

Medicinal plants of the Shinasha, Agew-awi and Amhara peoples in northwest Ethiopia

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Abstract

Study was conducted in two sub-districts in northwestern Ethiopia to compile and analyse knowledge on the use of medicinal plants for treatment or prevention of human ailments by three socio-cultural groups, namely the Amharas, Shinashas and Agew-Awis. Data were mainly collected through individual interviews conducted with selected knowledgeable farmers and professional healers of the three socio-cultural groups. A total of 76 medicinal plants belonging to 48 families were documented, of which 50 species were reported by the Amharas, 25 by the Shinashas and 20 by the Agew-Awis. Large proportions of medicinal plants were found to have been used for the treatments of gastro-intestinal complaints (26%), skin diseases (24%) and malaria (22%). Relatively, higher numbers of informants agreed on the use of *Croton macrostachyus* against malaria (21%), *Cynoglossum coeruleum* against 'mich', illness mainly characterized by fever, headache and sweating (18%) and *Zehneria scabra* against malaria (13%). The species *Croton Macrostachyus*, *Calpurnia aurea*, *Clematis hirsuta* and *Plumbago zeylanica* were found to have the highest diversity of medicinal applications. We recommend that priority for further investigation should be given to medicinal plants with higher informant consensus, as this could indicate their better efficacy. Measures are needed to conserve plants that are reported as scarce in the study area but still are only harvested from the wild.

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1. Introduction

Traditional medicine has been practiced in Ethiopia since long time ago. The knowledge, largely oral, has been transferred from one generation to the next through professional healers, knowledgeable elders and/or ordinary people. It is estimated that about 80% of the Ethiopian population is still dependent on traditional medicine, which essentially involves the use of plants (Abebe and Hagos, 1991).

Despite the great role of traditional medicine and medicinal plants in the primary health care, little work has so far been done in the country to properly document and promote the associated knowledge (Abate, 1989; Tadesse and Demissew, 1992; Abebe and Ayehu, 1993; Abbink, 1995; Giday et al., 2003) covering only few out of the estimated 80 or more socio-cultural (language) groups in Ethiopia. More surveys should, therefore, be carried out in different parts of the country covering many

more socio-cultural groups with the aim of obtaining knowledge considered representative of the country.

The objective of this study was to document and analyse local knowledge regarding the use of plants for the treatment and prevention of various human ailments in three socio-cultural groups, namely the peoples of Shinasha, Agew-Awi and Amhara, residing in selected districts of the Metekel and Agew-Awi Administrative zones of the Benishangul-Gumuz and Amhara administrative regions of Ethiopia, respectively.

2. Materials and methods

2.1. Description of the study area

The study was conducted in selected sites of two neighbouring sub-districts (woredas) in the northwestern part of Ethiopia: Dibatie and Guangua. Dibatie Sub-district administratively belongs to the Metekel Zone of the Benishangul-Gumuz Regional State, whereas Guangua Sub-district belongs to the Agew-Awi zone of the Amhara Regional State (Fig. 1). Pawe

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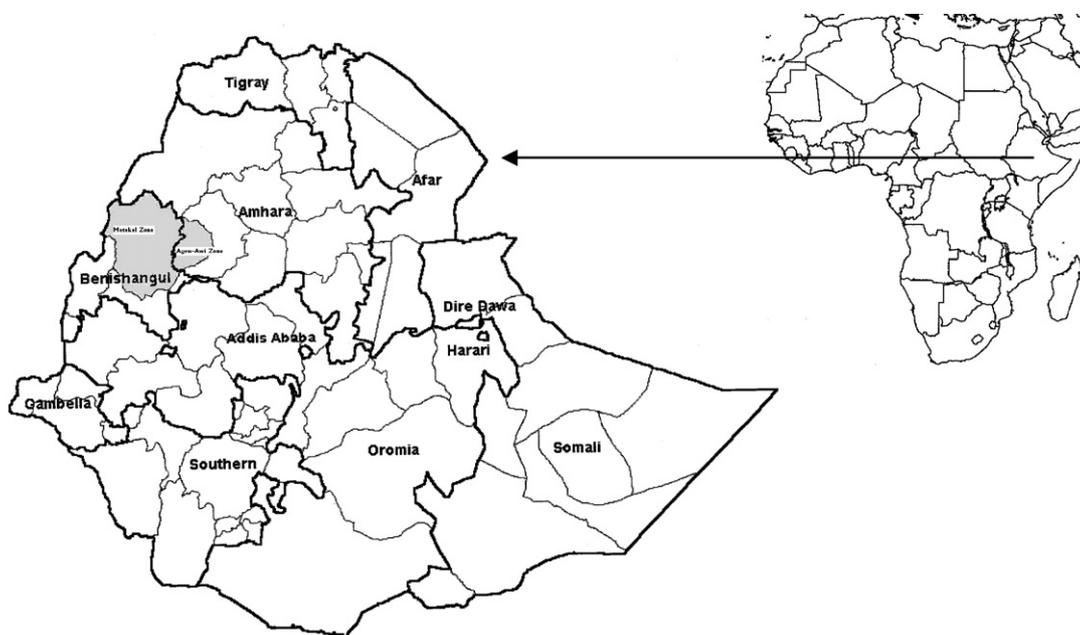


