardiac glycosides	Sore throat
18	*Anogeissusleiocarpus*(DC.)Guill.&Perr.(Combretaceae)	05BMB	chewstick tree	Márkéé (H)/ kojo-li (F)	Bark	Saponins, tannins and alkaloids	Cough
19	*Strigahermonthica(*Orobanchaceae)	15BMB	witchweed	Sawoki (H)/ duu-le (F)	Leave	Terpenes, tannins, coumarins, cardiac glycosides, flavonoids, saponins, anthracenosides and alkaloids	Diarrhea
20	*Commiphorakerstingii*Engl. (Burseraceae)	03BMB		Árárráßíí (H)/ kaabii-hi (F)	Bark	Alkaloids, saponins, anthraquiniones, cardiac glycosides, tannins and flavonoids	Dysentery
21	*Opiliaceltidifolia*Endl.exWalp. (Opiliaceae)	12BMB		Rùmfárgàdáá (H)/ yamoynngari (F)	Leave	Flavonoids, saponins, anthraquiniones, cardiac glycosides, tannins	Skin infections
22	*Mitracarpushirtus*(L.) DC. (Rubiaceae)	18BMB	Button grass	Gòògàámáású (H)/ gududal (F)	Leave	Saponins, anthraquiniones, flavonoids, cardiac glycosides, tannins	Diarrhea
23	*Pseudocedrelakotschyi*(Schweinf.) Harms (Meliaceae)	07BMB	Dry-zone cedar	Tònáá (H)/ boodi (F)	Leave	Carbohydrates, reducing sugars, glycosides, cardiac glycosides, saponins, flavonoids, alkaloids, steroids and tannins	Skin itch and rash

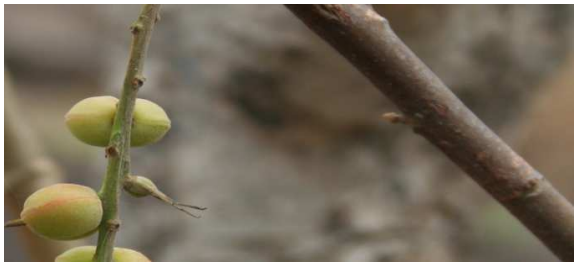
KEY: S.N. = Serial number
H = Hausa name
F = Fulani name

FIGURE I: Pictures of medicinal plants showing the part used

01. *Parkiabiglobosa*Jacqbenth



02. *Annonasenegalensis*Pers.



03. *Combretumlamprocarpum*Diels

04. *Stereospermumkunthianum*cham

05. *Celosia argentea*Linn.

06. *Sterculiasetigera* Del.

07. *Allium cepa*Linn.

08. *Carica papaya* L.

09. *Mangiferaindica*

10. *AzadirachtaindicaA.* Juss.

11. *VernoniaamygdalinaDel*

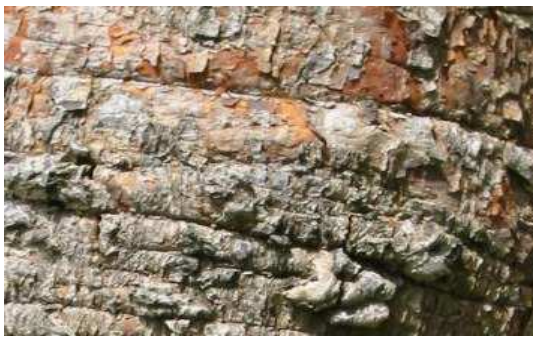
12. *PterocarpuserinaceusPoir.*

13.*Khayasenegalensis*(Desr.) A. Juss.

14. *Naucleadiderrichii* ((De Wild) Merrill.

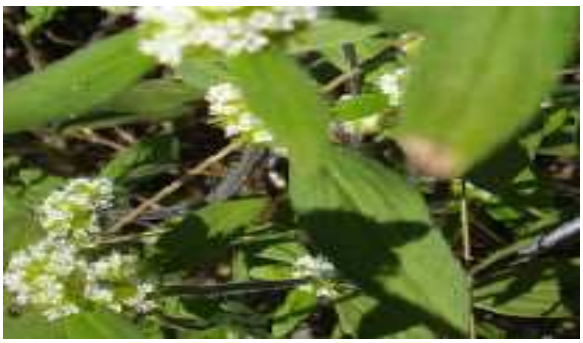
15. *AristolochiaalbidaDuch.*

16. *AlchorneacordifoliaMüll. Arg.*



17. *Entadaafricana*Steudel ex A. Rich. **18. *Anogeissusleiocarpus*(DC.)**

19. *Strigahermonthica* **20. *Commiphorakerstingii*Engl.**



21. *Opiliaceltidifolia*Endl. exWalp. **22. *Mitracarpushirtus*(L.) DC.**

23. *Pseudocedrelakotschyi*(Schweinf.) Harms

DISCUSSION

Among the fungal diseases, "respiratory system disorder, digestive system disorder, skin/subcutaneous cellular tissue, disorders and Infections/Infestations" seems to be most common diseases used to treat with most anti- fungal medicinal plants in the study area. Alongwith these cough and skin infectionslisted which are the major diseases treated with traditional medicines. The detailed natural plants not only have anti- fungal activity but also treated for otherdisease as well. The information obtained from the people of the study area was reconsidered by reviewingvital works in journals relating to plant family which determines it biological activity andsome medicinal plantswith antifungal activities reported in the present study (Prince and Prabakaran, 2011;Singh et al., 2013; Musa et al., 2011; Shah et al., 2010;Okonko et al., 2010; Gorle and Patil, 2010)and Nigerian medicinal plants and Ethno-pharmacology such as some medicinal plants of Nigeria(Bhat*et al* 1985) andA Textbook of medicinal plants from Nigeria (Odugbemi, T.A 2008).

CONCLUSION

The claims originating from the current survey need to be subjected to phytochemical studies so as to find out their realpossibilities and potentials, as it is very hard to judge the efficacy of traditional medicine. The centralgoal is not to recommend any medicine for any of the sickness but to record the uses and draw the interest of pharmacist, ethno-botanist, pharmacologist, medicinal chemist and pharmacognosist for more scientific research in this area.

Acknowledgement
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