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Research Article

Ethnobotanical Study of Traditional Medicinal Plants in and Around Fiche District, Central Ethiopia

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Abstract: An ethnobotanical study of medicinal plants was conducted in and around Fiche District, North Shewa Zone of Oromia Region, Ethiopia from September 2011 to January 2012. Ten kebeles were selected from North to South and East to West directions of Fiche District and its surroundings by purposive sampling method. Six informants including one key informant were selected from each kebele for data collection by using printed data collection sheets containing, semi-structured interview questions, group discussion and guided field walk. The plant specimens were identified by using taxonomic keys in the Floras of Ethiopia and Eritrea. The data were analysed using descriptive statistics; informant consensus factor and fidelity level using MS-Excel 2010. Totally, 155 medicinal plants belonging to 128 genera and 65 families were recorded. Most medicinal plants (72.9%) were used for human healthcare in which Lamiaceae was dominant (11%) in which *Ocimum lamiifolium*, *Otostegia integrifolia* and *Leonotis ocymifolia* were the most common species. Herbs were dominant (43.87%) flora followed by shrubs (35.48%). The most frequently used plant parts for remedial preparation were leaves (38.1%) followed by roots (14.8%) and others. Fresh plant parts were used mostly (47.7%) followed by dried (13.5%) and the remaining (38.7%) either in fresh or dried. Among the preparations, crushing was the dominant (21.3%) form followed by squeezing (16.1%). The remedial administration was mostly oral (38.7%) followed by dermal (29%). The highest (88%) ICF was associated with intestinal parasites followed by emergency diseases (82%). The FL of *Actiniopteris semiflabellata, Plantago lanceolata*, *Capparis tomentosa* and *Clerodendrum myricoides* was calculated 100% irrespective of diseases. In conclusion, rich diversity of floras were mostly practiced in crude form and to prevent extinction of medicinal plants due to unsustainable anthropogenic activities, local communities need to give attention for in-situ and ex-situ conservation, which is harmonized with adoption of sustainable utilization patterns and preservation of their valuable biocultural knowledge. This documentation was first hand information and need to confirm through scientific investigation for the welfare of future generation.

Keywords: Ethnomedicine, ethnobotany, Fiche District, medicinal plants, traditional healers

INTRODUCTION

Medicinal plants play an important role in human life for therapeutic purposes (Sofowora, 1993) and popularized worldwide due to great contribution by traditional practitioners (WHO, 2003). Many indigenous local communities have developed various traditional systems using locally available resources for the alleviation of health problems (Tesfaye and Sebsebe, 2009). In developing countries up to 80% of populations depended on plants for their primary healthcare (Kurt and Andrew, 2002) and the value of medicinal plants to human livelihoods is essentially infinite (Hamilton, 2004). Medicinal plants have source for the invention of novel drugs (Wright, 2005) and 25% of modern drugs contain one or more active principles of plant origin (Medhin *et al*., 2001) and top 25 best selling medicines in the world originated from plant materials (Ohigashi, 2008). According to Perumal and Gopalakrishnakone (2008) plant based drugs provide outstanding contribution to modern therapeutics.

In Ethiopia, the majority of the rural populations traditionally use many plants as sources of medicine for humans and livestock (Tesfaye *et al*., 2009). Generally, traditional healers use roots, barks and other parts of the plant to prepare phytotherapies (Alexiades, 1996) and in the process they have developed their own local knowledge. This knowledge is transferred orally from generation to generation through herbalists and

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knowledgeable elders. The indigenous knowledge system in Ethiopia is not fully documented when compared to available multiethnic, cultural and flora diversity (Fisseha *et al*., 2009; Mirutse *et al*., 2009). Scientific documentation is to preserve valuable traditional knowledge for future generations (Martin, 1995; Cotton, 1996). In Ethiopia, research and documentations on medicinal plants have started in recent times even though plants used traditionally as a source of medicine since time immemorial (Mesfin and Sebsebe, 1992). Many traditional remedies are remaining hidden due to migration of people, urbanization, influence of modern medicine and exotic cultures (Tafesse and Mekonnen, 2001).

In Ethiopia, few studies have been conducted and documented on method of traditional medicine preparations by using local medicinal plants, parts used and routes of applications (Kebu *et al*., 2004; Haile and Delenasaw, 2007; Ragunathan and Solomon, 2007). However, there is no ethnobotanical documentation of medicinal plants in Fiche District and its surroundings. Many elderly people in this area have wellversed in traditional practices to provide remedies for human and livestock health problems. Therefore, documentation of medicinal plants and the associated knowledge in this area is important for conserving the plants, ensuring their sustainable use and to preserving the knowledge for the next generation. In this study, traditional medicinal plants used by the local healers and communities in and around Fiche District were documented and reported for the first time.

MATERIALS AND METHODS

Description of the study area: Ethnobotanical study was conducted in Fiche District, North Shewa Zone of Oromia Regional State, Ethiopia from September 2011 to April 2012. The geographical coordinates of the study area stretch out between 38°40'0"E-38°50'0"E and 9°42'0"N-9°52'0"N (Fig. 1) and the altitude ranges from 1901 to 2940 m.a.s.l. According to ten years meteorological data obtained from Fiche weather station, the study area received mean annual rainfall and temperature of 1139 mm and 14.4°C respectively.

Materials: Field materials such as wooden frames, cardboards, blotters, newspapers, plastic bags, cutting tools and plant diggers were used for specimen collection, pressing and drying. In addition, field printed data collection sheets like; semi-structured interview questionnaires and group discussions were used to collect the plant specimen and documentation of traditional knowledge on the medicinal plants.

Informants selection: Totally 10 kebeles were selected for the study in which four from Fiche District and six from surrounding of Fiche District. Those six