Fig. 1. Map of Ethiopia; shaded part showing study zones (Metekel and Agew-Awi).

and Dangela are the administrative towns of Metekel and Agew-Awi zones and are located at about 600 and 500 km, respectively, northwest of Addis Ababa. The study sites where informants had been selected were mostly lying at altitudes between 1500 and 1700 m above sea level and are characterized by a monomodal rainfall pattern, which usually begins in May and ends in October (Benishangul-Gumuz Regional State Information Bureau, 2003). The mean annual temperature ranges from 25 to 29 °C and the mean annual rainfall is 1175 mm (Mulugeta, 2004). Malaria, respiratory tract infections, gastro-intestinal complaints and skin-related infections are among the most prevalent diseases in the area (unpublished data, Guangua Sub-district Health Office).

2.2. The people

2.2.1. The Shinashas

The Shinasha people are among the indigenous inhabitants in the Benishangul-Gumuz Regional State. The majority of Shinashas inhabit rural areas in the Metekel zone: mainly in Wonbera, Bulen, Dibatie and Dangur sub-districts. According to 1994 census, the population of the Shinasha people was estimated to be about 32,000 (Ahrens, 1996). Their language belongs to the greater Omotic language family. Areas occupied by the Shinashas range from highlands to lowlands. They are close neighbours of the Gumuz, Agew-Awi and Oromo socio-cultural groups. Their livelihood depends on subsistence agriculture. They mainly cultivate maize, sorghum, tef and beans. In the lowland area, oil crops such as linseed, niger seed, castor oil tree and sunflower are cultivated. They also raise livestock such as cattle, donkeys, sheep and goats.

2.2.2. The Agew-Awi people

The majority of the Agew-Awi people reside in Agew-Awi zone, Amhara Regional State. According to SIL International

(2004) the population of the Agew-Awi people was estimated to be 397,491. Their language belongs to the Cushitic language family. The Agew-Awi people are close neighbours of the Amhara and Gumuz peoples. Their livelihood depends on subsistence agriculture.

2.2.3. The Amhara people

The Amharas are among the major socio-cultural groups in Ethiopia with high population size, following the Oromos. Their population was estimated to be about 17,400,000 (SIL International, 2004). The Amhara people are settled farmers that mainly occupy the central and northeast highlands of the country in the Amhara Regional State. Amharic, the language of the Amhara people, which is also an official language of the country, belongs to the Semitic language family.

2.3. Selection of informants

For the survey, a total of 38 informants constituted of professional healers and knowledgeable farmers with the ages of 25 and above were selected with the assistance of local elders and interviewed. Of the total, 16 were Agew-Awis (9 males and 7 females), 11 were Shinashas (10 males and 1 female) and 11 were Amharas (8 males and 3 females). Informed consent has been obtained from all the informants who served as informants before the start of the interviews.

The Shinasha and Agew-Awi informants were drawn from rural areas of the Dibatie and Guangua sub-districts, respectively, and the Amhara informants were sampled from Chagni, administrative town of the Guangua Sub-district, and its immediate surrounding areas. The Shinasha and Agew-Awi informants were indigenous residents of the study area, whereas the Amhara informants came to the area at different times for different

Table 1
Medicinal plants of the peoples of Amhara (AM), Shinasha (SH) and Agew-Awi (AG)

