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An ethnobotanical study of medicinal plants in Wayu Tuka District, East Welega Zone of Oromia Regional State, West Ethiopia

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Abstract

Background

This paper reports an ethnobotanical study that focused on the traditional medicinal plants used by local communities to treat human and livestock ailments. A cross-sectional study was undertaken from September 2009 to June 2010 in Wayu Tuka District of Oromia Region, Ethiopia. The aim of the study is to document medicinal plants used by local people of the study area and the threats currently affecting medicinal plants.

Methods

Ethnobotanical data were collected using semi-structured interviews, field observations and group discussion in which 63 (41 men & 22 women) randomly selected informants participated. Of which, 11 (10 male and 1 female) were local healers. Paired comparison method, direct matrix ranking and Informant consensus factors (ICF) were used to analyze the importance of some plant species.

Results

A total of 126 medicinal plant species, distributed in 108 genera and 56 families, were collected together with their medicinal uses. Of the 126 species of medicinal plants collected from the study area, eighty six (68%) were obtained from the wild whereas thirty three (26%) were from homegardens. The Fabaceae came out as a leading family with 15 medicinal species while the Solanaceae followed with eight species. Seventy eight (62%) of the medicinal plants were reported as being used for treating human ailments, 23 (18.2%) for the treatment of livestock ailments and 25 (20%) for both. The most frequently used plant parts were leaves (43%), followed by roots (18.5%) while crushing, which accounted for (29%) and powdering (28%) were the widely used methods of preparation of traditional herbal medicines.

Conclusion

The number of reported medicinal plants and their uses by the local people of the District indicate the depth of the local indigenous knowledge on medicinal plants and their application. The documented medicinal plants can serve as a basis for future investigation of modern drug.

Methods

A reconnaissance survey of the study area was carried out from September 15 to 30, 2009 and resulted in the identification of nine study sites, namely Boneya Molo, Gaba Jimata, Gara Hudha, Gute, Gute Badya, Kichi, Komto, Migna Kura and Wara Babo Miya. The study sites were selected based on the availability of practice of traditional medicine, and on the recommendations of elders and local authorities in Wayu Tuka District. Moreover, the three agro-climatic zones were also considered to select the study sites (kebeles).

Ethnobotanical data collection

A total of 63 (41 males and 22 females) informants were selected out of 66394 population following [21]; 43 were selected randomly and 20 key informants were selected purposively and systematically based on the recommendations of knowledgeable elders, local authorities and development agents by taking 2–3 individuals from each study site. Out of which 11 were traditional healers (10 males and 1 female). The informants were local inhabitants aged between 19–102 years. The selection of key informants was also based on the quality of explanations that particular informants gave during an interview. Local healers automatically qualified as key informants being traditional experts who are custodians of indigenous knowledge on medicinal plants.

Ethnobotanical investigations were carried out to collect data on medicinal plants used to treat human and livestock ailments in Wayu Tuka District following standard methods [21,22]. The techniques used were semi-structured interviews, field observations, group discussion and guided field walk. The data were collected from October 1, 2009 to December 15, 2009 and March 26, 2010 to April 06, 2010. Interviews and discussions were undertaken based on checklist of questions prepared in English and translated to ‘Afaan Oromo’. Information was carefully recorded during an interview with an informant as well the knowledge of vegetation categorization was asked and recorded. Field observations were performed with the help of local guides on the morphological features and habitats of each medicinal plant species in the field.

Discussions were conducted on threats to medicinal plants, conservation of the medicinal plants and transferability of knowledge in the community. Before collecting the data, written permission was secured from the office of the District and permission was obtained from the administrator of each selected kebele. Following this, the purpose of the study was explained to each informant and verbal prior consent was obtained.

Specimen collection and identification

The reported medicinal plants were collected from natural vegetation and homegardens during the field walks and habits of the plants were listed. Preliminary identification was done at the site (field) and the collected voucher specimens were taken to the National Herbarium of Ethiopia (Addis Ababa University). Specimen identification and confirmation was undertaken by using taxonomic keys and various volumes of the Flora of Ethiopia and Eritrea [11-18]. Finally, the identified specimens were reconfirmed by a taxonomic expert and the specimens with their label stored at the National Herbarium.

Medicinal plants used to treat human and livestock ailments in the study area

A considerable number (126) of medicinal plants have been documented in this study. The number of reported medicinal plants and their uses by the local people of the District indicates the depth of the local indigenous knowledge on the medicinal plants and their applications. Out of the collected medicinal plants, 78 species were reported for use in the treatment of human diseases, whereas 23 species were used to treat livestock ailments and 25 species were

used to treat both human and livestock ailments. Similar findings were reported by other studies [24-27] in other parts of Ethiopia where local people use more medicinal plants to treat human diseases than livestock ailments.