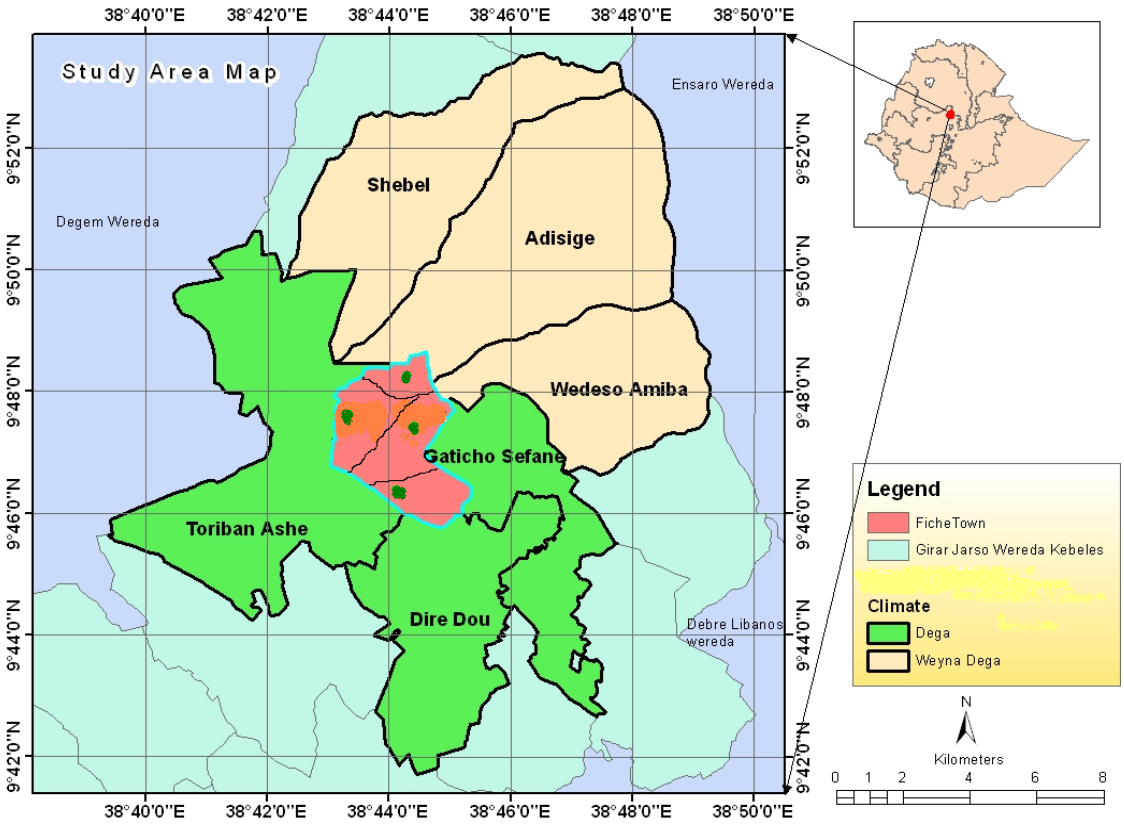

Fig. 1: Map of the study area

surrounding kebeles were Adisige, Dire Dou, Wedeso Amiba, Gaticho Sefane, Shebel and Toriban Ashe. The estimated population in the study area was 53, 837 in which 26, 888 (49.94%) males and 26, 949 (50.06%) were females (CSA, 2011). To avoid biased sampling, surrounding kebeles were selected from North to South and East to West directions using purposive sampling method. From each kebele, six informants were selected including one key informant from the age of 20 and above. Totally 60 informants, 32 men and 28 women were selected for this study. The key informants were selected based on the association of elders, local authorities, traditional healers and local farmers as recommended by Martin (1995). The remaining 50 general informants (5 per kebele) were selected randomly at every 150m interval based on their ethnobotanical knowledge and traditional practices. In order to determine the degree of information consistency, each informant was repeatedly crosschecked and interviewed at least twice.

Ethnobotanical data collection: Cunningham (1996) recommendation was strictly followed and informants were clearly informed about the purpose of this research. The primary data were collected directly from the informants in the study area by semi-structured interviews, group and individual focused discussions, field visits and informal conversations. During group discussion, necessary information related to medicinal plants, mode of preparation, routes of application, type of diseases, parts of the plant used for preparation of remedies were documented systematically to obtain detail quantitative and qualitative data. The medicinal plants used for various diseases were collected from the study area in cooperation with the local practitioners. The plant materials were used to prepare herbarium specimens and the identity confirmed at the National Herbarium of Ethiopia, Addis Ababa University using taxonomic keys and different volumes of Flora of Ethiopia and Eritrea. Finally, identified specimens were deposited at the National Herbarium of Ethiopia for future reference.

Data analysis: Descriptive statistics were used for qualititve and quantitative data analysis by using Microsoft Excel 2010. The statistical tools were used to identify the most common ailments in the study area includes, popularly used medicinal plant species, proportions of different variables like plant families, growth forms, plant parts used, methods of preparation and percentage frequency. The informant consensus factor for most frequently reported disease categories was calculated in order to evaluate the reliability of the information provided by the informants following the methods of Alexiades (1996) and Phillips (1996). The following formula recommended by Trotter and Logan (1986) was used to calculate Informants' Consensus Factor (ICF):

$$ICF = \frac{Nur - Nt}{(Nur - 1)}$$

where,

Nur : Number of use-reports for a particular use category

Nt : Number of taxa used for a particular use category by all informants

The Fidelity Level (FL) index was calculated based on the formula recommended by Friedman *et al*. (1986) which is used to quantify the importance of a given species for a particular purpose in a given cultural group or to determine the most prefered plants for a treatment of a particular disease and calculated as:

$$FL = \frac{Np}{N} \times 100$$

where,

Np : Number of use-reports cited for a given species for a particular ailment

N : Total number of use-reports cited for any given species

RESULTS

Medicinal plants recorded: Medicinal plants used by the traditional healers from Fiche District and its environment are presented in Table 1. From the study area, 155 ethnomedicinal plant species belonging to 128 genera and 65 families were collected with the guidance of local people. The medicinal plants were identified and preserved in the National Herbarium (ETH), Addis Ababa University, Ethiopia. Among the total plants recorded, Lamiaceae was the most dominant family contained 17 species (11%) followed by Asteraceae 13 species (8.4%), Fabaceae 11 species (7.1%) and Solanaceae 9 species (6%), respectively. Among those plant species, *Aloe pulcherrima*, *Impatiens rothii*, *Laggera tomentosa*, *Solanecio gigas*, *Urtica simensis*, *Vernonia leopoldi, Gomphocarpus purpurascens*, *Kalanchoe petitiana*, *Lippia adoensis* and *Thymus schimperi* are endemic to Ethiopia. Out of 155 species, 105 (67.7%) were collected from the natural habitats and 50 (32.3%) from homegardens and farming sites. Among these, the majority (43.87%) were herbs followed by shrubs (35.48%), trees (14.84%) and climbers (5.81%) respectively. The data recorded from the practitioners indicates that, most ethnomedicinal plants were used for human healthcare (Fig. 2).

Table 1: List of traditional medicinal plants used to treat human and livestock health problems, A- Amharic, Or-Oromifa; AE- Abiyu Enyew

Botanical and family name (Voucher No.)	Local name	Ailment treated	Parts used, method of preparation and application
Acacia abyssinica Hochst. ex Benth., Fabaceae, (AE 55)	Girar (A)	Tonsillitis	Fresh root bark is given for chewing
Acacia etbaica Schweinf., Fabaceae, (AE 147)	Derie (A)	Snake bite	Dried or fresh root bark is given for chewing
		Evil eye	Dried or fresh root powder fire smoke is fumigated
Acacia mearnsii De Wild., Fabaceae, (AE 145)	Sheferie (A)	Snake bite	Stem bark is given for chewing
Achyranthes aspera L., Amaranthaceae, (AE 04)	Telenji (A)	Bleeding	Fresh leaf or stem paste topical application
		Retained placenta	Fresh stem crushed with water and given orally
Acokanthera schimperi (A.DC.) Schweinf, Apocynaceae, (AE 68)	Mirez (A)	Evil Eye	Dried tender single stem's leaf or roots crushed with water and squeezed a drops through nasal region
		Gonorrhea, Amoebiasis	Leaf juice with water given orally
Actiniopteris semiflabellata Pic.Serm., Actiniopteridaceae, (AE 17)	Menna or Ebinat (A)	Wound	Fresh or dried leaf paste is applied topically
Alchemilla pedata A. Rich., Rosaceae, (AE 129)	Tuta (Or)	Bleeding, wound	Fresh leaf paste is applied topically
Allium sativum L., Alliaceae, (AE 95)	Shinkurtiaddi (Or)	Malaria, Intestinal parasite	Fresh or dried bulb, honey and *Capsicum annum* mixed together and given to eat
Aloe pulcherrima Gilbert and Sebsebe, Aloaceae, (AE 64)	Sete- Iret (A)	Asthma, Diabetes	Latex, water and sugar boiled together and given orally
		Dandruff	Fresh latex topical application
Aloe trichosantha Berger Aloaceae (AE 103)	Wonde- Iret (A)	Evil eye	Dried or fresh leaf is chopped and covered with polythene bag and tied around neck or waist
Andrachne aspera Spreng. Euphorbiaceae (AE 101)	Etse-Tekeze (A)	Snake bite	Dried or fresh root is geven for chewing
		Abdominal pain, Asthma	Dried root and leaf powder mixed with water and given orally
Apodytes dimidiata E.Mey. ex Arn. (AE 125)	Guraa (Or)	Diuretic	Fresh leaf crushed and mixed with *Foeniculumvulgare* leaf is given orally for cattle and human
Arisaema schimperianum Schott, Araceae, (AE 113)	Cherana (Or)	Abdominal pain	Fresh rhizome is crushed and mixed with water given orally to cattle
Artemisia afra Jack. ex Wild., Asteraceae, (AE 82)	Chikugn (A)	Evil Eye, Malaria	Fresh leaf and *Allium sativum* bulb squeezed together and given orally or through nasally
Asparagus flagellaris (Kunth) Baker, Asparagaceae, (AE 97)	Seriti (A)	Depression	Dried or fresh stem piece tied around waist or neck
Barleria eranthemoides R. Br. ex C.B. Clarke, Acanthaceae, (AE 105)	Yesetaf (A)	Snake bite, Tumor	Dried or fresh root powder with water is given orally
		Conjuctivitis	Fresh root mixed with water, filtered and the juice is applied
Brassica nigra (L.) Koch in Röhling, Brassicaceae, (AE 49)	Senafich (A)	Abdominal pain	Dried seeds and *Lepidiumsativum* seeds, powdered together, and diluted with water is given orally
Brucea antidysenterica J. F. Mill., Simaroubaceae, (AE 71)	FetAbalo (A)	Scabies, Eczema, Leprosy	Fresh leaf is crushed and soaked with water for three days and given to body wash
		Rabies	Fresh leaf juice is given for human and livestock orally
		Vomiting	Dried leaf is crushed and fire fumigation to nasal region
Buddleja polystachya Fresen, Loganiaceae, (AE 27)	Amfar(A)	Wound, Dandruff	Fresh leaf is crushed and given for topical application
Calpurnia aurea (Ait.) Benth., Fabaceae, (AE 43)	Digita (A)	Rabies	Fresh or dried leaf, fruit and seeds crushed, mixed with food and given to dogs
		Wound, Skin infection	Fresh or dried leaf crushed with little water and given for topical application to human and cattle
		Abdominal pain	Dried fruit powder is homogenized with water and given orally to human and cattle
Capparis micrantha A. Rich., Capparidaceae, (AE 144)	Yeseitan Gumero (A)	Psychiatric diseases	Fresh root is given for fire fumigation
Capparis tomentosa Lam., Capparidaceae, (AE 99)	Gumero (A)	Evil eye	Dried or fresh root fire fumigation is given through nasally
Carissa spinaru m L., Apocynaceae, (AE 57)	Agam (A)	Spiritual diseases, Evil eye	Fresh or dried root bark powder is added on fire and the smoke is allowed to inhale
		Snake bite	Fresh shoot buds from several plants are given for chewing
Caylusea abyssinica (Fresen.) Hilet and Mey, Resedaceae, (AE 51)	Erench (A)	Herpes zoster, Wound	Fresh leaf juice mixed with water is given for topical application
Cheilanthes farinose (Forssk.) Kaulf., Pteridaceae, (AE 118)	Etse-Enzerezer (A)	Wound	Dried leaf ash powder mixed with water and the paste applied on skin
Chenopodium ambrosioides L., Chenopodiaceae, (AE 137)	Amedmado (A)	Tonsillitis, Leprosy	Dried root and leaf powder is mixed with little water and given orally
		Wound	Fresh root and leaf juice is given for topical application
Citrus limon (L.) Burm.F., Rutaceae, (AE 154)	Lomi (A)	Coccidiosis	Fruit juice, leaf of *Leonoti socymifolia* and seed of *Lepidium sativum*, *Salvia schiperi*, *Ruta chalepensis* and *Allium sativum*, mixed together in water and given orally to hen
		Amoebiasis, Hypertension	Fresh juice is mixed with tomato and given orally