Plant name	Family	Local name	People	Growth form	Plant part	Used against	Administration	Mixed with	Voucher no.
<i>Acanthus polystachyus</i> Delile	Acanthaceae	Dendero	AM	Herb	Root	Malaria, intestinal worms	Oral		DG-49
<i>Achyranthes aspera</i> L.	Amaranthaceae	Telenj	AM	Herb	Root, leaf	Bleeding (skin-cut)	Skin		DG-33
					Seed	Bleeding after delivery	Tie on placenta		
<i>Acokanthera schimperi</i> (A.DC.) Schweinf.	Apocynaceae	Merenz	AM	Tree	Leaf	Wound	Skin	<i>Croton macrostachyus</i> (leaf) <i>Premna schiperi</i>	DG-45
					Leaf, root	Hepatitis	Oral, fumigation (leaf)		
					Leaf	Haemorrhoids	Anal		
<i>Albizia malacophylla</i> (A. Rich) Walp. var. <i>ugandensis</i> Bak.f.	Fabaceae	Jebiya	SH	Tree	Stem bark	Cough	Oral		DG-41
<i>Aloe pulcherrima</i> Gilbert & Sebsebe	Aloaceae	Sete-eret	AM	Shrub	Root	Miscarriage	Oral		DG-69
<i>Aloe</i> sp.	Aloaceae	Wonde-eret	AM	Shrub	Leaf juice	Easing labour	Oral		DG-27
<i>Aloe</i> sp.	Aloaceae	Eret	SH	Shrub	Leaf	Malaria	Oral		DG-56
<i>Asparagus</i> sp.	Asparagaceae	Yeset-qest	AM	Shrub	Root	Bleeding after delivery	Fumigation	<i>Carissa spinarum</i> (root); <i>Clerodendrum myricoides</i> (root); <i>Capparis tomentosa</i> (root)	DG-10
<i>Azadirachta indica</i> A.Juss.	Meliaceae	Neem	AM	Tree	Leaf	Malaria			<i>Croton macrostachyus</i> ; <i>Carica papaya</i>
<i>Brucea antidysenterica</i> J.F.Mill.	Simaroubiaceae	Abalo	AG	Shrub	Root	Evil eye	Tie around neck	<i>Capparis tomentosa</i> (root); <i>Carissa spinarum</i> (root)	DG-55
<i>Calotropis procera</i> (Ait.) Ait.f.	Asclepiadaceae	Qimbo	AM	Tree	White latex	Haemorrhoids	Anal		DG-51
<i>Calpurnia aurea</i> (Ait.) Benth.	Fabaceae	Digita	SH	Tree	Root	Amoebiasis, giardiasis	Oral		DG-42
					Leaf, seed	Malaria	Oral		
						Diarrhoea, rabies, diabetes	Oral		
<i>Capparis tomentosa</i> Lam.	Capparidaceae	Gumoro	AM	Shrub	Root	Bleeding after delivery	Fumigation	<i>Carissa spinarum</i> (root); <i>Clerodendrum myricoides</i> (root); <i>Capparis tomentosa</i> (root)	DG-53
					Leaf	'Mich'	Fumigation		
<i>Capsicum annuum</i> L.	Solanaceae	Mitmita	AM	Herb	Root	Epilepsy	Tie around the neck		
					Fruit	Malaria	Oral	<i>Otostegia integrifolia</i> (leaf); <i>Ocimum gratissimum</i> var. <i>gratissimum</i> (leaf); <i>Prunus persica</i> (seed); <i>Schinus molle</i> (seed)	–