Various studies [27-29] conducted in Ethiopia as well as in other countries of the world reported that the majority of medicinal plants are being harvested from non-cultivated areas. This observation is a good indication of the fact that the local people have not yet started cultivating the majority of the plant species they are using as medicines. Some medicinal plants recorded in Wayu Tuka District were also used as remedies in other parts of Ethiopia. Accordingly, 51 medicinal plants were documented in [28]; 47 species in [30]; 41 species in [24]; 36 species in [25]; 33 species in [31]; 30 species in [26] and 15 species in [32,33]. The fact that some of the reported plants are having similar uses elsewhere can be considered as indication of their pharmacological effectiveness [31].

Among the families, Fabaceae was represented by 15 species (12%) followed by Solanaceae which had 8 species. The finding of the family Fabaceae as the contributor of higher number of plant species used for medicinal purposes than other families is in line with similar studies elsewhere in Ethiopia [30,31,34-36], whereas other researchers reported that Asteraceae is the leading family with highest number of medicinal plants [24,25,32]. Both findings are reasonable since the two families are both represented by higher number of species in the Ethiopian Flora.

The most widely used plant remedies by people of Wayu Tuka District were obtained from herbs which constituted the highest category of 55 species (43.6%). This finding is in line with other results [24,26,30,33,37]. Moreover, Giday *et al.* [33] reported that Zay people derive their medicine from herbs partly because of the fact that forests have been degraded and it takes much time and effort to harvest plant material from medicinal trees. It is true that herbs can grow everywhere (roadside, homegarden, farmland and in wild habitats) and common in the study area compared with other species such as trees, shrubs and climbers. However, other findings [25,27,34-36,38] indicated that shrubs were the most frequently used plant categories.

People of the study area, prepare remedies for human or livestock ailments, either from single plant or plant parts or by mixing them. Most of medicinal plants reported from the study area were claimed to be prepared from a single plant or plant part. Similar findings were also reported for use of multiple plants or plant parts for a single health problem [35,39,40] and use of single species was rare. This finding deviated from that reported by another researcher [30] who reported that 78% of the preparations of traditional medicine by people of Chelya Wereda were drawn from mixtures of different plants or plant parts and another work [36] also reported that local healers of Sokoru mostly used more than one plant species to prepare remedy for an ailment. In the present study, it was observed that healers mostly used multiple plants or plant parts in order to increase the strength and efficacy of the drug as they reported during the interview. For example, rabies was treated by mixing the bark of *Clausena anisata*, leaves of *Sida rhombifolia*, root of *Cucumis ficifolius*, and root bark of *Brucea antidyentrica*. They used different additives like soil, ash, honey, salt, sugar, local beer, milk and butter in order to increase the flavor, taste and general acceptability of certain orally administered remedies. This means that since traditional medicines could have sour or bitter tastes in most cases the additives reduce such tastes and may even improve the efficacy of the medicine.

The finding of leaves to be the most widely harvested plant parts is inline with other results [24,30-32]. However, other findings [25,26,35] indicated that roots were mostly utilized plant part. It was reported that collection of root, bark and whole plants might kill plants in harvest

[41]. The same document also reported that root, which accounts for 58.3% is the most extensively used plant part in Ethiopia. Utilization of leaves may not cause detrimental effect on the plants compared with plant species in which root is utilized. However, this has to be seen on a case by case basis.

Table 1**List of medicinal plants for treating human diseases in the study area, Wayu Tuka District**

Scientific name	Local Oromo name	Family	Hab	Ha	Plant part, preparation and application	Disease treated	V. No.
<i>Acacia abyssinica</i> Hochst. ex Benth.	Laaftoo	Fabaceae	T	W	Juvenile leaves crushed and sniffed	Bat urine	MM072
<i>Acmella caulirhiza</i> Del.	Guutichaa	Asteraceae	H	Hg	Fresh flowers chewed and swallowed	Tonsillitis	MM038
<i>Albizia gummifera</i> (J. F. Gmel.) C.A. Sm.	Muka arbaa	Fabaceae	T	W	Leaves crushed, mixed in water. Put in cotton and rubbed on affected teeth.	Toothache	MM068
<i>Albizia sp.</i>	Ambaltaa	Fabaceae	T	W	Bark chewed in order to get relief from Rheumatism	Rheumatism	
<i>Albizia sp.</i>	Ambaltaa	Fabaceae	T	W	Dried bark powdered and applied on affected part	Wound	MM077
<i>Allium sativum L.</i>	Qullubbii adii	Alliaceae	H	Hg	The bulb taken with 'injera' and Capsicum annum L. for 5 days before eating breakfast	Malaria	MM013
<i>Asparagus africanus Lam.</i>	Sariitii	Asparagaceae	Sh	W	Fresh leaves crushed and applied on the affected part	Spider poison	MM092
<i>Bidens macroptera</i> (Sch. Bip. ex Chiov.) Mesfin	Keelloo	Asteraceae	H	W	Fresh leaves put on fire and rubbed on affected part	Athletes foot	MM037
<i>Brassica carinata</i> A. Br.	Goommana	Brassicaceae	H	Hg	Dried seed Powdered and	Common cold	MM002