Table 1: Continue

Clematis simensis Fresen., Ranunculaceae, (AE 90)	Idefitii (Or)	Tonsillitis	Fresh leaf crushed with water, filtered juice is given orally
		Cellulites	Fresh leaf is crushed and given for topical application
		Leech infection	Fresh leaf juice mixed with little water and applied through nasal region of the cattle
Clerodendrum myricoides (Hochst.) Vatke, Lamiaceae, (AE 54)	Misrich (A)	Evil Eye	Fresh leaf is crushed with *Carissa spinarum* leaf and used for fire fumigation through nasally
		Vomiting	Fresh root powder juice with water is given orally
Clutia abyssinica Jaub. and Spach., Euphorbiaceae, (AE 08)	Fiyele-Feji (A)	Dysentery	Crushed fresh or dried stem powder with water is given orally
		Ecto-parasites	Fresh leaf with *Calpurina aurea* leaf squeezed with water is given to wash cattle
		Toothache	Fresh root is given for chewing
Colocasia esculenta (L.) Scott, Araceae, (AE 155)	Wuhayinekash (A)	Cellulites	Dried or fresh root is crushed and given for topical application
Crassula alata (Viv.) Berger, Crassulaceae, (AE 77)	___	Wound	Fresh whole plant is crushed with little water and given for topical application
Croton macrostachyus Del., Euphorbiaceae, (AE 18)	Bisana (A)	Intestinal parasite	Fresh stem bark crushed with water and given orally for cattle
		Ringworm	Latex is given for topical application
		Gonorrhea	Fresh leaf juice with water is given orally
		Heart failure	Stem bark powder is mixed with milk and given orally
Cucumis ficifolius A. Rich., Cucurbitaceae, (AE 28)	Yemidir	Evil eye	Fresh or dried root powder is mixed with water and given orally
	Embuay (A)	Intestinal parasite	Whole fresh plant is used to prepare decoction with water and given orally for human and cattle
		Diarrhea	Whole dried plant powdered with water is given orally for cattle
Cucurbita pepo L., Cucurbitaceae, (AE 131)	Duba (A)	Taeniasis	Dried fruit and seed is roasted and mixed with fruit of *Embeliaschimperi* is given to eat
		Tape worm, Ascariasis	Dried seed is cooked and given to eat in empty stomach
Datura stramonium L., Solanaceae, (AE 48)	Atefaris (A)	Toothache	Dried seed mixed with butter is given for fire fumigation
		Ringworm	Fresh leaf juice is given for topical application
		Anal prolepses	Fresh root paste mixed with water is applied
Delphinium dasycaulon Fresen., Ranunculaceae, (AE 119)	Tikur Abeba (A)	Snake bite	Fresh leaf and root juice is given orally for human and livestock
Dichrostachys cinerea (L.) Wight & Arn., Fabaceae, (AE 104)	Ader (A)	Scorpion bite	Fresh stem bark is crushed and applied
Discopodium penninervium Hochst., Solanaceae, (AE 85)	Rajii (Or)	Repellent, Detoxification	Fresh leaf is crushed and rubbed on the skin
Dodonaea angustifolia L.f., Sapindaceae, (AE 32)	Kitkita (A)	Evil eye	Dried leaf is mixed with leaf of *Acokantheraschimperi*, powdered and given for fire fumigation
		Wounds, Eczema	Fresh leaf paste mixed with butter and applied
		Flies Repellent	Fresh or dried leaf is fire fumigated
Dombeya torrida (J.F. Gmel.) P. Bamps, Sterculiaceae, (AE 87)	Danisa (Or)	Abdominal pain	Dried leaf powder is mixed with honey and given orally
Dovyalis abyssinica (A. Rich.) Warb., Flacoutiaceae, (AE 93)	Koshim (A)	Cancer, Abdominal pain	Six to ten fruits are given to eat
Dregea rubicunda K. Schu, Asclepiadaceae, (AE 92)	Hidaa ananii (Or)	Rabies	Dried stem bark powder is mixed with milk and given to dogs
Dyschoriste radicans Nees, Acanthaceae, (AE 123)	Yeras-mitat (A)	Headache	Fresh or dried stem and leaf juice is swallowed after chewing
Echinops hispidus Fresen., Asteraceae, (AE 74)	Kebercho (A)	Cough	Dried or fresh root decoction with water is given orally
		Febrile illness	Dried root powder is fire fumigated
Echinops macrochaetus Fresen., Asteraceae, (AE 150)	Kusheshile (A)	Toothache	Fresh root paste with water is given orally
		Febrile illness	Dried root decoction is given orally
Ekebergia capensis Sparm., Meliaceae, (AE 146)	Washinto (A)	Snake biting	Dried or fresh stem bark paste/powder is mixed with water and given orally
Eleusine floccifolia (Forssk.) Spreng., Poaceae, (AE 115)	Akirma (A)	Mumps, Skin allergic	Fresh plant juice is filtered and applied through the ear
Eucalyptus globulus Labill., Myrtaceae, (AE 109)	NechBahirzaf (A)	Febrile illness, Cough	Fresh young leaf bud is mixed with *Solanecio gigas* leaf and boiled water vapor fumigated
Euclea racemosa Murr., Ebenaceae, (AE 44)	Dedeho (A)	Warts, Ecto-parasites	Dried leaf powder paste is appllied topically for human and livestock
		Venereal diseases	Fresh leaf juice is given orally
		Toothache	Fresh stem is given for chewing
		Tape worm	Fresh leaf juice with water is given orally
Euphorbia abyssinica G. F. Gmel., Euphorbiaceae, (AE 139)	Qulqual (A)	Venereal disease	Latex is mixed with *Eragrostis tef* powder to prepare bread and given to eat
		Wart	Fresh latex is applied topically
		Rabies	Latex is given orally to livestock
Euphorbia tirucalli L., Euphorbiaceae, (AE 134)	Kinchib(A)	Rabies, Scorpion bite	Latex mixed with bean powder and given to eat after food
		Skin cancer	Latex is given for topical application
Evolvulus alsinoides (L.) L., Convolvulaceae, (AE 122)	Lotu Qitel (A)	Eye infection	Leaf juice is applied topically to livestock
Foeniculum vulgare Miller, Apiaceae, (AE 130)	Ensilal (A)	Urine retention, Bloating	Dried or fresh leaf is mixed with *Leonotisocymifolia* and *Rutachalepensis* to prepare juice and given orally to human and livestock
Galinsoga quadriradiata Ruiz and Pavon, Asteraceae, (AE 141)	Deha Neqay (A)	Tonsillitis	Fresh root is peeled and given for chewing

