Survey on Traditional Tanzanian Medicinal Plants Used in Treating AIDs-related Illnesses

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Traditional healers in Morogoro region, Tanzania, were interviewed for plants they use in treating AIDS related illnesses. A total of 64 plant samples were collected. Most frequently used plant families are Compositae, Caesalpiniaceae, Euphorbiaceae, Moraceae, Rubiaceae, Papilionaceae, Combretaceae and Anacardiaceae. A survey of chemical constituents in the families showed the presence of various types of compounds whose reported pharmacological activities also vary. The fact that most of preparations from traditional healers are decoctions means that polar compounds are the only active compounds extracted. An efficient screening method to identify the active plants followed by biologically guided isolation of active ingredients is required.

Key Words: Tanzanian Medicinal plants, Treatment of AIDS

INTRODUCTION

Tanzania is one of the countries whose flora has not been completely investigated for its biological activity. A significant population of Tanzania still depends on plants as a source of medicines for curing different illnesses. Traditional healers therefore play a big role in health care delivery.

Satisfactory cure for a number of diseases or symptoms has still not been found. Among such diseases are the viral diseases like herpes, AIDS and certain cancers [1,2]. The search for cure of such diseases is turning to traditional medicine as a source of drugs. Prospect of finding new drugs from plants is encouraging as shown by recent isolation of anti fertility agents [3,4] and anticancer agents like taxol [5].

Since the majority of AIDS patients in Tanzania consult traditional healers for treatment, it is important to document those plants used in traditional medicine for treating AIDS related illnesses. Morogoro region was selected because it has a rich vegetation and for the fact that a significant number of traditional healers are found in the region. A survey of chemical constitutes in the most utilised plant families and their pharmacological activity are also discussed.

MATERIALS AND METHODS

A questionnaire was prepared for use in interview with traditional healers in the region. All traditional healers visited were informed about our visit to record plants they used in treating AIDS. Majority of the healers were prepared to give information we wanted. A total of 30 traditional healers were interviewed. Since traditional healers can not diagnose patients with AIDS, we collected those plants which we thought were used in treating AIDS related disease symptoms such as persistent diarrhoea accompanied with fevers, tuberculosis, weight loss, skin rashes and general body weaknesses. A total of 120 plants were shown to us by the traditional healers, but at the end we narrowed the lists to 64 samples because some of the plants were repeatedly shown to us by the various traditional healers we interviewed. For each plant collected it was first documented then a herbarium specimen taken and 500 g of the plant part used taken. The specimens were then sent to the Department of Botany, University of Dar-es-Salaam for identification. They are deposited in the herbarium of the Institute of Traditional Medicine, Muhimbili University College of Health Sciences, Dar-es-Salaam.

RESULTS AND DISCUSSION

The list of plants collected and their vernacular names are indicated in table 1. Most utilised plant families are the Compositae, Caesalpiniaceae, Euphorbiaceae, Moraceae, Rubiaceae, Papilionaceae, Combretaceae and Anacardiaceae. A chemataxonomy survey of the most utilised plant families shows the presence of a diverse types of compounds.

The Rubiaceae is a family rich in indole and quinoline alkaloids, iridoids, highly methylated 6 hydroxy flavones and anthraquinones [6]. The Composite as a family is particularly rich in polyacetylenes, sesquiterpenes lactones, coumarins, 6-hydroxy flavonols, pyrrolizidine and diterpene alkaloids, anthraquinones, lignans and triterpenes [6,7]. The Euphorbiaceae contains ellagitannins, diterpenes, phorbol and mezerein type of esters, tropane and pyrrolizidine alkaloids, non protein amino acids and triterpenes [8]. The family Moraceae is particularly known to contain among other compounds, flavonoids, chalcones, oleoresins, tannins, volatile oils, steroids and terpenoids [9]. The Caesalpiniaceae contains non-amino acids, isoflavonoids and quinolizidine alkaloids. The Combretaceae and the Anacadiaceae contain flavonoids, tannins, organic acids, 5-deoxy flavonoids and triterpenoids.