Table 1

List of medicinal plants for treating human diseases in the study area, Wayu Tuka District

Scientific name	Local Oromo name	Family	Hab	Ha	Plant part, preparation and application	Disease treated	V. No.
<i>Brucea antidysentrica</i> J.F. Mill.	Qomanyoo	Simaroubaceae	T	B	mixed with water then drunk.		
					Fresh leaves crushed and mixed with Leaves of <i>Bersema abyssinica</i> Fresen. and cooked With porridge and given for a person in need	Ascariis	MM028
					Root powdered and mixed in water and drunk	Diarrhea	
<i>Croton macrostachyus</i> Del.	Bakkanisa	Euphorbiaceae	T	W	Exudates put on the cut skin to stop bleeding	Skin cut	MM080
					Bark of croton put on fire and the smoke used as to protect mosquito bite	Mosquito repellent	
					Juvenile leaves smashed and rubbed on affected part	Ring worm	
<i>Catha edulis</i> (Vahl) Forssk ex Endl.	Caatii	Celastraceae	T	Hg	Dried root powdered and given to Dog with 'injera' which suffered by Rabies	Rabies	
					Fresh leaves crushed and boiled in water	Cough	MM020

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Scientific name	Local Oromo name	Family	Hab	Ha	Plant part, preparation and application	Disease treated	V. No.
					with leaves of <i>Ruta chalepensis</i> L., fresh leaves of <i>Periploca linearifolia</i> Quart. –Dill. & A. Rich. and fresh leaves of <i>Englerina woodfordioides</i> Gilbert then sugar added while it is boiling, put off from the fire and make to cool finally a cup of tea will be taken for four days.		
<i>Carissa spinarum</i> L.	Agamsa	Apocynaceae	Sh	W	Fresh bark chewed early before having breakfast	Stomach ache	MM10 3
					The bark Chewed or hold in teeth for 5-10 min.	Toothache	
<i>Canarina eminii</i> Aschers ex Schweinf.	Maaracaa	Campanulaceae	Cl	W	The whole plant crushed together, chewed and swallowed	Headache	MM15 4
					Whole plants crushed and rubbed on affected part	Scabies	
<i>Capparis tomentosa</i> Lam.	H.gurraacha	Capparidaceae	Sh	W	Roots crushed and sniffed	Fibril illness	MM10 1
<i>Carica papaya</i> L.	Paappaayyaa	Caricaceae	T	Hg	When the	Malaria	MM08

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Scientific name	Local Oromo name	Family	Hab	Ha	Plant part, preparation and application	Disease treated	V. No.
					leaves become yellow, that means getting to dry, powdered and boiled in water and a cup of tea will be taken for 5 days.		5
					The stem crushed and tied on affected part	Wound	
					Seed chewed and swallowed	Internal parasite	
<i>Caylusea abyssinica</i> (Fresen.) Fisch. and Mey.	Illancoo	Residaceae	H	W	Fresh leaves cooked and eaten with 'injera' /bread	Amoeba	MM110
<i>Centella asiatica</i> (L.) Urban	Baala buqqee	Apiaceae	H	W	Leaves crushed and rubbed	Tinea corporis	MM058
					Squize the fruit and massage on bleeding gum	Gum bleeding	MM022
<i>Citrus limon</i> (L.) Burn.f.	Loomii	Rutaceae	T	Hg	Crush the fruit and apply its content on skin burn.	Skinburn	
<i>Citrus aurantium</i> L.	Qomxaaxxee	Rutaceae	T	Hg	Suck the content of the fruit when suffered by hypertension	Hypertension	MM021
<i>Clausena anisata</i> (Wild.) Benth	Ulmaayii	Rutaceae	Sh	W	Leaves powdered and mixed with water and	Snake bite	MM090