Table 1: Continue

Galium aparinoides Forssk. Rubiaceae, (AE 138)	Ashkit (A)	Tinea corporis Deformed lips	Fresh or dried leaf juice is given for topical application Dried leaf powder is mixed with little water and given orally
Gallium thunbergianum Eckl. and Zeyh., Rubiaceae, (AE 20)	Chemid (A)	Ringworm, Wound	Fresh or dried whole plant is crushed, mixed with water and applied topically
Geranium arabicum Forssk. Geraniaceae, (AE 143)	Wof Anqur (A)	Invoking sprit	Dried root is chopped, covered with polythene paper and tied on neck
Gladiolus sp. Iridaceae, (AE 30)	Enzerezer (A)	Abdominal pain	Fresh underground bulb is given for chewing
Gladiolus schweinfurthii (Baker) Goldblatt and de Vos, Iridaceae, (AE 01)	Etse Berehan (A)	Taeniasis Memory loss	Fresh rhizome is crushed with water and given orally after food Dried rhizome is crushed with little water and given orally before food
Gomphocarpus purpurascens A. Rich., Asclepiadaceae, (AE 05)	Tifrindo (A)	Eczema Wart	Dried leaf fire ash is mixed with little butter and applied topically Fresh leaf or stem latex is given for topical application
Guizotia schimperi Sch. Bip. ex Walp, Asteraceae, (AE 108)	Adaa (Or)	Ecto-parasite Eye infection	Fresh leaf juice is mixed with water and applied for cattle Flower juice is mixed with water and applied through eye
Habenaria ichneumonea (Sw.) Lindl., Orchidaceae, (AE 33)	Woin (Eshet) (A)	Mumps, Otitis media, Earlesion	Dried fruit powder is mixed with little water and applied
Habenaria petitiana (A.Ric.) Th. Dur.and Schinz, Orchidaceae, (AE 03)	Etse-Yiketil (A)	Heart failure	Fresh rhizome is given for chewing
Hagenia abyssinica (Brace.) J. F. Gmel., Rosaceae, (AE 135)	Koso (A)	Hypertension Taeniasis	Fresh fruit and leaf is boiled with little water and mixed with alcohol given orally Fresh fruit and leaf is soaked in water and given orally
Heteromorpha arborescens (Spreng.) Cham. and Schltdl., Apiaceae, (AE 126)	Yejib Mirkuz (A)	Ringworm, Cellulites	Fresh leaf and dried stem is crushed and mixed with water to prepare paste and applied to human and livestock
Hibiscus crassinervius Hochst. ex A. Rich, Malvaceae, (AE 66)	Yeteja Chenger (A)	Ringworm	Fresh leaf juice is applied topically
Hordeumvulgare L.Poaceae, (AE 96)	Nech Gebs (A)	Gastric ulcer	Dried seed powder mixed with water is given orally
Hypericum quartinianum A.Rich., Hypericaceae, (AE 152)	Yezinjero-Ades (A)	Invoking sprit, Bone fracture, Epilepsy	Dried leaf Powder and leaf of *Podocarpus falcatus* and *Teclea nobilis* soaked in water and used for body wash
Impatiens rothii Hook. f., Balsaminaceae, (AE 84)	Buri (Or), Gishrit (A)	Intestinal parasite	Fresh rhizome is crushed with water and given orally to livestock
Indigofera spicata Forssk, Fabaceae, (AE 124)	Yayit Misir (A)	Febrile illness	Fresh leaf and stem is used for fire fumigation
Indigofera zavattarii Chiov., Fabaceae, (AE 36)	Kechine (A)	Rh-factor	Fresh root is mixed with *Cucumisficifolius*, *Thalictrumrhynchocarpum* and *Gomphocarpuspurpurascens* powder and given orally before food
Jasminumg randifloru mL. Oliaceae, (AE 34)	Tembelel (A)	Wound	Fresh leaf and young bud is crushed and applied topically
Juniperus procera Hochst. ex. Endl., Cupressaceae, (AE 88)	Yabesha Tsid (A)	Wound	Fresh leaf is crushed and applied topically
Justicialadanoides Lam., Acanthaceae, (AE 40)	Denkul (A)	Eye infection	Fresh leaf juice is mixed with water given as a drops
Justicia schimperiana (Hochst.ex Nees) T. Anders., Acanthaceae, (AE 26)	Sensel (A)	Rabies Abdominal pain, Malaria	Fresh leaf with *Salix mucronata* leaf, squeezed juice is given orally for human and animals in the morning before food Fresh leaf with *Rumex nervosus* and *Vernonia amygdalina* leaf juice mixed with little water and given orally
Kalanchoe petitiana A. Rich., Crassulaceae, (AE 91)	Bosoqee (Or)	Bone fracture Wart, Swollen	Fresh leaf juice is mixed with butter and applied topically Fresh stem decoction or warmed with fire and applied
Laggera crispata (Vahl) Hepper and Wood, Asteraceae, (AE 13)	Kes Bedeje (A)	Tinea corporis, Tinea capitis, Dandruff Repellent	Fresh leaf juice is applied topically Either fresh leaf applied or dried leaf is fire fumigated
Laggera tomentosa (Sch. Bip.ex A. Rich.) Oliv. and Hiern, Asteraceae, (AE 56)	Shiro Kesse (A)	Headache	Fresh leaf paste is applied topically
Lens culinaris Medik., Fabaceae, (AE 67)	Misir (A)	Cough	Dried seed and leaf of *Rubiacordifolia* decoction is given orally
Leonotis ocymifolia (Burm. f.) Iwarsson, Lamiaceae, (AE 24)	Yeferes Zeng (A)	Ascariasis, Febrile illness Coccidiosis	Fresh leaf juice is mixed with water and given orally Fresh leaf mixed *with Salvia schimperi* and *Ruta chalepensis* leaf all together in water and squeezed juice is given orally to hen
Lepidium sativum L., Brassicaceae, (AE 29)	Fetto (A)	Intestinal parasite Malaria, Venereal diseases	Dried seed decoction is given orally to animals Dried seed decoction is given orally
Leucas abyssinica (Benth.) Briq., Lamiaceae, (AE 22)	Achidamo (A)	Conjunctivitis	Fresh leaf juice is applied to animals
Linum usitatissimum L., Linaceae, (AE 35)	Telba (A)	Diarrhea	Dried seed decoction prepared with sugar is given orally