TABLE 1: Plants Collected in Morogoro Region Which are Used to Treat AIDs Related Illnesses

	Botanical name, Vernacular name	Family	Uses	Part used
1.	*Cryptolepsis obtusa* N.E.Br Luzuana	Asclepiadaceae	Weight loss and general weakness	R
2.	*Cassia abreviata* Oliv. Mkunde kunde	Caesalpiniaceae	Fevers, emetic and stomach pain	R
3.	*Dombeya shupangae* Schuman Msoto	Sterculiaceae	Body weakness and pai	SB
4.	*Crassocephalum bojeri* Robyns Poza ndogo	Compositae	Antiseptic, chronic wounds	L&SB
5.	*Delonix regia* Raf. Mkrismas	Caesalpiniacea	Gynaecological problems and stomach pains	R
6.	*Bridelia micrantha* Bail Mkulagembe	Euphorbiaceae	Antiseptic for chronic wounds	SB
7.	*Monanthotaxis trichocarpa* Verd. mtope tope	Annonaceae	Eye blindness, stomach pain	L&S
8.	*Saba comorensis* Pichon var florida Pichon, Msanga	Apocynaceae	Antiasthmatic, chest pain	R
9.	*Ficus nataliensis* Hochst, Mkuyu	Moraceae	Treatment of veneral diseases, bilharzia	R
10	*Sida acuta* Burman f., Mfagio	Balvaceae	Bone setting, malnutrition and swelling in the body	R
11.	*Xeroderris stuhmannii,* Myinga	Papilionaceae	Treats sterility in women	SB
12.	*Ficus mucuso* Ficalho, Mdengedenge	Moraceae	Stomach pain and general weakness	R
13.	*Plectranthus tenuiflorus* Agnew, Hawa	Labiatae	Convulsion in children	L
14.	*Aloe lateritia Engl.,* Mnanasi Mkongwe	Liliaceae	Measles, skin rash and antiseptic	WP
15.	*Sterculia quinqueloba* K. Schum, Mganga	Sterculiaceae	Malaria and weight loss	SB
16.	*Ficus sycomorus* L., Mkuyu	Moraceae	Veneral disease and stimulates milk production	R
17.	*Zanthoxylum chalybeum,* Mhungu	Rutaceae	Chest pains and general weakness	R
18.	*Parinari curatellifolia* Planch, Mbula	Rosaceae	Hookworm, mental illness malaria and antiseptic	RB
19.	*Milletia impresse* Mkunde kunde mdogo	Papilionaceae	Antiemetic and stomach pain	R
20.	*Syzygium cuminii* Skells, Mzarabo	Myrtaceae	Diabetes	SB
21.	*Trichilia emetica* Vahl, Mkongoni	Meliaceae	Leprosy, emetic, emmenagogue	S
22.	*Pteleopsis myrtifolia* Engl & Diels, Mgovu	Combrataceae	Veneral diseases	R
23.	*Hoslundia opposita* Vahl, Ntserere	Labiatae	Bilharzia, cough, stomach pains and antiseptic	R
24.	*Steganotaenia araliaceae* Hochst, Mnyonga membe	Umbelliferae	Pneumonia, tuberculosis and asthma	SB
25.	*Balanites aegyptica* Del., Mkongo	Balanitaceae	Malaria and rheumatism	R
26.	*Tylosema fassoglensis* Torre & Hillc, Mkasu	Papilionaceae	Diarrhoea and swollen legs	R
27.	*Aspilia mossambicensis* Wild, Mshagasha	Compositae	Fevers and hypertension	L