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Scientific name	Local Oromo name	Family	Hab	Ha	Plant part, preparation and application	Disease treated	V. No.
					given immediately for the victim		
					Bark of <i>Clausena anisata</i> , leaves of <i>Sida rhombifolia</i> , root of <i>Cucumis ficifolius</i> , bark root of <i>Brucea antidysenterica</i>	Rabies	
					powdered together and mixed in milk then drunk a cup of tea for three days in order to get cured from Rabies disease		
<i>Clematis simensis</i> Fresen.	Hidda fiitii	Ranunculaceae	Cl	W	Fresh root chewed	Stomach ache	MM198
<i>Clusia abyssinica</i> Joub. & Spach.	Ulee foonii	Euphorbiaceae	Sh	W	Fresh leaves hold in teeth for 20–30 minutes	Toothache	MM098
<i>Coffea arabica</i> L.	Buna	Rubiaceae	Sh	Hg	The dried coffee bean roasted and powdered then given to the patient by mixing with honey.	Diarrhea	MM017
<i>Coccinia abyssinica</i> (Lam.) Cogn.	Ancootee	Cucurbitaceae	H	Hg	The root Cooked with leaves of <i>Croton macrostachyus</i> and eaten with	Tuber closes	MM100

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Scientific name	Local Oromo name	Family	Hab	Ha	Plant part, preparation and application	Disease treated	V. No.
<i>Cordia africana</i> Lam.	Waddeessa	Boraginaceae	T	W	'injera' for four days. Leaves of <i>Cordia africana</i> , leaves of <i>Acanthus polystachius</i> crushed together with Feces of goat then put on fire the ash mixed with butter and creamed on affected part.	Spider poison	MM09 1
<i>Crotalaria spinosa</i> Hochst. ex. Benth.	Shumburaa gugee	Fabaceae	H	W	Root crushed, mixed with water and drunk	Rabies	MM06 7
<i>Cymbopogon citratus</i> (DC.) Stapf	Marga citaa	Poaceae	H	Hg	Fresh root chewed with salt to get relief from stomach ache	Stomach ache	MM17 3
					Fresh leaves smashed and the exudates dropped in ear	Ear disease	MM12 4
<i>Cynoglossum lanceolatum</i> Forssk.	Maxxannee	Boraginaceae	H	W	Fresh Leaves ushed and iffed Leaves smashed and the extracts dropped in eye	Headache Eye disease	
					Leaves powdered with leaves of <i>Croton</i>	Homeroide	

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Scientific name	Local Oromo name	Family	Hab	Ha	Plant part, preparation and application	Disease treated	V. No.
					<i>macrostachyus</i> and creamed on the affected part by mixing with butter		
<i>Datura stramonium</i> L.	Asaangira	Solanaceae	Sh	W	Fresh leaves smashed and smelled	Nasal bleeding	MM084
					Seed put on fire and the smoke inhaled	Tooth ache	
<i>Drynaria volkensii</i> Heiron.	Baala balleessaa	Polypodiaceae	Ep	B	Fresh root put on fire and until get hot and then bite by affected teeth for an hour	Tooth ache	MM059
<i>Echinops hispidus</i> Fresen.	Keberchoo	Asteraceae	H	W	Dried bark put on fire and the smoke inhaled	Evil eye	MM034
<i>Ehretia cymosa</i> Thonn.	Ulaagaa	Boraginaceae	T	W	Fresh leaves chewed	Toothache	MM009
<i>Embelia schimperi</i> Vatke	Hanquu	Myrsinaceae	Li	W	Fruit eaten early in the morning	Tape worm	MM047
<i>Ensete ventricosum</i> Cheesman	Baala warqee	Musaceae	H	Hg	The latex half cup of tea taken to get relief from stomach ache	Stomach ache	MM012
<i>Eucalyptus globulus</i> Labill	Akaakltii adii	Myrtaceae	T	B	Fresh leaves boiled in water and then the patient laid down in it in order to inhale the smoke	Common cold	MM087

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Scientific name	Local Oromo name	Family	Hab	Ha	Plant part, preparation and application	Disease treated	V. No.
<i>Euphorbia tirucalli</i> L.	Cadaa	Euphorbiaceae	Sh	Hg	The milky latex dropped on affected part	Homeroide	MM005
<i>Gardenia ternifolia</i> Schumach.	Gambeela	Rubiaceae	T	W	Fresh seed put in fire ad when it gets hot put on affected part	Homeroide	MM019
<i>Grewia ferruginea</i> Hochst. ex A. Rich.	Dhoqonuu	Tiliaceae	T	W	The hair washed by leaves of <i>Grewia ferruginea</i> and used as a soap	Dandruff	MM048
<i>Hagenia abyssinica</i> (Brace) J.F.Gmel.	Heexoo	Rosaceae	T	W	The dried or fresh floral part powdered soaked in water and left for four days and taken with coffee before having break fast	Tape worm	MM089
<i>Indigofera arrecta</i> Hochst. ex A.Rich	Heennaa	Fabaceae	Sh	W	Leaves powdered and mixed with butter and applied on the affected part for five days	Spider poison	MM078
<i>Indigofera spicata</i> Forssk.	Reencii	Fabaceae	H	W	Leaves powdered and mixed in water and taken when need arise.	Diabetics	MM203
<i>Lagenaria siceraria</i> (Molina) Standl.	Buqqee seexanaa	Cucurbitaceae	H	W	Put on fire and burn the affected part	Dandruff	MM099