Table 1: Continue

Lippia adoensis Hochst. ex Walp., Verbenaceae, (AE 07)	Kesse (A)	Eczema, Fungal infections	Fresh leaf juice mixed with little water and applied topically
		Common cold, Cough	Fresh leaf decoction is diluted with water and given orally
Malva parviflora H Öjer, Malvaceae, (AE 76)	TikurLut (A)	Rh-factor	Dried root with *Indigofera zavattarii*, *Thalictrum rhynchocarpum* and *Hibiscus crassinervius* root, powderd, mixed with water and taken orally for human and livestock
Malva verticillata L., Malvaceae, (AE 81)	Liti (Or)	Abdominal pain	Dried or fresh leaf and stem crushed with water, filtered and given orally to livestock
Maytenus arbutifolia (A. Rich.) Wilczek, Celastraceae, (AE 58)	Atat (A)	Repellent	Dried stem bark powder is mixed with food and spread on field to control rats
Maytenus senegalensis (Lam.) Exell, Celastraceae, (AE 102)	Geram Atat (A)	Wound (Dog bite)	Fresh young leaf is crushed and applied topically
Mukia maderaspatana (L.) M.J. Roem., Cucurbitaceae, (AE 106)	Gim-Areg (A)	Malaria, Evil eye	Dried or fresh root and stem chopped and tied on neck or waist
Myrsine Africana L., Myrsinaceae, (AE 38)	Quechemo (A)	Taeniasis, Tape worm	Dried fruit powder is mixed with water and given orally in the morning before breakfast
		Cancer	Dried fruit with dried leaf of *Osyrisquadripartita*, powdered, mixed with little water is given orally
		Wound	Dried or fresh fruit powder/paste is applied
Nicandra physaloides (L.) Gaertn., Solanceae, (AE 50)	Atefaris (A)	Hen Wound	Dried seed powder is mixed with food and given to hen
Nicotiana tabacum L., Solanaceae, (AE 60)	Tinbaho (A)	Leech infection	Fresh leaf juice is mixed with water and given orally to cattle
		Wound	Dried leaf powder is mixed with *Coffeaarabic*a powder and applied topically
Ocimum basilicum L., Lamiaceae, (AE 140)	Besobila (A)	Headache, Malaria	Fresh leaf juice is given orally
		Abdominal pain	Fresh leaf is given for chewing
*Ocimumlamiifolium*Hochst. ex Benth., Lamiaceae, (AE 16)	Damakese(A)	Febrile illness, Headache, Cough	Fresh or dried leaf is crushed with coffee and given orally before food
Ocimum urticifolium Roth, Lamiaceae, (AE 117)	Debesoye (Or)	Febrile illness	Fresh whole plant is boiled with water and the body is fumigated with steam
Olea europaea subsp. *cuspidata* (Wall. ex G. Don) Cif., Oliaceae, (AE 89)	Woyra (A)	Psychiatric disease, Evil eye	Dried leaf powder fire smoke is allowed to inhale
Olinia rochetiana A. Juss., Oliniaceae, (AE 116)	Gegafata (Or)	Toothache	Fresh leaf is given for chewing
Opuntia ficus-indica (L.) Miller, Cactaceae, (AE 94)	Adaa amii (Or)	Headache	Fresh fruit one to four is given to eat
Osyris quadripartita Decn., Santalaceae, (AE 39)	Queret (A)	Cancer	Dried leaf with dried fruit of *Myrsineafricana*, powdered, mixed with water is given orally
		Diarrhea	Fresh leaf juice is mixed with little water is given orally
Otostegia integrifolia Benth, Lamiaceae, (AE 06)	Tunjit (A)	Lung diseases, Vomiting	Fresh or dried leaf is used as fire fumigation
Pennisetum thunbergii Kunth, Poaceae, (AE 114)	Sindedo (A)	Skin allergy	Fresh stem is given for chewing and applied topically
Periploca linearifolia Quart.-Dill. and A. Rich., Asclepiadaceae, (AE 63)	Tikur Areg (A)	Venereal disease	Fresh whole plant decoction prepared with honey and sugar is given orally
		Sexual impotency	Dried or fresh root is chopped and tied on waist
Phytolacca dodecandra L'Hérit, Phytolaccaceae, (AE 45)	Endod (A)	Scabies, Itching	Fresh leaf juice is mixed with water and applied topically
		Intestinal parasites	Fresh leaf juice is mixed with water and given orally for human and livestock
Plantago lanceolata L., Plantaginaceae, (AE 09)	YebegLat (A)	Wound	Fresh leaf is mixed with little water and applied topically
Plectranthus barbatus Ander, Lamiaceae, (AE 86)	Keskeso (Or)	Repellent	Dried leaf is used for fire fumigation
Plectranthus comosus Sims, Lamiaceae, (AE 78)	Osole (Or)	Herpes zoster	Dried root powder is mixed with water and applied
Plectranthus ornatus Codd, Lamiaceae, (AE 47)	Yezinjero Fes (A)	Wound	Fresh stem is crushed with water and applied
Podocarpus falcatus (Thunb.) Mirb., Podocarpaceae, (AE 151)	Zigba (A)	Diarrhea	Fresh leaf juice is given orally
Polygala abyssinica Fresen., Polygalaceae, (AE 02)	Etse-Adin (A)	Evil eye, Memory loss	Fresh or dried root is used for fire fumigation
		Snake bite	Fresh or dried root is given for chewing
Pseudognaphalium melanosphaerum (Sch. Bip. ex A. Rich.) Hilliard, Asteraceae, (AE 120)	Yenib Ariti/ Kese (A)	Febrile illness	Dried or fresh leaf is used for fire fumigation
Pterolobium stellatum (Forssk.) Brenan, Fabaceae, (AE 112)	Mucarba (Or)	Vomiting	Fresh fruit is given to eat
Rhamnus prinoides L' Herit, Rhamnaceae, (AE 132)	Gesho (A)	Tonsillitis	Fresh leaf is given for chewing
		Ringworm	Fresh ripened fruit with latex of *Croton macrostachyus* is used to prepare paste and applied topically

