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Research Paper

Knowledge on plants used traditionally in the treatment of tuberculosis in Uganda

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ABSTRACT

Ethnopharmacological relevance: Tuberculosis (TB) is one of the leading causes of morbidity and mortality globally. The disease is especially important because of increasing drug resistant strains and co infection with human immune virus (HIV) and acquired immune disease syndrome (AIDS). Because of this there is need to identify new leads that can be developed into new drugs. The objectives of this study were to (1) document plant species commonly used by traditional medicine practitioners (TMPs) to treat TB, methods of preparation and administration of drugs (2) document disease recognition by TMPs and (3) document medicine preservation and packaging practices by TMPs.

Materials and methods: We interviewed 40 TMPs from Mpigi and Butambala districts using a guided questionnaire.

Results: A total of 90 plant species, distributed within 44 families were documented. Priority plants identified include *Zanthoxylum leprieurii*, *Piptadeniastrum africanum*, *Albizia coriaria* and *Rubia cordifolia* which were most mentioned by TMPs. TMPs had knowledge of how TB is transmitted and they admitted that it is closely associated with HIV. Decoctions of multiple plant species were commonly used. Plant parts frequently used were leaves followed by the stem bark and root bark. The TMPs had insufficient knowledge about packaging and preservation techniques.

Conclusion: Plant based therapies for treating TB have been identified in this study and further investigation of these plants is appropriate as these, may be developed into new drugs to curb the resistant strains of TB.

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1. Introduction

Tuberculosis (TB) is a major public health problem in the world that claims up to 2 million lives annually (WHO, 2012). Its reservoir has been estimated at 8.7 billion people. A key challenge of TB control in the last decade has been the upsurge in drug resistant strains. Multi drug resistant tuberculosis (MDR TB) and, Extensively drug resistant tuberculosis (XDR TB) are resistant to the most affordable, efficacious and readily available TB drugs (Centre for Disease Control, 2005). Additionally treatment of TB and HIV AIDS is difficult due to the adverse drug interactions involved (Chan and Iseman, 2002). There is therefore an imperative need to develop a new battery of drugs to curb the resistant TB strains.

Natural products especially plants continue to provide new and important leads in the drug discovery process (Balunas and Kinghorn, 2005). The first step in drug discovery is to document material traditionally used to treat an ailment. Uganda is endowed

with a rich diversity of medicinal plants as compared to other parts of Africa (Eilu and Winterbottom, 2006). There is however fear that indigenous knowledge about traditional medicine is slowly being lost (Ssegawa and Kasenene, 2007). Documentation of such knowledge will lead to its conservation as well as facilitate future research on medicinal plant safety and efficacy to validate traditional use.

This study documents medicinal plants used by healers in the districts of Mpigi and Butambala, in central Uganda. Specifically, we documented plant species commonly used by traditional medicine practitioners to treat TB, methods of preparation and administration. We also documented disease recognition by TMPs, and lastly documented medicine preservation and packaging practices by TMPs.

2. Study area/population

The study was carried out from Mpigi (0°13' N 32°19' E) and Butambala (0°10' N 32°19' E) districts which are located in central Uganda 40 km and 82 km from Kampala city centre, respectively. Butambala was formerly a county under Mpigi district but was

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Table 1
Plant species reported by TMPs (n=40) for the treatment of TB, parts used, Local names and frequency of mention. (L—Leaves, SB—stem bark, F—fruit, RT—root bark, WP—whole plant, S—seeds, H—husks, B—bulb, BL—Bunalema Lydia).