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Scientific name	Local Oromo name	Family	Hab	Ha	Plant part, preparation and application	Disease treated	V. No.
<i>Leucas martinicensis</i> (Jacq) R.Br.	Fidoo	Lamiaceae	H	W	Steam put on fire and let the patient laid in it for smoke	Eye disease	MM065
<i>Lippia adoensis</i> Hochst. ex Walp	Kusaayee	Verbenaceae	H	B	Fresh leaves chewed	Burn on chest	MM109
<i>Mirabilis jalapa</i> L.	Ababa diimaa	Nyctagnaceae	Sh	W	Creamy powder of the fruit will be rubbed on affected part.	Homeroide	MM111
<i>Momordica foetida</i> Schumach.	Humbaawoo	Cucurbitaceae	H	W	Root washed, crushed and mixed with water and the exudates taken for five days one liter per a day.	Kidney problem	MM029
<i>Ocimum urticifolium</i> Roth	Ancabbii	Lamiaceae	Sh	Hg	Fresh leaves crushed and smashed then the extracts rubbed on affected part	Fibril illness	MM133
<i>Olea europaea</i> L. subsp. <i>cuspidata</i> (Wall. ex G. Don) Cif.	Ejersa	Oleaceae	T	W	Fresh root chewed	Stomach ache	MM041
<i>Panicum hochstetteri</i> Steud.	Marga gogorrii	Poaceae	H	W	Fresh leaves chewed	Kidney problem	MM127
<i>Pavonia urens</i> Cav.	Hincinnii	Malvaceae	H	W	Powdered leaves tied on affected part	Wound	MM062
<i>Phytolacca dodecandra</i> L' Herit.	Andoodee	Phytolaccaceae	Li.	Hg	Few root powdered and mixed with water and drunk for two days	Gonorrhea	MM088

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Scientific name	Local Oromo name	Family	Hab	Ha	Plant part, preparation and application	Disease treated	V. No.
					Root of <i>Phytolacca dodecandra</i> , juvenile leaves of <i>Momordica foetida</i> leaves of <i>Justicia schimperiana</i> and juvenile leaves of <i>Croton macrostachyus</i> powdered together and very few given with tea before having breakfast for three days. One cup of tea is given for man whereas half cup of tea for children	Liver disease	
<i>Plantago lanceolata</i> L.	Qorxobbii	Plantaginaceae	H	W	Fresh leaves crushed and tied	Skin cut	MM04 4
<i>Plectranthus edulis</i> (Vatke) Agnew	Dinnicha oromoo	Solanaceae	Sh	W	Root cooked and eaten	Loss of appetite	MM10 8
<i>Prunus africana</i> (Hook. f.) Kalkm.	Hoomii	Rosaceae	T	W	Powdered and tied for five days	Wound	MM01 6
<i>Prunus persica</i> (L.) Batsch	Kookii	Rosaceae	T	Hg	Juvenile leaves dried and powdered then mixed with butter and creamed on affected part in Wednesday and Friday	Tinea corporis	MM00 7
<i>Pycnostachys abyssinica</i> Fresen.	Yeeroo	Lamiaceae	H	W	Fresh leaves crushed,	Eye disease	MM12 9

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Scientific name	Local Oromo name	Family	Hab	Ha	Plant part, preparation and application	Disease treated	V. No.
					smashed and the extracts dropped in the eye		
<i>Rhamnus prinoides</i> L Herit.	Geeshoo	Rhamnaceae	Sh	Hg	Fresh leaves chewed	Tonsillitis	MM081
					Fresh leaves crushed and mixed with water and taken one cup of tea for 3 consecutive days.	Rabies	MM006
<i>Ricinus communis</i> L.	Qobboo	Euphorbiaceae	H	B	Fresh root crushed and mixed with root of <i>Justicia schimperiana</i> and put in cup of tea and mixed with water and drunk	Liver disease	
<i>Rumex abyssinicus</i> Jacq.	Dhangaggoo	Polygonaceae	H	W	Leaves crushed and smashed then applied on affected part	Scabies	MM053
<i>Ruta chalepensis</i> L.	Ciraaddama	Rutaceae	H	Hg	Fresh leaves and roots chewed	S.ache	MM083
<i>Rytigynia neglecta</i> (Hiern) Robyns	Mixoo	Rubiaceae	T	H	Leaves powdered and sniffed	Bat urine	MM056
<i>Saccharum officinarum</i> L.	Shankora	Poaceae	Sh	W	Steam put in fire and eaten when get hot in order to get relief from common cold	Common cold	MM093