Table 1: Continue

Rhoicissus revoilii Planch., Vitaceae, (AE 37)	Iddefitii (Or)	Wound	Fresh leaf juice mixed with little water is applied topically
		Leech infection	Fresh leaf and stem squeezed together with water and given orally and also nasally for livestock
Rhus glutinosa A. Rich., Anacardiaceae, (AE 111)	Tatisa (Or), Embis (A)	Leech infection	Fresh leaf juice is given orally to livestock
Rhus retinorrhoea Oliv., Anacardiaceae, (AE 53)	Tilem (A)	Wound	Fresh leaf is crushed and applied to livestock
Rhynchosia elegans A. Rich., Fabaceae, (AE 128)	Tero Areg (A)	Rabies	Fresh or dried leaf paste or powder mixed with little water is given orally to human and livestock
		Wound	Dried root powder with water is applied to livestock
Ricinus communis L., Euphorbiaceae, (AE 133)	Gulo (A)	Anal prolepses	Fresh leaf is coated with butter, warmed and applied
		Amoebiasis	Dried seed is given for chewing during stomachache
Rosa abyssinica Lindley, Rosaceae, (AE 79)	Kega (A)	Abdominal pain	Fresh fruit is given for chewing
Rosmarinus officinalis L., Lamiaceae, (AE 75)	Yesiga Metibesha (A)	Toothache	Fresh leaf is given for chewing
Rubia cordifolia L., Rubiaceae, (AE 62)	Enchibir (A)	Cough	Dried or fresh root decoction is given orally
Rumex abyssinicus Jacq., Polygonaceae, (AE 69)	Mekimeko (A)	Pharyngitis	Fresh root is given for chewing
		Hypertension Amoebiasis, Goiter	Dried or fresh root crushed with milk and butter is given orally before food
Rumex nepalensis Spreng., Polygonaceae, (AE 15)	Lut (A)	Stabbing pain, Diarrhea	Dried or fresh root is given for chewing or powder mixed with *Rutachalepensis* leaf and water is given orally for human and livestock
Rumex nervosus Vahl, Polygonaceae, (AE 19)	Embacho (A)	Scabies, Acne vulgaris	Fresh stem or leaf crushed with *Citrus lemon* juice and water is given for washing
Ruta chalepensis L., Rutaceae, (AE 11)	Tenadam (A)	Abdominal pain	Fresh leaf juice crushed with *Allium sativum* bulb and water is given orally for human and livestock
Salix mucronata Thunb., Salicaceae, (AE 136)	Achaya (A)	Rabies	Fresh leaf mixed with *Justicia schimperiana* leaf and squeezed juice is given orally before food to human and livestock
Salvia nilotica Jacq., Lamiaceae, (AE 25)	Hulegeb (A)	Tonsillitis, constipation	Fresh leaf or root is given for chewing
Salvia schimperi Benth, Lamiaceae, (AE 23)	Yahiya Joro (A)	Coccidiosis	Fresh leaf mixed with *Leonotiso cymifolia* and *Ruta chalepensis* leaf and *Allium sativum* bulb, squeezed juice mixed with water is given orally to hen
Salvia tiliifolia Vahl, Lamiaceae, (AE 142)	Aqorarach (A)	Hypertension, tonsillitis, febrile illness	Fresh leaf juice is mixed with little water and given orally
Sansevieria ehrenbergii Schweinf. ex Baker, Dracaenaceae, (AE 10)	Wonde-Chiret (A)	Mumps, Otitis media	Fresh leaf soaked in hot water and a drop of liquid applied through ear by squeezing
Satureja punctata (Benth.) Briq., Lamiaceae, (AE 121)	Toshinea (Or)	Febrile illness, Fever, Leech infection	Dried or fresh leaf fire smoke is allowed to enter nasal region of human and livestock
		Wart	Dried leaf powder paste is applied topically
Senna singueana (Del.) Lock, Fabaceae, (AE 46)	Gufa (A)	Wounds, Swellings	Dried leaf, stem and bark powder is mixed with butter and applied topically
		Abdominal pain	Dired root fire fumigation smoke allowed to enter orally and nasally
		Evil Eye, Depression	Fresh leaf mixed with *Rumex nervosus* flowers is used for fire fumigation
		Repellent	Fresh leaf is spread on the stored grains
Sida schimperiana Hochst. ex A. Rich., Malvaceae, (AE 73)	Chifrig (A)	Fever, Cough	Dried or fresh leaf steam vapour is allowed to enter orally
		Wound	Fresh leaf is crushed and applied topically
Solanecio gigas (Vatke) C. Jeffrey, Asteraceae, (AE 110)	Yeshikoko Gomen (A)	Skin disease Gonorrhea	Fresh leaf juice is applied topically Fresh root decoction is given orally
Solanum americanum Miller, Solanaceae, (AE 41)	YaitAwut	Gonorrhea	Fresh root decoction is given orally
Solanum anguivi Lam., Solanaceae, (AE 59)	Zirit Embuay (A)	Scabies, Wart, Wound	Fresh fruit and seed powder/paste applied topically
		Bleeding, Gonorrhea	Fresh root is given for chewing or dried root steam vapour allowed to inhale
Solanum incanum L., Solanaceae, (AE 42)	Yabesha Embuay (A)	Wart	Dried fruit powder is mixed with little water and applied topically to livestock
		Amoebiasis, Snake bite	Fresh root piece is given for chewing
		Evil Eye	Dried shoot mixed with *Capparis tomentosa* and *Acokanthera schimperi* leaf, powdered is used for fire fumigation
Solanum marginatum L. f., Solanaceae, (AE 80)	Hiddii (Or)	Ecto-parasite	Fresh fruit is crushed with water and applied topically to livestock
Solenostemon latifolius (Hochst. ex Benth.)J.K., Lamiaceae, (AE 65)	Dachet (A)	Coccidiosis	Fresh leaf mixed with *Salvia schimperi* and *Leonotis ocymifolia* leaf, squeezed juice is given orally to livestock

Table 1: Continue

Sonchus asper (L.) Hill, Asteraceae, (AE 52)	Yahiya Kesso (A)	Abdominal pain	Fresh leaf juice mixed with water is given orally to livestock
Stephania abyssinica (Dillon. and A. Rich.) Walp., Menispermaceae (AE 70)	Yayit Areg (A)	Leg ache, Arthritis, Rheumatism	Fresh or dried root powder is mixed with *Eragrostis tef* powder to prepare bread and given to eat
Teclea nobilis Del., Rutaceae, (AE 153)	Tiqure (A)	Intestinal parasite	Fresh root bark mixed with *Podocarpus falcatus* leaf is crushed with water and given orally
Thalictrum rhynchocarpum Dill. and A. Rich., Ranunculaceae, (AE 61)	Sire Bizu (A)	Rh-Factor	Fresh root with *Cucumis ficifolius*, *Achyranthes aspera* and *Gomphocarpus purpurascens* leaf, powdered, covered with cotton and tied on pregnant women neck
Thymus schimperi Ronniger, Lamiaceae, (AE 72)	Tosign (A)	Diabetes	Dried stem and leaf powder boiled with tea is given orally
Torilis arvensis (Hudson) Link, Apiaceae, (AE 83)	Shembeku (Or)	Ear infection, Ear lesion	Dried stem powder mixed with water, filtered and the liquid is applied through ear
Tragia cinerea (Pax) and Radcl.-Smith, Euphorbiaceae, (AE 148)	Alebilabit(A)	Evil eye	Dried or fresh root fire smoke allowed to enter orally
Urtica simensis Steudel, Urticaceae, (AE 107)	Dobii (Or), Samma (A)	Wound	Fresh leaf juice is applied topically
		Rh-factor, Heart failure	Fresh leaf steam vap our allowed to enter nasally and fumigated whole body
Verbascum sinaiticum Benth., Scrophulariaceae, (AE 98)	Yahiya Joro (A)	Snake bite	Dried or fresh root is given for chewing
		Leech infection, Lymphadenitis	Dried or fresh root powder mixed with water is given orally or through nasally to livestock
Verbena officinalis L., Verbenaceae, (AE 12)	Atuch (A)	Diarrhea, Vomiting, Tonsillitis	Fresh leaf is given for chewing
Vernonia amygdalina Del., Asteraceae, (AE 14)	Girawa (A)	Abdominal pain, Malaria	Fresh leaf mixed with *Rumex nervosus* and *Justicia schimperiana* leaf is squeezed with water is given orally
Vernonia hymenolepis A.Rich., Asteraceae, (AE 127)	Weynagift (A)	Ear lesion, Wound	Fresh leaf or root is crushed and applied topically
Vernonia leopoldi (Sch. Bip. ex Walp)Vatke, Asteraceae, (AE 31)	Nechillo (A)	Wound	Fresh leaf paste mixed with little water is applied topically
Withania somnifera (L.) Dunal in DC., Solanaceae, (AE 100)	Gizawa (A)	Febrile illness, Fever, Invoking sprit, Pneumonia	Dried or fresh root fire smoke allowed to enter nasally and whole body
Zehneria scabra (Linn. f.) Sond., Cucurbitaceae, (AE 21)	ShehareAreg (A)	Ringworm, Tineacapitis	Fresh leaf paste mixed with water is applied topically
		Conjunctivitis	Fresh leaf juice is applied as a drop
Ziziphus spina-christi (L.) Desf., Rhamnaceae, (AE 149)	Qurqura/Geba (A)	Evil eye, Snake repellent	Dried leaf or root is used for fire fumigation

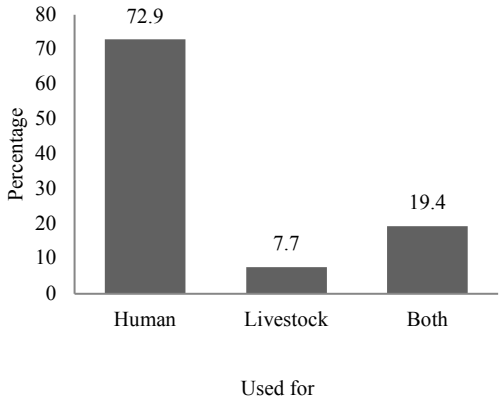

Fig. 2: Medicinal plants used for the treatment

Parts and conditions of medicinal plants used: The various parts of the plants used as different remedies are summarized in Fig. 3. Results revealed that greater proportion was leaves (38.1%) followed by roots (14.8%) and others. The informants indicated that fresh plant materials were used more frequently (47.7%) followed by dried (13.5%) and the remaining (38.7%) plants were used in either fresh or in dried form for remedial preparation.

Methods of remedy preparations and application: Traditional healers in the study area used various a type of preparations in which crushing was the dominant (21.3%) type followed by squeezing (16.1%). The remaining methods of preparation and their percentage are indicated in Fig. 4. Preparations were administered mostly by oral (38.7%) followed by dermal (29%), oral and dermal (14.8%), oral, dermal and nasal (3.9%), dermal and nasal (3.2%), auricular (2.6%) and the remaining; oral and nasal; optical; nasal; oral, dermal and optical each share equally 1.9% based on the type of disease.