Plant name	Family	Local name (Luganda)	Voucher no.	Part used	Frequency of mention
<i>Zanthoxylum leprieurii</i> Guill. & Perr.	Rutaceae	Munyenye	BL030	SB	24
<i>Piptadeniastrum africanum</i> (Hook. f.) Brenan	Fabaceae	Mpewere	BL040	SB	16
<i>Albizia coriaria</i> Welw.ex Oliv.	Fabaceae	Mugavu	BL070	SB	15
<i>Rubia cordifolia</i> L.	Rubiaceae	Kasalabakesi	BL010	L/WP	15
<i>Dracaena steudneri</i> Engl.	Asparagaceae	Kajjolyenjovu	BL072	SB	14
<i>Canarium schweinfurthii</i> Engl.	Burseraceae	Muwafu	BL035	SB, S	13
<i>Callistemon citrinus</i> (Curtis) Skeels	Myrtaceae	Mwambala butonya	BL014	L/SB	13
<i>Combretum molle</i> R.Br. ex. G. Don.	Combretaceae	Ndagi	BL014	SB	12
<i>Erythrina abyssinica</i> Lam.	Fabaceae	Eggirikiti	BL007	SB	11
<i>Phaseolus vulgaris</i> L.	Fabaceae	Bijanaro	BL044	H	11
<i>Hibiscus fuscus</i> Garcke	Malvaceae	Lusaala	BL036	L	10
<i>Garcinia buchananii</i> Baker	Clusiaceae	Musaali	BL039	SB	9
<i>Blighia unijugata</i> Baker	Sapindaceae	Enkuza nyana	BL031	SB	8
<i>Mangifera indica</i> L.	Anacardiaceae	Muyembe	BL052	SB	8
<i>Toddalia asiatica</i> (L.) Lam.	Rutaceae	Kawule	BL060	L	8
<i>Prunus africana</i> (Hook.f.) Kalkman	Rosaceae	Ntaseesa	BL 076	SB	8
<i>Entada abyssinica</i> Steud. ex A. Rich.	Fabaceae	Mwolola	BL054	SB	6
<i>Ribes uva-crispa</i> L.	Grossulariaceae	Entuntunu	BL034	L	6
<i>Myrica kandiana</i> Engl.	Myricaceae	Enkikimbo	BL045	F/L/SB/RB	5
<i>Spathodea campanulata</i> P. Beauv.	Bignoniaceae	Kifabakazi	BL009	SB	4
<i>Ficus glumosa</i> Delile	Moraceae	Muwo	BL087	SB	4
<i>Celosia trigyna</i> L.	Amaranthaceae	Kakubaggiri	BL015	L	4
<i>Eucalyptus</i> spp.	Myrtaceae	Kalitunsi	BL038	L	4
<i>Vernonia amygdalina</i> Delile	Asteraceae	Mululuza	BL016	L	3
<i>Lantana camara</i> L.	Verbenaceae	Kayukiyuki	BL064	L/WP	3
<i>Aspilia africana</i> (Pers.) C.D. Adams	Asteraceae	Makaayi	BL066	RB/L	3
<i>Carica papaya</i> L.	Caricaceae	Papaali	BL063	L	3
<i>Triumfetta flavescens</i> Hochst. ex A. Rich.	Malvaceae	Luwugula	BL053	S	3
<i>Momordica foetida</i> Schumach.	Cucurbitaceae	Bombo	BL008	L	3
<i>Gnaphalium purpureum</i> L.	Asteraceae	Omuya		L	3
<i>Zingiber officinale</i> Roscoe	Zingiberaceae	Ntangawuzi	BL029	L	2
<i>Milicia excelsa</i> (Welw.) C.C. Berg	Moraceae	Muvule	BL024	L	2
<i>Rhus vulgaris</i> Meikle	Anacardiaceae	Kakwanskwanso	BL057	SB/L	2
<i>Albizia</i> spp.	Fabaceae	Ennongo	BL056	SB	2
<i>Bidens pilosa</i> L.	Asteraceae	Sere	BL046	L	2
<i>Warburgia ugandensis</i> Sprague	Canellaceae	Abaki	BL100	SB	2
<i>Acacia spectabilis</i> A. Cunn. ex Benth.	Fabaceae	Gasiya	BL055	L	2
<i>Allium sativum</i> L.	Amaryllidaceae	Katungulu chumu	BL074	F	2