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Scientific name	Local Oromo name	Family	Hab	Ha	Plant part, preparation and application	Disease treated	V. No.
<i>Schinus molle</i> L.	Qundoobarbaree	Anacardaceae	T	W	Fresh seed chewed	Tonsillitis	MM023
<i>Saturega paradoxa</i> (Vatke) Engl. ex Seybold	Kefo sa'aa	Lamiaceae	H	W	Fresh leaves crushed and sniffed	Bat urine	MM200
<i>Securidaca longepedunculata</i> Fresen.	Xamanaayii	Polygalaceae	T	W	Dried roots crushed and put on fire then the smoke sniffed	Evil eye	MM112
					Dried bark powdered and taken with local alcohol for 5 days	Liver disease	
<i>Senna septemtrionalis</i> (Viv) Irwin & Barneby	Samamakii	Fabaceae	Sh	W	Fresh leaves smashed and mixed with water then one cup of tea taken.	Snake bite	MM145
<i>Stephania abyssinica</i> (Dillon & A. Rich.) Walp.	Hidda kalaalaa	Mensipermaceae	H	W	The whole part of <i>Stephania abyssinica</i> crushed and boiled in water then the smoke will be inhaled until the patient getting sweat	Common cold	MM040
<i>Solanum giganteum</i> Jacq.	Hiddii saree	Solanaceae	Sh	W	Root crushed and taken with coffee	Rabies	MM202
<i>Solanum incanum</i> L.	Hidi lonii	Solanaceae	Sh	W	Break the fruit and drop its content on wound to stop bleeding	Wound	MM118

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Scientific name	Local Oromo name	Family	Hab	Ha	Plant part, preparation and application	Disease treated	V. No.
<i>Vernonia auriculifera</i> Hiern	Reejii	Asteraceae	Sh	W	Fresh leaves smashed and the extracts dropped on the cut skin	Skin cut	MM033
<i>Vicia faba</i> L.	Baaqelaa	Fabaceae	H	Hg	Dried seed chewed	Gastric	MM003
<i>Vigna unguiculata</i> (L.) Walp.	Hiphoo	Fabaceae	Cl	Hg	Fresh leaves smashed and rubbed on affected part	Tinea corporis	MM063
<i>Vigna vexillata</i> L. A. Rich.	Gurra hantuutaa	Fabaceae	Cl	W	Leaves crushed with leaves of <i>Cucumis ficifolius</i> A. Rich. and rubbed on affected part	Spider poison	MM066
<i>Oliverella hildebrandtii</i> (Engl.) Tieghem	Dheertuu dhumugaa	Loranthaceae	Ep	Hg	Fresh leaves crushed and rubbed on hair	Dandruff	MM031
<i>Ximenia americana</i> L.	Hudhaa	Olacaceae	Sh	W	Crushed and mixed with water and one cup of tea taken for 1–5 days until the blood stop	Menstruation	MM152
<i>Zingiber officinale</i> Roscoe	Jinjibila	Zingibraceae	H	Hg	Exudates drunk for five days 2 cup per a day.	Contraceptive	MM011

Key: *Hab* Habit: *H* Herb, *Sh* Shrub, *T* Tree, *Cl* Climber and *Li* Liana; *Ha* habitat: *W* Wild, *Hg* Homegarden, *B* Both, *V. No.* Voucher number.

Table 2

List of medicinal plants for treating livestock diseases in the study area, Wayu Tuka District

Scientific name	Local Oromo name	Family	Hab	Ha	Plant part, preparation and application	Disease treated	V. No.
<i>Acacia persiciflora</i> Pax	Garbii	Fabaceae	T	W	The powdered bark mixed in water and given for the cattle forcefully	Stomach ache	MMO64
<i>Acanthus polystachius</i> Delile	Kosorruu	Achantaceae	Sh	W	Fresh leaves crushed and rubbed on affected part (wound)	'Madaa gatiitii'	MM106
<i>Albizia malcophylla</i> (A. Rich.) Walp.	Arganboobee	Fabaceae	T	W	Bark powdered and given for treatment of Blackleg	Blackleg	MM070
<i>Buddleja polystachya</i> Fresen.	Hanfaarree	Loganaceae	Sh	W	Fresh leaves smashed and the extracts dropped in the eyes of affected cattle	Eye disease	MM024
<i>Colocasia esculenta</i> (L.) Schott	Goodarree	Araceae	H	B	Tuber crushed and mixed with water then given to the cow	Delayed placenta	MM027
<i>Combretum collinum</i> Fresen.	Unuunuu	Combretaceae	T	W	A bottle of mixed fresh crushed bark given for cattle by one bottle forcefully	Breast ulcer	MM102
<i>Combretum molle</i> R. Br. ex. G. Don	Dabaqqaa	Combretaceae	T	W	Steam put on the fire and rubbed the affected tongue	Tongue infection	MM149
<i>Girardinia bullosa</i> (Steud.) Wedd.	Gurgubbee	Urticaceae	Sh	W	Root powdered and mixed in water and applied orally	Blackleg	MM046
<i>Grewia bicolor</i> Juss.	Harooressa	Tiliaceae	T	W	Bark of <i>Grewia bicolor</i> grinded and mixed in water and salt added finally given for the cattle which placenta is delayed during delivery	Delayed placenta	MM151
<i>Guizotia scabra</i> (Vios.) Chiov.	Tuufoo	Asteraceae	H	W	Fresh leaves of <i>Guizotia scabra</i> and leaves of <i>Calpurnia</i>	External Parasite/silmii	MM191