Informant consensus factor (ICF) of medicinal plants: Informant consensus factor was calculated for frequently reported diseases categories and presented in Table 2. Results revealed that the highest percentage (88%) of ICF was linked to problems associated with intestinal parasites followed by emergency diseases (82%). The least (33%) ICF was associated with organ diseases.

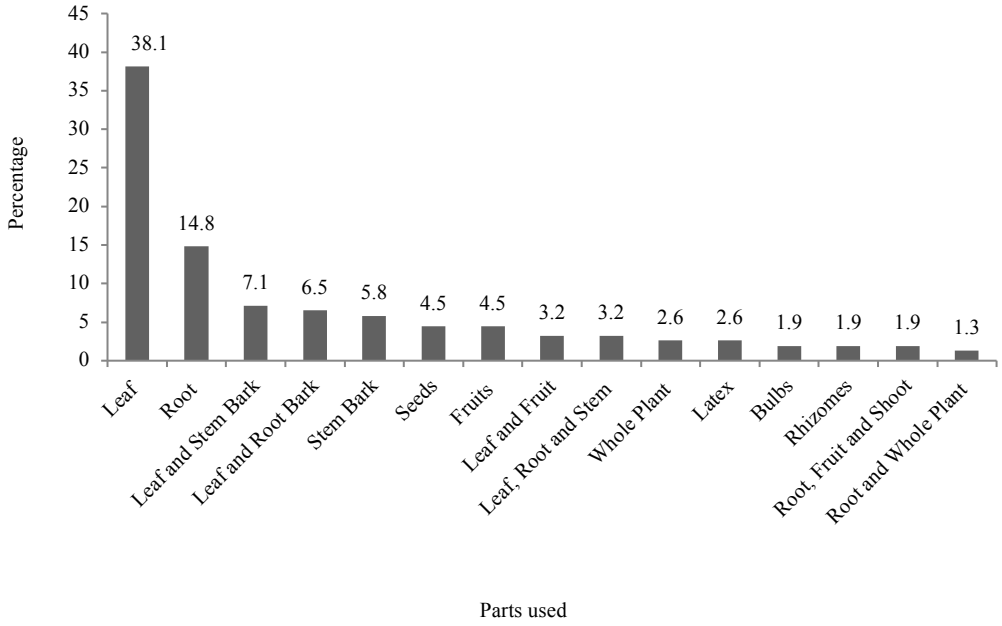

Fig. 3: Plant parts used

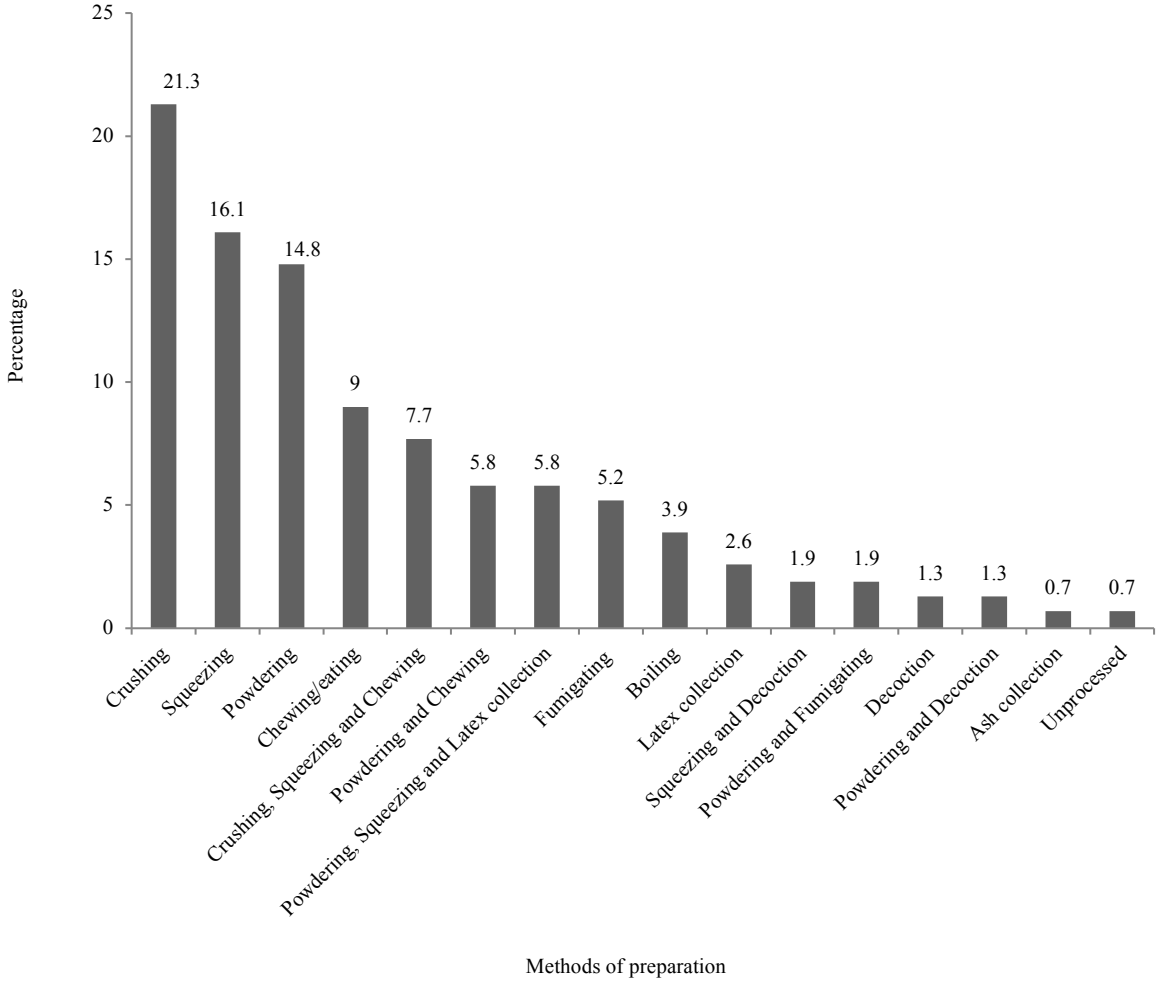

Fig. 4: Methods of remedial preparations

Table 2: Informant consensus factor of medicinal plants for seven categories of frequently reported diseases

Category of diseases	Diseases included	Nt	Nur	ICF
Dermatological problems	Acne vulgaris, dandruff, eczema, leprosy ringworm, scabies, tinea versicolor, wound and wart	61	271	0.78
Emergency diseases	Febrile illness, common cold, cough, stabbing pain, headache, legache, asthma and tonsillitis	37	201	0.82
Intestinal parasites	Amoebiasis, ascariasis, tape worm and abdominal pain, diarrhea and vomiting	44	370	0.88
Livestock diseases	Coccidiosis, leech infection, rabies, ecto-parasites and diuretic	23	40	0.44
Organ diseases	Toothache, ear lesion, conjunctivitis and sexual impotency	13	19	0.33
Poison	Snake biting, scorpion biting and spider biting	15	24	0.39
Others	Spiritual disease, evil eye, psychiatric disease and invoking sprit	23	90	0.75

Table 3: Fidelity value of traditional medicinal plants for the most frequently reported diseases

Disease treated	Medicinal plants	Np	N	FL (%)
Wound	*Actiniopteris semiflabellata*	5	5	100
	Plantago lanceolata	4	4	100
	Rumex nervosus	25	30	83
	Solanum anguivi	2	5	40
Evil eye	*Capparis tomentosa*	4	4	100
	Clerodendrum myricoides	3	3	100
	Withania somnifera	8	10	80
Febrile illness	*Ocimium lamiifolium*	57	59	96
	Eucalyptus globulus	5	6	83
	Otostegia integrifolia	19	38	50
Snake biting	*Polygala abyssinica*	9	10	90
	Andrachneaspera	3	5	60
	Verbascum sinaiticum	14	17	82
Tonsillitis	*Salvia nilotica*	6	8	75
	Clematis simensis	3	5	60
Abdominal pain	*Rumex nepalensis*	8	11	72
	Lepidium sativum	17	27	63
	Vernonia amygdalina	3	5	60
Rabies	*Euphorbia tirucalli*	2	3	67
	Justicia schimperiana	3	7	43
	Calpurnia aurea	2	8	25
Intestinal parasites	*Cucumis ficifolius*	31	49	63
	Lepidium sativum	7	27	26

Fidelity Level (FL) of medicinal plants: The fidelity level of medicinal plants on frequently reported diseases was calculated and summarized in Table 3. Results revealed 100% fidelity level for the following plants; *Actiniopteris semiflabellata* and *Plantago lanceolata* for wound healing and *Capparis tomentosa* and *Clerodendrum myricoides* for evil eye. The FL of *Ocimium lamiifolium* was 96% for curing febrile illness and 90% for *Polygala abyssinica*, which was used as antivenom.