<i>Carica papaya</i> L.	Caricaceae	Papaya	AM	Tree	Leaf/root	Malaria	Oral		–
<i>Carissa spinarum</i> L.	Apocynaceae	Agam	AM	Shrub	Root	Bleeding after delivery	Fumigation	<i>Carissa spinarum</i> (root); <i>Clerodendrum myricoides</i> (root); <i>Capparis tomentosa</i> (root)	DG-54
		Atsri	AG	Shrub	Root	Evil eye	Tie around neck	<i>Capparis tomentosa</i> (root); <i>Brucea antidysenterica</i> (root)	
<i>Clematis hirsuta</i> Guill. & Perr.	Ranunculaceae	Azo-hareg	SH	Climber	Leaf	Trachoma	Eye		DG-58
		Sunki	AG	Climber	Fruit Leaf Root	Elephantiasis Haemorrhoids Wound Ascariasis	Skin Anal Skin Tie around chest		
<i>Clerodendrum myricoides</i> (Hochst.) R.Br. ex Vatke	Lamiaceae	Misrich	AM	Shrub	Stem	Tooth bleeding	Brushing		DG-71
		Lingirisi	AG	Shrub	Leaf	Evil eye	Nasal/oral/tie around neck	<i>Lepidium sativum</i> (seed); <i>Clerodendrum myricoides</i> (root)	
<i>Commelina</i> sp.	Commelinaceae	Wuha-anqur	AM	Herb	Root, leaf	Foot wound	Skin		DG-38
<i>Cordia africana</i> Lam.	Boraginaceae	Wanza	AM	Tree	Leaf, root	Liver disease	Oral		DG-50
		Wanza	SH	Tree	Root	Amoebiasis	Oral	<i>Cynoglossum coeruleum</i> (leaf)	
					Root, root bark	Stomach ache, diarrhoea	Oral		
					Root	Amoebiasis	Oral		
<i>Coriandrum sativum</i> L.	Apiaceae	Dimbilal	AG	Herb	Fruit	Ascariasis	Oral		–
<i>Croton macrostachyus</i> Hochst. ex Del.	Euphorbiaceae	Bisana	AM	Tree	Leaf/bark	Malaria	Oral	<i>Azadirachta indica</i> ; <i>Carica papaya</i>	DG-08
					Root bark	Rabies	Oral		
					Leaf	Gonorrhoea	Oral		
		Leaf/stem bark	Wound	Skin	<i>Acokanthera schimperi</i> (leaf)				
		Bisana	SH	Tree	Root	Malaria	Oral	<i>Gardenia lutea</i> (root)	
Asisi	AG	Tree	Leaf	Malaria Ascariasis Internal worms Wound	Oral Oral Oral Skin				
<i>Cytopogon</i> sp.	Poaceae	Serdo	AM	Grass	Leaf	Ascariasis	Oral		DG-16
<i>Cynoglossum coeruleum</i> Steud. ex DC.	Boraginaceae	Shimgigit	AM	Herb	Leaf	'Mich' ^a	Skin/oral		DG-26
		Shimgigit	SH	Herb	Leaf	Amoeba	Oral	<i>Cordia africana</i> (root)	
		Tasijo	AG	Herb	Leaf	'Mich' toothache	Skin, oral hold between teeth		

Table 1 (Continued)

Plant name	Family	Local name	People	Growth form	Plant part	Used against	Administration	Mixed with	Voucher no.
<i>Cyphostema adenanthum</i> (Fresen.) Descoings	Vitaceae	Emen	SH	Herb	Tuber	Amoeba	Oral		DG-46
		Aserkuch-tebeteb	AM	Climber	Leaf/root	Wound	Skin		
<i>Datura stramonium</i> L.	Solanaceae	Asternagir	AM	Herb	Leaf	Haemorrhoids	Anal		DG-47
		Leflif	AG	Herb	Leaf	Weight loss (child)	Skin (head)		
<i>Dodonea angustifolia</i> L.f.	Sapindaceae	Kitkita	AM	Tree	Seed	Malaria	Oral		DG-39
<i>Dorstenia foetida</i> (Forssk.) Schweinf.	Moraceae	Worq-bemeda	AM	Herb	Root	Leprosy	Oral		DG-67
						Liver disease	Oral		
						Intestinal worms	Oral		
<i>Embelia schimperi</i> Vatke	Myrsinaceae	Inkoko	AM	Herb	Fruit	Tapeworm	Oral		DG-05
<i>Erythrina abyssinica</i> Lam. ex DC.	Fabaceae	Gelya	SH	Tree	Stem bark	Gastro-intestinal complaints	Oral		DG-17
<i>Euphorbia ampliphylla</i> Pax	Euphorbiaceae	Kulkuli	AG	Tree	Latex	Rabies	Oral		DG-64
<i>Ficus</i> sp.	Moraceae	Warka	AM	Tree	Stem bark, latex	Rabies	Oral	<i>Phytolacca dodecandra</i> (leaf)	DG-09
		Sherer	SH		Leaf	Tonsillitis	Oral		
<i>Foeniculum vulgare</i> Miller	Apiaceae	Inslal	AM	Herb	Leaf/root	Gonorrhoea	Oral	<i>Lepidium sativum</i> (seed)	DG-13
<i>Galisoga parviflora</i> Cav.	Asteraceae	Akenchira	AM	Herb	Leaf	Haemorrhoids	Anal		DG-23
<i>Gardenia lutea</i> Fresen.	Rubiaceae	Gambelo	SH	Tree	Root	Malaria	Oral	<i>Croton macrostachyus</i> (root)	DG-34
<i>Glinus lotoides</i> L.	Molluginaceae	Ambresha	SH	Herb	Fruit	Taeniasis	Oral		DG-29
<i>Habenaria</i> sp.	Orchidaceae	Yequrba-medhanit	AG	Herb	Root	Wound	Oral	<i>Lepidium sativum</i> (seed)	DG-52
<i>Jatropha curcas</i> L.	Euphorbiaceae	Yesudan-gulo	AM	Shrub	Seed	Rabies	Oral		DG-72
<i>Juniperus procera</i> Hochst. ex Engl.	Cupressaceae	Tid	AM	Tree	Leaf	Vomiting	Oral		–
<i>Justicia schimperiana</i> T.Anders.	Acanthaceae	Smiza	AM	Shrub	Flower	Skin lesion	Skin		DG-11
<i>Kalanchoe</i> sp.	Crassulaceae	Indahula	SH	Herb	Tuber	Headache	Oral		DG-07
<i>Kanahia laniflora</i> (Forssk.) R.Br.	Asclepiadaceae	Tifrena	AM	Herb	Latex	Ear infection	Ear		DG-04
<i>Lagenaria siceraria</i> (Molina) Standl.	Cucurbitaceae	Qil	AG	Climber	Root	Wound	Oral	<i>Phytolacca dodecandra</i> (root)	DG-32
<i>Lens culinaris</i> Medik.	Fabaceae	Misir	AM	Herb	Seed	Diabetes	Oral		–
<i>Lepidium sativum</i> L.	Brassicaceae	Feto	AM	Herb	Fruit	Stomach ache	Oral		–
		Feto	AG	Herb	Seed	'Mewejber' ^b	Nasal		
<i>Lobelia</i> sp.	Campanulaceae	Jibira	AM	Shrub	Root	Malaria	Oral		DG-65
<i>Nigella sativa</i> L.	Ranunculaceae	Tiqur-azmud	AM	Herb	Seed	Skin fungus	Skin		DG-62
<i>Ocimum lamiifolium</i> Hochst. ex Benth.	Lamiaceae	Yemich-medhanit	AG	Herb	Leaf	'Mich'	Skin		DG-60