Table 2

List of medicinal plants for treating livestock diseases in the study area, Wayu Tuka District

Scientific name	Local Oromo name	Family	Hab	Ha	Plant part, preparation and application	Disease treated	V. No.
					<i>aurea</i> crushed and rubbed		
<i>Helinus mystacinus</i> (Ait.) E. Mey. ex Steud.	Hidda hoomoo	Euphorbiaceae	Cl	W	Leaves crushed and smashed and rubbed for external parasite	External parasite	MM097
<i>Hymenodictyon floribundum</i> (Hochst. & Steud.) Robinson	Altadhahaa	Rubiaceae	T	W	Fresh leaves smashed and the exudates dropped in the eyes of affected cattle	Eye disease	MM156
<i>Impatiens tinctoria</i> A. Rich. subsp. <i>abyssinica</i> (Hook. f.) Grey Wilson	Qicuu	Balsaminaceae	H	W	Powdered root taken	Blackleg	MM153
					Fresh leaves crushed and rubbed on affected part	External parasite	MM051
<i>Rhus ruspolii</i> Engl.	Xaaxessaa	Anacardaceae	T	W	Root of <i>Rhus ruspolii</i> Engl. powdered and mixed with water and drunk	Hyena bite	
					Fresh fruit boiled in water and dropped in the eyes of affected cattle	Eye disease	
<i>Solanum anguivi</i> Lam.	Hidii seexanaa	Solanaceae	Sh	W	Root grinded and mixed with water and given One bottle for three days	Trypanosomiasis	MM120
<i>Sorghum bicolor</i> (L.) Moench	Bisingaa caabbii	Poaceae	H	Hg	Seed mixed in remnants of local beer and given	Delayed placenta	MM094
<i>Thalictrum rhynchocarpum</i> Dill. & A. Rich.	Mararree	Ranunculaceae	H	W	The whole part crushed and given	Blackleg	MM045
<i>Teclea nobilis</i> Del.	Hadheessa	Rutaceae	Sh	W	Leaves crushed and mixed with water and given for the thin cattle	Thinness	MM025

Table 2

List of medicinal plants for treating livestock diseases in the study area, Wayu Tuka District

Scientific name	Local Oromo name	Family	Hab Ha	Plant part, preparation and application	Disease treated	V. No.
				Steam powdered and mixed with water and given forcefully by beer bottle	Anthrax	
<i>Verbascum sinaiticum</i> Benth.	Gurra harree	Scrophulariaceae	H W	Fresh leaves powdered and mixed in water then given orally for external parasite	External parasite	MM125

Key: *Hab* Habit: *H* Herb, *Sh* Shrub, *T* Tree, *Cl* Climber and *Li* Liana, *Ha* habitat, *W* Wild, *Hg* Homegarden, *B* Both, *V. No.* Voucher number.

Table 3**List of medicinal plants for treating both human and livestock diseases in the study area, Wayu Tuka District**

Scientific name	Local Oromo name	Family	Hab	Ha	Plant part, preparation and application	Disease treated	V. No.
					Fresh leaves soaked in water and wash the body of calf	External parasite	MM07 4
<i>Calpurnia aurea</i> (Ait.) Benth.	Ceekaa	Fabaceae	Sh	W	9 juvenile leaves of <i>Calpurnia aurea</i> , 9 leaves of <i>Senna occidentalis</i> and 9 juvenile leaves of <i>Clausena anisata</i> smashed and the extracts taken. One cup of tea is given for man and half cup for Children	Ascariis	
					Leaves crushed and mixed in water given by bottle forcefully	Snake bite	
<i>Cucurbita pepo</i> L.	Buqqee	Cucurbitaceae	H	Hg	The dried seed roasted and eaten	Tape worm	MM01 8
					Fruit cooked and rubbed on affected part	External parasite	
<i>Cucumis ficifolius</i> A. Rich.	Faca'aa	Cucurbitaceae	H	W	Very few fresh root chewed with salt	Gonorrhea	MM02 6
					Very few root powdered and mixed with one litter of water then given to the cattle forcefully	Blackleg	
<i>Guizotia abyssinica</i> (L.f.) Cass.	Nuugii	Asteraceae	H	Hg	Seed roasted powdered and the decoction drunk	Swelling	MM03 6
					Seed powdered and rubbed on madaa gatiitii of oxen	Madaa gatiitii	
<i>Hordeum vulgare</i> L.	Garbuu	Poaceae	H	Hg	Seed of <i>Hordeum vulgare</i> powdered with seed of <i>Brassica carinata</i> and drunk	Swelling	MM08 2
					Seed covered and left to let germinate then grinded and mixed with remnants of local beer or 'tella' and given orally	Blotting	
<i>Justicia schimperiana</i>	Dhummuugaa	Acanthaceae	Sh	Hg	Fresh leaves crushed and given for hen or cock	Coccidiosis	MM00 8