<i>Trichilia dregeana</i> Sond.	Meliaceae	Sekoba	BL032	SB	2
<i>Plectranthus barbatus</i> Andrews	Lamiaceae	Ekibankulata	BL019	L	2
<i>Tithonia diversifolia</i> (Hemsl.) A. Gray	Asteraceae	Ekimyula	BL073	SB	2
<i>Indigofera emarginella</i> Steud. ex A. Rich.	Fabaceae	Olutunga nsonzi	BL079	I/F	2
<i>Cinnamomum zeylanicum</i> Blume	Lauraceae	Mudalasinini	BL077	SB	1
<i>Azadirachta indica</i> A. Juss.	Meliaceae	Neem tree	BL078	L	1
<i>Maytenus senegalensis</i> (Lam.) Excell	Celastraceae	Naligwalimu	BL082	L and F	1
<i>Zanthoxylum chalybeum</i> Engl.	Rutaceae	Ntale ya ddungu	BL090	SB	1
<i>Syzygium cumini</i> (L.) Skeels	Myrtaceae	Jambula	BL017	SB	1
<i>Ficus natalensis</i> Hochst.	Moraceae	Omutuba	BL062	SB	1
<i>Aloe vera</i> (L.) Burm. f.	Xanthorrhoeaceae	Kigaji	BL026	L	1
<i>Pseudospondia microcarpa</i> (A. Rich.) Engl.	Anacardiaceae	Muziru	BL033	SB	1
<i>Lippia grandifolia</i> Hochst. ex A. Rich	Verbenaceae	Olugumagama	BL091	L	1
<i>Sapium ellipticum</i> (Hochst.) Pax	Euphorbiaceae	Omusasa	BL067	SB	1
<i>Coffea canephora</i> Pierre ex A. Froehner	Rubiaceae	Emwanyi	BL065	S/SB	1
<i>Chaetacme aristata</i> Planch.	Ulmaceae	Embutami		L	1
<i>Persea americana</i> Mill.	Lauraceae	Ovacado	BL068	SB	1
<i>Desmodium salicifolium</i> (Poir.) D.C.	Fabaceae	Enkolimbo	BL012	L	1
<i>Fleurya aestuans</i> (L.) Gaudich. ex Miq.	Urticaceae	Munyanggo	BL013	L	1
<i>Solanum incanum</i> L.	Solanaceae	Entengo ennene	BL004	L	1
<i>Kalanchoe glaucescens</i> Planch. ex benth	Crassulaceae	Ekiyondo ekyeru	BL059	L	1
<i>Bridelia micrantha</i> (Hochst.) Baill.	Euphorbiaceae	Katazamitti	BL047	SB	1
<i>Phyllanthus reticulatus</i> Poir.	Phyllanthaceae	Mutulika	BL048	L	1
<i>Tetradenia riparia</i> (Hochst.) Codd	Lamiaceae	Ekyewamala	BL021	L	1
<i>Antiaris toxicaria</i> Lesch.	Moraceae	Kirundu	BL061	SB	1
<i>Moringa oleifera</i> Lam.	Moraceae	Moringa	BL037	f	1
<i>Acacia hockii</i> De Wild.	Fabaceae	Kasana	BL041	L	1
<i>Solanum</i> spp.	Solanaceae	Katunkuma	BL022	L/F	1
<i>Cymbopogon citratus</i> D.C. ex Stapf	Poaceae	Kisubi	BL011	L	1
<i>Phaseolus lunatus</i> L.	Fabaceae	Kayindiyindi	BL023	L	1
<i>Plumbago zeylanica</i> L.	Plumbaginaceae	Musajja abanda	BL092	L	1
<i>Ageratum conyzoides</i> L.	Asteraceae	Namirembe	BL049	WP	1
<i>Morinda lucida</i> Benth.	Rubiaceae	Kabaja nsayi	BL093	SB	1
<i>Podocarpus usambarensis</i> Pilg.	Podocarpaceae	Kamusenene	BL003	L	1
<i>Vernonia cinerea</i> (L.) Less.	Asteraceae	Kayayana	BL006	L	1
<i>Alangium chinense</i> (Lour.) Harms	Cornaceae	Omusiisa	BL027	SB	1

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