<i>Ocimum gratissimum</i> L. var. <i>gratissimum</i>	Lamiaceae		AM	Herb	Leaf	Malaria		<i>Otostegia integrifolia</i> (leaf); <i>Capsicum annuum</i> (fruit); <i>Prunus persica</i> (seed); <i>Schinus molle</i> (seed)	DG-03
<i>Osyris quadripartita</i> Decn.	Santalaceae	Qerets	AM	Shrub	Leaf	Leishmaniasis	Skin		DG-20
<i>Otostegia integrifolia</i> Benth.	Lamiaceae	Tinjut	AM	Shrub	Leaf	Malaria	Oral		DG-63
		Tinjut	SH	Shrub	Leaf	Malaria	Oral		
<i>Phragmanthera</i> sp.	Loranthaceae	Yeshendoha- teketsila	SH	Herb	Whole plant	'Mich'	Fumigation		DG-48
<i>Phytolacca dodecandra</i> L'Hérit.	Phytolaccaceae	Endod	AM	Shrub	Leaf	Rabies	Oral	<i>Ficus</i> sp. (stem bark/latex)	DG-66
		Endod	AG	Shrub	Leaf Root	Itching skin Wound	Skin Oral		
									<i>Lagenaria siceraria</i> (fruit)
<i>Plumbago zeylanica</i> L.	Plumbaginaceae	Amira	AM	Shrub	Leaf/root	Gland tuberculosis	Oral/skin	<i>Croton macrostachyus</i> (leaf)	DG-86
					Leaf	Impotence	Oral		
					Leaf	Malaria	Oral		
		Amira	SH	Shrub	Root	Bone tuberculosis	Oral		
					Root	Grand tuberculosis	Skin		
					Leaf	Heart disease	Oral		
<i>Premna schimperi</i> Engl.	Lamiaceae	Chocho	AM	Shrub	Leaf	Haemorrhoids	Anal		DG-74
					Leaf	Wound	Skin		
					Leaf	Inflammation of skin	Skin		
<i>Prunus persica</i> (L.) Batsch	Rosaceae	Urgessa	SH		Leaf	Hypertension	Oral		
		Kok	AM	Tree	Seed	Malaria	Oral		
<i>Rumex abyssinicus</i> Jacq.	Polygonaceae	Meqmoqo	AM	Herb	Root	Hypertension	Oral	<i>Otostegia integrifolia</i> (leaf); <i>Ocimum gratissimum</i> var. <i>gratissimum</i> (leaf); <i>Schinus molle</i> (seed); <i>Capsicum annuum</i> (fruit)	DG-19
					Itching skin, vitiligo	Skin			
					Wound	Oral			
<i>Rumex nepalensis</i> Spreng.	Polygonaceae	Timbilki	AG	Herb	Root				DG-14
<i>Sauromatum venosum</i> (Ait.) Kunth.	Araceae	Muna	SH	Herb	Tuber	Hemorrhoids	Oral, anal		DG-43
						Female attractant	-		