Table 3**List of medicinal plants for treating both human and livestock diseases in the study area, Wayu Tuka District**

Scientific name	Local Oromo name	Family	Hab	Ha	Plant part, preparation and application	Disease treated	V. No.
(Hochst. ex Nees) T. Anders.					Leaves put on fire with leaves of <i>Brucea antidysentrica</i> and rubbed on head	Headache	
<i>Lepidium sativum</i> L.	Shinfaa	Brassicaceae	H	Hg	Dried seed powdered and eaten with injera to get cure from malaria or rubbed the body for protection from mosquito bite	Malaria	MM015
					Seed powdered in water and given by the bottle forcefully	Blackleg	
<i>Linum usitatissimum</i> L.	Talbaa	Linaceae	H	Hg	The hair washed by seeds of <i>Linum usitatissimum</i> and used as a soap	Dandruff	MM096
					Seed powdered and given by mixing in water	Breast ulcer	
<i>Lotus corniculatus</i> L.	Abbaa qiddii	Fabaceae	H	W	Powdered root taken with tea	Snake bite	MM065
<i>Kalanchoe laciniata</i> (L.) DC.	Bosoqqee	Crassulaceae	H	W	Fresh or dried root of <i>Kalanchoe laciniata</i> , seed of <i>Capsicum frutescens</i> , <i>Allium sativum</i> and leaves of <i>Croton macrostachyus</i> Powdered together and given for affected cattle	Blackleg	MM158
<i>Malva verticillata</i> L.	Karfichoo	Malvaceae	H	W	Leaves cooked and the smoke inhaled to get relief from 'Mich'	Fibril illness	MM150
<i>Maesa lanceolata</i> Forssk.	Abbayyii	Myrsinaceae	Sh	W	Fresh leaves crushed and rubbed on the body	External parasite	MM079
					Leaves crushed and mixed with water and drunk	Snake bite	MM004
<i>Nicotiana tabacum</i> L.	Tambo	Solanaceae	H	Hg	Leaves crushed and tied on affected part	Snake poison	
					Leaves crushed and put in the mouth then the cow will not drink water or feed for certain minutes until the leech come	Leeching	

Table 3

List of medicinal plants for treating both human and livestock diseases in the study area, Wayu Tuka District

Scientific name	Local Oromo name	Family	Hab	Ha	Plant part, preparation and application	Disease treated	V. No.
					out		
					Few root chewed and swallowed	Gastric	MM055
<i>Rumex nepalensis</i> Spreng.	Timijjii	Polygonaceae	H	W	Fresh leaves crushed and mixed with Leaves of <i>Acanthus polystachius</i> By mixing with butter creamed on affected part	Spider poison	
					Root powdered and mixed in water then mixed in water and given for the cattle forcefully(waga'uu)	Blackleg	
<i>Stereospermum kunthianum</i> Cham.	Botoroo	Bignoniaceae	T	W	Fresh/ Dried bark of <i>Stereospermum kunthianum</i> Cham., bark of <i>Croton macrostachyus</i> , Root of <i>Cucumis ficifolius</i> , bulb of <i>Allium sativum</i> L. and seed of <i>Capsicum frutescens</i> powdered together and half of a bottle given for three days	'Kaashmeer'	MM176
					Dried bark put on fire and the smoke inhaled	Evil eye	
					Powdered and mixed with water and one cup of tea taken for three days	S.ache	
					Leaves crushed and rubbed	Spider poison	
<i>Vernonia amygdalina</i> Del.	Eebicha	Asteraceae	Sh	Hg	Leaves crushed and mixed with remnants of local beer('Tella')and given for the cow	Delayed placenta	MM010
					Leaves crushed and soak in water and the exudates drunk orally for five days	Malaria	

Key: *Hab* Habit, *H* Herb, *Sh* Shrub, *T* Tree, *Cl* Climber and *Li* Liana, *Ha* habitat, *W* Wild, *Hg* Homegarden, *B* Both, *V. No.* Voucher number.