DISCUSSION

Plants are used for various ailments is an age-old practices since time immemorial. The documentation of medicinal plants is gaining recognition in recent times in order to preserve the knowledge for the next generation and also make effective use of the resources. In this connection 155 medicinal plants and their parts utilized for various treatments, mode of application and method of process were documented from Fiche District and its environment. In this place, huge numbers of traditional healers are practicing from generation to generation by obtaining knowledge from their elders and also through learning. From the collected and documented medicinal plants, the most dominant families was Lamiaceae. Most of the Lamiaceae plants are shrubs and herbs and mostly they contain aromatic secondary metabolites, which may be effective in curing various diseases. Based on evidence and availability theory, Stepp and Moerman (2002) suggested that these plants concentrate very active biological compounds as a function of their life strategies. The earlier works of Almeida and Albuquerque (2002) also indicated that family Lamiaceae was classified as the richest species in their study areas. According to Bennett and Prance (2000) most (21%) of the medicinal plants from their survey belong to the Lamiaceae and Asteraceae family. The preference of Lamiaceae family by the traditional healers may be related to their availability, wide range of distribution even in disturbed areas and potential biological properties in their secondary metabolities.

The second dominant family in human health treatment in the study area was Asteraceae. However, some other ethnobotanical investigators (Seyoum, 2009; Getaneh, 2011) observed Asteraceae was dominant in their study area. This may be related to geographical location, socioeconomic status of the local communities and other cultural reasons. Another possible reason may be related to the extent of ethnobotanical exploration in their study area or the entire area may have been not exhaustively explored. Tesfaye and Sebsebe (2009) suggested that detailed information on the medicinal plants need to be undertaken in various parts of Ethiopia where little or no ethnobotanical explorations have been made. Our, documentation of traditional medicinal plants is the first hand ethnobotanical information.

In the study area, most of the plants were used to treat human diseases followed by human and livestock (Fig. 2). Among the 155 medicinal plants, 113 species were used for the treatment of 69 human ailments, whereas 12 species were used to treat five livestock ailments and 30 species were used to treat 14 ailments affecting both human and livestock. The majority of the medicinal plants were used to treat more human diseases than livestock due to some frequently occurring human diseases such as abdominal pain, evil eye, febrile illness, snake biting, tonsillitis, cough, intestinal parasites, malaria, ringworm, wound and amoebiasis. The rural people in the study area are not easily access the modern medical facilities due to their socioeconomic status. Dawit (2001) and Kurt and Andrew (2002) reported that 80% of the Ethiopian

people still use plant remedies for various ailments. In Ethiopia, many researchers reported similar findings from their study sites (Mirutse *et al*., 2009; Tesfaye and Sebsebe, 2009). The healers in the study area collect medicinal plants mostly from the natural habitats due to availability. The wild areas are the sources of most ethnomedicinal plants (Zemede, 1999; Mirutse *et al*., 2003). Some of the important plants such as *Buddleja polystachya, Clutia abyssinica*, *Dovyalis abyssinica, Gomphocarpus purpurascens* and *Rumex nervosus* were given attention to grow in homegardens and the healers need professional support to conserve the medicinal plants under in-situ and ex-situ methods. The majority (43.87%) of the traditional medicinal plants were herbs followed by shrubs (35.48%) because herbs are mostly available during the wet and late rainy season compared to shrubs and tree species and the present study was also carried out during wet season. In Ethiopia, many researchers also reported that herbs were commonly used medicinal plants (Mirutse *et al*., 2003; Debela *et al*., 2006; Tesfaye *et al*., 2009).

The most commonly used plant parts (Fig. 3) for herbal preparations in the study area were leaves (38.1%) followed by roots (14.8%). The leaves may be containing most of the bioactive secondary metabolities compared to other parts. Another reason leaves are the renewal and easily accessible part of the plants and their utilization do not put medicinal plants at risk of extinction over a period. In Ethiopia, several studies reported that leaves were commonly used plant parts to treat various health problems (Dawit and Estifanos, 1991; Mirutse and Gobena, 2003). Most of the traditional medicinal plants were used in fresh form (47.7%) followed by dried (13.5%) plants. The reason for preference of fresh plants over dried ones may be related to the fact that the biologically active principles present in the leaves may decrease up on drying. Many researcher also observed similar findings elsewhere (Mirutse *et al*., 2009; Nayyar and Suman, 2010; Gidey *et al*., 2011).

The local communities used various methods of preparation for different types of human and livestock ailments (Fig. 4). Most of the healers used crushing (21.3 %), squeezing (16.1%) and powdering (14.8%) in descending order. In most cases, preparing plant remedies by crushing or squeezing is advantageous over using decoction since heat may affect the active constituents of the remedies. This finding was in line with earlier results; in which crushing was the common type of preparation (Seyoum, 2009). The prepared remedies were administered through oral (38.7%), dermal (29%), oral and dermal (14.8%), oral, dermal and nasal (3.9%) and dermal and nasal (3.2%) based on the nature and conditions of patients. In the study area the people are mostly affected by endoparasites and this may be one of the reasons for the dominance of oral administration. There are many ethnobotanical researchers reported similar findings elsewhere in Ethiopia (Getachew *et al*., 2001, 1999; Kebu *et al*., 2004; Teshale *et al*., 2004; Haile and Delenasaw, 2007; Gidey *et al*., 2011).

The highest (0.88) Informant Consensus Factor (ICF) of the medicinal plants was associated with problems of intestinal parasite (Table 2). It includes amoebiasis, ascariasis, tapeworm, abdominal pain, diarrhea and vomiting. The emergency diseases such as febrile illness, common cold, stabbing pain, headache and legache stood ICF value of 0.82. If plants are chosen randomly and there is no exchange of information about their use among informants, ICF values are low, near to zero. On the other hand, when information is exchanged between informants or there is a well-defined selection criterion in the community, ICF approaches to one (Gazzaneo *et al*., 2005). High ICF value was calculated for most of the traditional medicinal plants in this study and medicinal tradition is viewed as well defined if a high degree of ICF is recorded (Heinrich, 2000).

The fidelity level (FL) of *Actiniopteris semiflabellata* and *Plantago lanceolata* for wound and, *Capparis tomentosa* and *Clerodendrum myricoides* for evil eye was showed 100% followed by *Ocimium lamiifolium* for febrile illness (96%) and *Polygala abyssinica* for snake biting (90%) (Table 3). Generally, high FL indicates that, all use reports refer to the same way of using it, whereas low FLs are obtained for plants that are used for many different purposes.

In conclusion, traditional medicinal plants are the main source used by the local healers in Fiche district and its surroundings due to rich diversity of the flora. The knowledge difference was also observed in the study area because most of the practitioners were middle aged (31-51 years). Most of the knowledgeable people are kept the knowledge as a secrete within their family members and this may put the continuity of medicinal plants and associated indigenous knowledge in question. Due to modernization in agricultural practices, the biodiversity of medicinal flora started degrading and most of the valuable medicinal plants are under threatening conditions. The healers and local communities need to give special attention for potential medicinal plants to cultivate in their home gardens. Most of the traditional practices are only in the documentation level and must be confirmed scientifically for the welfare of future generations. The ethnobotanical information documented from this field research was a first contribution for scientific publication.

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