Table 1 (Continued)

Plant name	Family	Local name	People	Growth form	Plant part	Used against	Administration	Mixed with	Voucher no.
<i>Schinus molle</i> L.	Anacardiaceae	Qundo-berbere	AM	Tree	Seed	Malaria	Oral	<i>Otostegia integrifolia</i> (leaf); <i>Ocimum gratissimum</i> var. <i>gratissimum</i> (leaf); <i>Prunus persica</i> (seed); <i>Capsicum annuum</i> (fruit)	DG-25
<i>Sida ovata</i> Forssk.	Malvaceae	Chifrig	AM	Shrub	Root/leaf	Foot wound	Skin		DG-35
<i>Stephania abyssinica</i> (Quart.-Dill. & A. Rich.) Walp.	Menispermaceae	Yeait-hareg	AM	Climber	Root	Wound	Skin		DG-37
		Harege-eyesus	SH	Climber	Root	Impotence	Oral		
<i>Stereospermum kunthianum</i> Cham.	Bignoniaceae	Zana	AG	Tree	Stem bark	Diarrhoea	Oral		DG-06
		Washinte	AM	Tree	Bark	Snake and scorpion bites	Oral		
					Root/bark	Snake bite	Skin		
					Root/bark	Wound	Skin		
<i>Syzygium guineense</i> (Willd.) DC.	Myrtaceae	Doqma	AG	Tree	Root	'Mewejber'	Tie around neck		DG-57
<i>Tapinanthus globiferus</i> (A. Rich.) Tiegh.	Loranthaceae	Hafa-teketsila	SH	Herb	Whole part	Gland tuberculosis	Skin		DG-30
<i>Tapinanthus</i> sp.	Loranthaceae	Hafa-teketsila	SH	Herb	Whole part	'Mich'	Fumigation		DG-85
<i>Tragia pungens</i> (Forssk.) Müll.Arg.	Euphorbiaceae	Ablalit	SH	Climber	Root	Generalized ache	Oral		DG-22
<i>Verbena officinalis</i> L.	Verbenaceae	Atuch	AM	Herb	Root, leaf	Diarrhoea, vomiting	Oral		DG-81
<i>Vernonia adoensis</i> Sch.Bip. ex Walp.	Asteraceae	Umel-iruuq, aba-musa	AM	Herb	Root	Gastro-intestinal complaints	Oral		DG-68
						'Mich' Poisoning	Fumigation Oral		
<i>Vernonia amygdalina</i> Del.	Asteraceae	Girawa	AG	Tree	Leaf	Ascariasis	Oral	<i>Zehneria scabra</i>	DG-93
<i>Zehneria scabra</i> (L. f.) Sond.	Cucurbitaceae	Yequra-hareg	AM	Climber	Root	Anaemia	Oral		DG-15
		Areg-resa	AG	Climber	Root/leaf	Malaria	Oral		
<i>Zingiber officinale</i> Roscoe	Zingiberaceae	Zingibil	SH	Herb	Rhizome	Bone tuberculosis	Oral		–
<i>Ziziphus spina-christi</i> (L.) Desf.	Rhamnaceae	Kukura	SH	Shrub	Thorn	Cataract	Eye		DG-12

^a Illness mainly characterized by fever, headache and sweating.^b Child illness mainly characterized by confused mental state.

reasons from faraway localities of the Amhara Regional State and settled there permanently.

2.4. Data collection and analysis

Ethnobotanical data were collected between December 2003 and December 2004 mainly through individual interviews with the informants. Most of the interviews were carried out in Amharic and some in Shinasha and Agew-Awi languages with the help of local translators. During interviews, data regarding ailment treated, local name of the plant used, its part/parts harvested, mode of preparation and administration were gathered. Besides, information related to cultivation practice and abundance of the claimed medicinal plants was collected. Voucher specimens for most of reported medicinal plants were collected and deposited at the Aklilu Lemma Institute of Pathobiology (ALIPB), Addis Ababa University after proper identification. Duplicates were also deposited at the National Herbarium of the same university. The specimens were identified by Mirutse Giday (botanist) who is the first author of this article.