28. *Markhamia obtusifolia Sprague,* Mpunga punga	Bignoniaceae	Constipation and hernia	SB
29. *Tarchonanthus camphora* Tus L. Mkalambati	Compositae	Asthma	L
30. *Afzelia quazensis* Welw, Mbambakofi	Caesalpinioideae	Abdominal pain and eye infection	SB
31. *Senna ocidentalis* Link, Mfutwa	Caesalpiniaceae	Swollen testicles and colic	SB
32. *Ageratum cornyzoides* L., Ifuna	Compositae	Antiseptic	L
33. *Ximenia americana* L. var *caffra* Engl., Mseka, mtundwa	Olacaceae	Haemostatic, stimulates production of milk	F
34. *Commiphora africana* Engl. & Burns, Mpome	Burseraceae	Diarrhoea and colic in women	R
35. *Brakenridgea zanguebarica* Olive, Mkumbi	Ochnaceae	Antiseptic, aphrodisiac and skin rashes	SB
36. *Terminalia serisea* DC, Kamwamba	Combretaceae	Body weakness, fevers, malaria and colic	R
37. *Gardenia ternifolia,* Schumach, Thonn	Rubiaceae	Cough, antiseptic, veneral diseases and malaria	R
38. *Ximenia caffra* Sound, Mseka	Olacaceae	Antiseptic and sterility in women, malaria	R
39. *Antidesma venosum* Tub., Chikuka	Euphorbiaceae	Anthelmintic and snake bite	R
40. *Catunaregan spinosa* Tirreng, spp. *tylorii* Verd. Mzongozongo	Rubiaceae	Diuretic, purgative, epilepsy amd colic	R
41. *Lannea schimperi* Engl., Msiwa	Anacardiaceae	Gynaecological problems	R
42. *Carissa edulis* Vahl	Caricaceae	Anthelmintic and sterility in women	R
43. *Euclea racemosa* Murr spp *schimperi* White Mdala dume	Ebenaceae	Gynaecological disorders	R
44. *Ehretia amoena* Klotzh Mgunguliza	Boraginaceae	Cancer, rheumatism	R
45. *Conyza pyrhopappa* Rich spp. *oblongifolia* Wild Mwaba	Compositae	Convulsions in children	L
46. *Acalypha fruticosa* Forsk, Mchacha	Euphorbiaceae	Skin rashes, tonic and stomach ulcers	L
47. *Combretum molle* G. don., Mnama	Combretaceae	Chest pain, infertility in women, diarrhoea	R.
48. *Harrisonia abyssinica* Oliv., Mkusu Msongwa	Simaroubaceae	Malaria, swollen testicles, nausea and antiseptic	R
49. *Mytenus senegalensis* Exel, Mwamba ngoma	Celastraceae	Fevers accompanied with diarrhoea, and sterility	R
50. *Byrocarpus bivianus* Schiell, Msunduzi	Connaraceae	Fevers, diarrhoea and venereal diseases	R
51. *Grewia hexamita* Harv., Mkole mdogo	Tiliaceae	Chest pains and venereal diseases	R
52. *Grewia microcarpa* K. Schum, Mkole mkubwa	Tiliaceae	Diarrhoea and venereal diseases	R
53 *Strychnos innocua* Del. *ssp innocua* var *pubescence* Solered, Mtonga	Loganiaceae	Laxative and stomach pain	R

54. *Holarrhena pubescens* Wall, Mpipa	Apocynaceae	Bloody diarrhoea and fever	R
55. *Cussonia zimmermanii* Harms Mnyonga pembe	Arariaceae	Mental illness antihypertensive	SB
56. *Diospyros squarrosa* Klotzsch, Mgiriti	Ebenaceae	Malaria and general weakness	R
57. *Vernonia glabra* Vatke, Mhasha	Compositae	Anti-diarrhoea, colic	R
58. *Lannea schweifurthii* Engl., Mnumbu mgumba	Anacardiaceae	Polio, pregnancy complications	B
59. *Turraea floribunda* Hochst, Mkole	Meliaceae	General body weaknesses and abdominal pains	R
60. *Polysphaeria parvifolia* Hiern, Mkutu	Rubiaceae	Diarrhoea, antiseptic, colic	S
61. *Lantana camara* L., Mtuvi	Verbenaceae	Abortifacient, anti-diarrhoea	R
62. *Ozoroa insignis* Del, Mwembe pori	Anacardiaceae	Stomach ulcers, gynaecological problems	R
63. *Synaptolepsis kirkii* Oliv., Msuri	Thymelaceae	Diarrhoea, fever and skin rash	R
64. *Uvaria kirkii* Hook f., Mshofu	Annonaceal	Chronic cough and gynaecological problems	RB

KEY: R=Root, SB=Stem leaves, L=Leaves, WP=Whole plant, RB=Root bark, S=Stem, F=Fruit

The reported pharmacological activity for the above compounds also varied: Polyacetylenes and lignans have been reported to have antiviral activity [11,12], iridoids, isoflavones, chalcones, flavones, tetranor-triterpenes, pentacyclic tripterpene glycosides of the oleanolic acid type, have been reported to have antifungal and antimicrobial activity [8]. Diterpene esters of the phorbol and mezerein type are irritant and co-carcinogenic [8,13]. Quinolizidine alkaloids like sparteine have been reported to have oxytocic, uteritonic and antiarrthymic, diuretic, respiratory stimulant hypotensive and hallucinogenic properties [14].

The majority of preparations made by traditional healers are water decoctions. The only other type of preparation is dry powder. Since water can only extract polar compounds, only these ingredients in the plant are made available to the patient.

CONCLUSION

Collection of plants is only one of the preliminary stages in the search for anti-HIV compounds from plants. An efficient screening assay method must be used to identify the active plants. These should further be subjected to biologically guided fraction in order to isolate the active ingredients and their pharmacological activity assessed.

ACKNOWLEDGEMENT

This work would have not been possible without a research grant kindly donated by the Tanzania Commission for Science and Technology to C.M. Nshimo.

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