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ETHNOBOTANICAL STUDIES OF ANTI-TUBERCULOSIS PLANTS IN EGBADO, OGUN STATE, NIGERIA

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Abstract

Forty-five plant species and twenty-nine recipes used to treat tuberculosis in Egbado were identified. Prominent among these preparations were *Garcinia kola* Heckel, (Clusiaceae), *Xylopia aethiopica* (Dunal) A. Rich. (Annonaceae), *Musa nana* Lour. (Musaceae), *Anchomanes difformis* (BL.) Engl. (Araceae), *Alchornea cordoifolia* (Schum. & Thonn.) Muell. Arg. (Euphorbiaceae), *Allium ascalonicum* Linn. (Liliaceae), *Tetrapleura tetraptera* (Schum. & Thonn.) Taub. (Mimosaceae), *Olax subscorpioidea* Oliv. (Olacaceae) and *Piper guineense* Schum. & Thonn. (Piperaceae) suggesting their importance in the treatment. The need to screen the plants so identified especially those that have not been chemically and biologically studied is stressed.

Introduction

The essence of this field study is to provide more information on some of the important plants which may prove useful to the treatment of tuberculosis and thus stimulate further chemical and biological screening of such plants with a view to producing effective drugs to complement those in use in the treatment of the disease.

Materials and Methods

Field study was conducted in Egbado South, Nigeria. This area was chosen because of the incidence of tuberculosis and the presence of a few acclaimed herbal specialists in the treatment of the disease. Recipes were collected from ten informants, four of whom were notable specialists and herbal sellers. Information were obtained on the plant species and plant parts used to treat this disease, mode of preparation, dosage, precautions and possible side effects. Assistance was also sought in most cases for the collection of the plants from the field. Recipes were also purchased from herb sellers. Confirmation of all identifications was done at the Forest Herbarium, Ibadan.

Results

Forty five plant species in twenty seven families were identified to be useful in the treatment of tuberculosis. Twenty nine different recipes were obtained, some which consisted of single plants. Table 1 shows the list of plant species identified and the plant parts used.

TABLE 1: LIST OF ANTI-TUBERCULOSIS PLANTS IDENTIFIED

SPECIES	FAMILY	YORUBA NAMES
1.*Abrus precatorius L.*	Leguminosae: Papilionaceae	Misin misin/Oju Olog bo
2.*Acanthus montanus* (Nees) T. Anders	Acanthaceae	Ahon ekun
3.*Alframomum melegueta* K. Schum	Zingiberaceae	Ataare
4.*Alchornea cordifolia* (Schum.&Thonn)Muell. Arg.	Euphorbiaceae	Ipa
5.*Allium ascalonicum* L.	Liliaceae	Alubosa elewe
6.*Anacardium occidentale* L.	Anacardiaceae	Kaju
7.*Ananas comosus* (L) Merill.	Bromeliaceae	Ope oyinbo
8.*Anchomanes difformis* (BL.) Engl.	Araceae	Langbodo
9.*Blighia sapida* Koen.	Sapindaceae	Ishin
10.*Boerhavia diffusa* L.	Nyctaginaceae	Etiponla
11.*Bridelia micrantha* (Hochst.) Baill.	Euphorbiaceae	Aasa
12.*Caesalpinia bonduc* (L.) Roxb.	Leguminosae: Caesaipiniaceae	Ayo
13.*Calotropis procera* (Ait.) Ait. F.	Asclepiadaceae	Bomubomu
14.*Citrullus lanatus* (Thumb.) Mansf.	Cucurbitaceae	Bara
15.*Citrus aurantifolia* (Christm) Swingle	Rutaceae	Osan wewe
16.*Cocos nucifera* L.	Palmae/Aracaceae	Agbon
17.*Costus afer* Ker. Gawl.	Zingiberaceae	Ireke omode
18.*Crinum jagus* (Thomps.) Dandy	Amaryllidaceae	Ogede odo
19.*Croton zambesicus* Meull. Arg.	Euphorbiaceae	Ajekofole
20.*Dialium guineense* Wild.	Leguminosae: Caesaipiniaceae	Awin
21.*Dioclea reflexa* Hook. F.	Leguminosae: Papilionaceae	Agbaarin
22.*Elaeis guineensis* Jacq.	Palmae/Aracaceae	Ope
23.*Euphorbia lateriflora* Schum. & Thonn.	Euphorbiaceae	Oro, Enu-opiri
24.*Euphorbia poissoni* Pax.	Euphorbiaceae	Oro adete
25.*Ficus exasperata* Vahl.	Moraceae	Ipin
26.*Ficus goliath* A. chev..	Moraceae	Aba rere
27.*Garcinia kola* Heckel	Guttiferae/Clusiaceae	Orogbo
28.*Hexalobus crispiflorus* A. Rich.	Annonaceae	Apara
29.*Khaya grandifoliola* C.D.C.	Meliaceae	Oganwo
30.*Lagenaria breviflora* (Benth.) G. Roberty	Cucurbitaceae	Tagiri
31.*Mezoneuron benthamianum* Baill.	Leguminosae: Caesalpiniaceae	Jenifiran
32.*Musa nana* Lour.	Musaceae	Ogede agbonjuba
33.*Olax subscorpioidea* Oliv.	Olacaceae	Ifon
34.*Parkia biglobosa* (Jacq) Benth.	Leguminosae: Momosaceae	Irugba
35.*Paulinia pinnata* L.	Sapindaceae	Itakun Okere
36.*Pergularia daemia* (Forsk.) Chiov.	Asclepiadaceae	Kole-agbe
37.*Piper guineense* Schum. & Thonn.	Piperaceae	Iyere
38.*Plumbago zeylanica* L.	Plumbaginaceae	Inabiri
39.*Pycnanthus angolensis* (Welw.) Warb.	Myristicaceae	Akomu
40.*Rauvolfia vomitoria* Afzel	Apocynaceae	Asofoyeje
41.*Saccharum officinarum* L.	Gramineae/Poaceae	Ireke
42.*Securidaca longepedunculata* Fres.	Polygalaceae	Ipeta
43.*Spondias mombin* L.	Anacardiaceae	Iyeye
44.*Tetrapleura tetraptera* (Schum. & Thonn.) Taub.	Leguminosae: Mimosaceae	Aidan
45.*Xylopia aethiopica* (Dunal) A. Rich	Annonaceae	Eru