For each claimed medicinal plant, informant consensus, a measure of the proportion of informants who independently agreed on its use as a remedy against a particular disease/disease category, was calculated. According to Trotter and Logan (1986), pharmacologically effective remedies are expected to have greater informant consensus. Richness of medicinal plants among the three socio-cultural groups was also compared.

3. Results

3.1. Medicinal plants and their applications

During the study period, 76 medicinal plant species belonging to 69 genera and 48 families were documented. The families Lamiaceae and Fabaceae had five species each, and the Euphorbiaceae constituted four species. Four families contained 3 species each, 10 families contained 2 species each and 31 families contained 1 species each. Of the total, 35 species (45%) are herbs, 22 species (29%) are shrubs and 20 species (26%) are trees. Relatively higher proportions of species were found to be used for the treatments of gastrointestinal complaints (26%), skin-related diseases (24%) and malaria (22%).

Of the total medicinal plants, 50 were reported by the Amhara informants, 25 by the Shinasha informants and 20 by the Agew-

Awi informants (Table 1). Two medicinal plants are shared by all the three socio-cultural groups, 10 by the Amharas and Agew-Awis, 9 by the Amharas and Shinashas and 4 by the Agew-Awis and Shinashas. On average, five medicinal plants were reported by an Amhara informant, two by a Shinasha informant and one by an Agew-Awi informant.

3.2. Parts used, modes of preparation and routes of administration

Roots and leaves were found to be the most frequently sought plant parts in the preparation of remedies accounting for 57 and 44% of all the reported medicinal plants, respectively.

Further analysis of the data showed that more than 50% of the remedies are prepared from newly harvested (fresh) materials only, while that of about 26% are formulated from dry materials only. Twenty-three percent of the remedies can either be prepared from fresh or dry materials. Water is the most frequently used diluent in the preparation of the remedies, usually in the form of juice or paste. In very few cases, cow urine, and tella and tej (local alcoholic drinks) are used. To make the remedies more palatable, they are frequently taken mixed with honey, boiled coffee or animal butter.

The study revealed more than nine different routes of remedy administration. Sixty percent of the remedies are taken orally. A considerable number of plants/plant preparations (29%) are also applied topically on the skin.

3.3. Informants consensus

Relatively higher informant consensus values were obtained for the species *Croton macrostachyus*, *Cynoglossum coeruleum* and *Zehneria scabra*. Of the total informants, eight (21%) agreed on the use of *Croton macrostachyus* for the treatment of malaria, seven (18%) on the use of *Cynoglossum coeruleum* against 'mich', and five (13%) on the use of *Zehneria scabra* against malaria. List of medicinal plants, each confirmed by three or more informants for being used for the treatment of same or similar ailment, is given in Table 2.

3.4. Plants of higher diversity of medicinal use

The data indicated that some plants have more diversified medicinal uses or applications than others (Table 3). Accordingly, the species *Croton macrostachyus*, *Calpurnia aurea*,

Table 2

List of medicinal plants, each claimed by three or more informants as remedy against a particular type of ailment

Scientific name	Local name	Type of ailment treated	No. of informants (%)
<i>Croton macrostachyus</i>	Bisana (Amharic), asisi (Agew-Awi)	Malaria	8 (21%)
<i>Cynoglossum coeruleum</i>	Shimgigit (Amharic), tasiyo (Agew-Awi)	'Mich'	7 (18%)
<i>Zehneria scabra</i>	Areg-resa (Agew-Awi)	Malaria	5 (13%)
<i>Calpurnia aurea</i>	Digita (Amharic)	Gastro-intestinal complaint	3 (8%)
<i>Cordia africana</i>	Wanza (Amharic)	Gastro-intestinal complaint	3 (8%)
<i>Ostostegia integrifolia</i>	Tunjit (Amharic)	Malaria	3 (8%)
<i>Plumbago zeylanica</i>	Amira (Amharic, Shinasha)	Gland tuberculosis	3 (8%)