Members of the Leguminosae/Fabaceae and Euphorbiaceae have the highest frequency of occurrence (15.6% and 11.1% respectively) in the total number of plants identified (Table 1).

Enumeration of recipes

1. The papery layer of the stem bark of *Garcinia kola* is scrapped off. The stem bark is ground with potash, rolled into sizeable balls or pellets. One pellet is swallowed three times daily.
2. The piliferous layer of the root of *Anchomanes difformis* is peeled, washed and cut into pieces. These are covered with water in a container and palm oil added. The container is placed in a an oven for the oil to melt and allow parts dissolve in water. The preparation is removed and kept for three days before use.
   One teaspoonful is taken six times daily.
   Precaution: Direct heating of preparation on flame is avoided to prevent overheating and destruction of active ingredient.
3. The leaves of *Abrus precatorius* and stem bark of *Garcinia kola* are squashed together. Trebor peppermint and allum are added to the mixture in a flask. Water or alcohol is added and allowed to settle. The supernatant is separated after about three to four hours.
   One teaspoonful of the supernatant is taken three times a day.
4. The juice from the fruit of *Citrus aurantifolia* is squeezed out into a flask containing cut pieces of the stem bark of *Bridelia micrantha*. The mixture is allowed to stand for a few hours.
   Two teaspoonful of the solution are taken three times daily.
5. The leaves and stem bark of *Euphorbia lateriflora* and fruits of *Tetrapleura tetraptera* and *Xylopia aethiopica* which must be in excess of the other two plants are put in a breaker and water is added. The mixture is boiled for five minutes. One teaspoonful of the concoction is taken three times daily.
6. The leaves of *Abrus precatorius*, fruits of *Xylopia aethiopica* and roots of *Mezoneuron benthamianum* are boiled together in water for ten minutes with the fruits at the bottom of the container.
   One tea-cupful of the concoction is taken three times daily.
7. The fruits of *Musa nana* are squashed and the ground seeds of *Garcinia kola* added. The egg content of a chicken and a little palm oil are added and mixed thoroughly.
   One teaspoonful of the mixture is taken by licking thrice daily.
8. The roots of *Musa nana* and the leaves of *Pergularia daemia* are separately squashed and the fluid collected but later mixed together. About six seeds of *Dioclea reflexa* are burnt and ground together. The preparations are then added together.
   One teaspoonful of the resultant mixture is taken three times daily.
9. The roots of *Olax subscorpioidea* after the removal of the piliferous layer., are ground with the leaves of *Spondias mombin*. A little palm oil is added to the mixture. The mixture is licked as frequently as desired.
10. The stem bark of *Elaeis guineensis* is put in a beaker and the fluid of *Cocos nucifera* added. Salt, allum and the ground seeds of *Aframomum melegueta* are added. The mixture is left for three days and the liquid separated into a bottle.
    Two teaspoonful of the concoction are taken three times daily.

11. The leaves of *Boerhavia diffusa* are ground and mixed with shea butter. The mixture is added to pap and taken as food once daily.

12. The stem barks of both *Garcinia kola* and *Pycnantus angolensis* are boiled together in water for about ten minutes.
Two teaspoonful of the concoction are taken twice daily.

13. The roots of *Anchomanes difformis*, the leaves of *Croton zambesicus* and *Pergularia daemia* are squashed together and water added during squashing. The mixture is allowed to settle and the extract separated.
Two teaspoonful of the extract are taken twice daily.

14. The leaves of *Acanthus montanus*, seeds of *Piper guineense* and the fruits of *Musa nana* are boiled together with shea butter for about ten minutes.
One teaspoonful of the concoction is taken twice daily preferably in the morning and evening.

15. The roots of *Rauwolfia vomitora*, fruits of *Piper guineense* and shea butter are boiled together for about ten minutes in water.
One teaspoonful of the concoction is taken daily.

16. The fruits of *Citrullus lanatus* and *Ananas comosus* are separately boiled for a few seconds and the juices pressed out of the fruits into separate beakers. These are later added together with honey.
One teaspoonful of the mixture is taken twice daily preferably in the morning or evening.

17. The stem of *Saccharum officinarum* is cut into pieces and equal number of the fruits of *Musa nana* are added to the leaves of *Calotropis procera* in a beaker. The content is boiled with palm oil and shea butter for about fifteen minutes.
One teacupful of the concoction is taken twice daily.

18. The juice of the fruits of *Citrus aurantifolia* is added to the pounded fruits of *Tetrapleura tetraptera*, bulb of *Allium ascalonicum* and the seeds of *Caesaplinia bonduc*. The extract is obtained by squeezing it out of the debris.
Two teaspoonful of the extract are taken daily.

19. The leaves of *Euphorbia poissoni* are pounded with shea butter and common salt is added.
The preparation is licked as frequently as desired. It stops sleeplessness and improves appetite in the tuberculosis patient.

20. The leaves of *Calotropis procera* are boiled with shea butter and a little palm oil for about ten minutes.
One teaspoonful of the liquid is taken thrice daily.

21. The scrapped edges of the fruits of *Tetrapleura tetraptera*, roots of *Crinum jagus*, roots of *Anchomanes difformis*, bulb of *Allium ascalonicum*, fruits of *Xylopia aethiopica* and roots of *Olax subscorpioidea* are pounded together with camphor in water.
One teaspoonful of the extract is taken twice daily.

22. The fruits of *Alchornea cordifolia* are pounded and some quantity of Stout larger beer added. One tea spoonful of the preparation is taken daily.

23. The roots of *Anchomanes difformis*, *Olax subscorpioideas*, leaves of *Paulinia pinnata* are soaked in water for three days.
One and half teaspoonful of the concoction are taken daily.

24. Water is added to the pounded leaves of *Ficus goliath*.
One teaspoonful of the extract is taken daily.

25. The stem barks of *Parkia biglobosa* and *Dialium guineense* are boiled in water.
Five teaspoonful of the concoction are taken thrice daily.

26. The stem barks of *Khaya grandifoliola* and *Securidaca longepedunculata*, stem and leaves of *Plumbago zeylanica*, fruits of *Lagenaria breviflora* and *Tetrapleura tetraptera* are boiled together with gunpowder for about thirty minutes.
One tablespoonful of the concoction is taken thrice daily.

27. The stem bark of *Hexalobus crispiflorus* and roots of *Costus afer* are boiled together with allum for about twenty minutes.
Half a teacup of the extract is taken twice daily.

28. The bulb of *Allium ascalonicum*, fruits of *Xylopia aethipica*, *Piper guineense* and stem bark of *Anacardium occidentale* are boiled together with Trebor peppermint.
Five teaspoonful of the extract are taken three times daily.

29. The roots of *Ficus exasperata*, *Alchornea cordifolia*, *Blighia sapida* and fruits of *Musa nana* are boiled together with shea butter with common salt added for about fifteen minutes.
One teacupful of the decoction is taken thrice daily.

DISCUSSION

Garcinia kola Heckel, *Alchornea cordifolia* (Schum. & Thonn.) Muel Arg., *Xylopia aethiopica* (Dunal) A. Rich., *Musa nana* Lour., *Anchomanes difformis* Engl., *Allium ascalonicum* Linn., Tetrapleura tetraptera (Schum. & Thonn.) Taub, Olax subscorpioidea Oliv. and *Piper guineense* Schum. & Thonn. are particularly most prominent in the recipes which suggest their importance as sources of active ingredients in the treatment of disease. The plant species whose leaves are used alone in the treatment include *Boerhavia diffusa* Linn., *Calotropis procera* (Ait.) Ait. F. and *Ficus goliath* A. Chev. These could also be possible sources of active mycobacteriostatic ingredients. While some of these plants have been phytochemically screened, a few still remain to be sourced for bacteriostatic contents. *Xylopia aethiopica* whose fruits are used in many herbal preparations is noted to produce xylopic acid, the major diterpene which has been found to show antimicrobial affects (Boakye-Yiadom et al., 1977). *Abrus precatorius* Linn. is known to yield glycyrrhizin (Akinloye and Adalumo, 1981) and the leaves are used by herbalists as ingredients in various cough mixtures (Gbile & Adesina, 1987).

The various parts of *Garcinia kola* such as seeds, stem and roots are known to possess anti-hepatotoxic and hepatropic properties and the petroleum ether extract and the top layer of the acetone extract have been found to demonstrate significant anti-microbial activity. Several flavonoids - benzophenones, triterpenes and biflavonoids have been isolated from this species and characterized (Iwu & Igboko, 1982; Iwu, 1982).

Exploring the local usage of plants by the traditional healers is just a phase in an attempt to identify, screen, extract and isolate important pharmaceutical products from the plants. Information about the specific usage of the plants from the field eliminates the random search for important active ingredients for the treatments of various diseases and this to a large extent enhances the degree of knowledge about the value of the herbal world.

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