Table 3
List of medicinal plants with three or more medicinal applications

Scientific name	Local name	Type of applications	Number of application
<i>Calpurnia aurea</i>	Digita (Amharic)	Malaria, diarrhoea, rabies, hypertension, diabetes	5
<i>Clematis hirsute</i>	Azo-hareg (Shinasha), sunki (Agew-Awi)	Trachoma, elephantiasis, haemorrhoids, wound, gastro-intestinal complaints	5
<i>Croton macrostachyus</i>	Bisana (Amharic), asisi (Agew-Awi)	Malaria, rabies, gonorrhoea, wound, gastro-intestinal complaints	5
<i>Plumbago zeylanica</i>	Amira (Amharic and Shinasha)	Tuberculosis (gland and bone), impotence, malaria, heart disease, haemorrhoids	5
<i>Stereospermum kunthianum</i>	Washinte (Amharic), zana (Agew-Awi)	Snake bite, scorpion bite, wound, diarrhoea	4
<i>Capparis tomentosa</i>	Gumoro (Amharic & Shinasha), kanguri (Agew-Awi)	Bleeding after delivery, 'Mich', epilepsy	3
<i>Dorstenia foetida</i>	Worq-bemeda (Amharic)	Leprosy, liver disease, gastro-intestinal complaints	3
<i>Premna schimperi</i>	Chocho (Amharic), urgessa (Shinasha)	Haemorrhoids, wound, hypertension	3
<i>Vernonia adoensis</i>	Umel-iruj (Amharic)	Gastro-intestinal complaints, 'Mich', poisoning	3

Clematis hirsuta and *Plumbago zeylanica* were found to have the highest diversity of medicinal uses (each plant used for the treatments of five different ailments), followed by *Stereospermum kunthianum* used against four ailments. Each of the species *Premna schimperi*, *Capparis tomentosa*, *Dorstenia foetida* and *Vernonia adoensis* was indicated to have been used for the treatment of three ailments.

3.5. Habit of cultivation of medicinal plants

Less than 20% of the claimed medicinal plants in the study area were found to have been cultivated/grown in home gardens and/or farming plots by some informants, of which some are mainly grown for their use as edibles. The species *Glinus lotoides*, *Cordia africana*, *Acokanthera schimperi*, *Ficus* spp. and *Stereospermum kunthianum* are among the ones that are only found in the wild and increasingly becoming difficult to harvest due to high scarcity.

4. Discussion and conclusion

Results of the study have indicated that traditional medicine is still playing a significant role in meeting the basic health-care need of the peoples of Amhara, Shinasha and Agew-Awi. Many more medicinal plants could have been documented if the study was continued for longer period of time covering wider areas. The fact that nearly half of the claimed medicinal plants are herbs is an indication of their better abundance in the study area as compared to trees and shrubs. Relatively higher numbers of plants were reported to have been used for the treatments of gastro-intestinal complaints, skin disease and malaria. According to unpublished data obtained from the Guangua Sub-district Health Office, these diseases are among the ones having the highest prevalence in the study area.

Root was found to be the most sought plant part in the preparation of the remedies in the area. This is not a good news as harvesting roots poses relatively higher danger to the existence of an individual plant as compared to the use of leaves or branches

(Poffenberger et al., 1992; Abebe and Ayehe, 1993). Most remedies in the study area were found to be prepared from a single plant. Other studies in other parts of the country, however, indicated the common use of concoctions because of the wider belief of the synergic effect of one plant over the other (Abebe and Ayehe, 1993).

Informant consensus results could be useful in prioritizing medicinal plants for further studies. According to Trotter and Logan (1986), pharmacologically effective remedies are expected to have relatively greater informant consensus. Accordingly, the plants *Croton macrostachyus*, *Cynoglossum coeruleum* and *Zehneria scabra* which were found to have relatively higher informants consensus values for being used as remedies against malaria, 'mich', and malaria, respectively, deserve further investigation. Methanol and chloroform extracts of the fruits of *Croton macrostachyus* were reported to have strong in vitro activity against the malaria parasite, *Plasmodium falciparum* (Sorsa, 1992). The plant was also reported to have molluscicidal (Oliver-Bever, 1986) and taenicidal (Desta, 1995) properties. Phytochemical studies revealed that *Croton macrostachyus* contains active substances such as croton and crotopoxide resins. *Calpurnia aurea* was also reported to have active principles such as calpurnin and tannin (Abebe and Hagos, 1991).

In situ and *ex situ* conservation measures are required to be taken on those medicinal plants which are found to be scarce in the study area but still are harvested from the wild only. Conservation priority should also be given to multipurpose plants (plants with more diversified medicinal uses) as this could indicate high intensity of harvest, which could lead to over-exploitation.

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