

Traditional Medicinal Plants Used in Some selected kebelles of Woreda Ganta-Afeshum, Eastern Zone of Tigray Region, North Ethiopia

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Abstract - An ethnobotanical study was conducted from September 2016 to January 2017 to investigate the uses of medicinal plants by the Woreda Ganta-Afeshum people of 5 villages of Eastern zone of Tigray. The purpose of the study was to organize and document information on use, management and conservation of medicinal plants of some selected Kebelles of Woreda Ganta-Afeshum, Eastern Zone of Tigray, North Ethiopia. Ethnomedicinal data were collected through semi-structured interviews, questionnaires, guided field walks, observation and group discussions with the informants. A total of 40 (22 males and 13 females) traditional healers were interviewed. The study showed that preparation and administration of medicinal plants include several methods. The most frequently used plant parts for the preparations of remedy were leaves (54.17%), root (48.3%), bark (12.5%), fruits (8.3%), seed (6.67%), stem (4.17%), and all parts (4.17%). The medicinal plants that are widely used by the local people or have higher Informant consensus values are *Rutachalepnosis* (50%), *Schinusmolle* (45%), *Vernoniaamygdalina* (40%), *Terminallibrownii* (35%), *Sennasingueana* (30%), *Zingiberofficinale* (25%), *Linumusatissimum* (20%), *Meriandradianthera* (15%), *Aloe elegance* (10%) and *Acacia etbaica* (5%).

Key words: Ethnobotany, Medicinal plant, Ganta-Afeshum, indigenous plants

I. INTRODUCTION

Ethnobotanical studies are often significant in revealing locally important plant species especially for the discovery of crude drugs. Right from its beginning, the documentation of traditional knowledge, especially on the medicinal uses of plants, has provided many important drugs of modern day [1]. According to World Health Organization report more than 80% of the people in Africa depend on traditional medicine for their health care needs[2]. With the emergence of new diseases and drug resistance to infections such as HIV/AIDS, malaria, tuberculosis, diarrheal diseases and skin problems; traditional medicine should be given more attention in modern research and development [3].

Because of the unmatched availability of chemical diversity, natural products, either as pure compounds or as standardized plant extracts, provide unlimited opportunities for new drug leads. Now with 78% of the new chemical entities being natural or natural product-derived molecules, there has been a promising alternative treatment of infectious disease using medicinal plants [3].

About 85% of world population uses herbal medicines for prevention and treatment of diseases, and the demand is increasing in developed and developing countries [4]. Some 25% of drugs contain compounds obtained from higher plants [5]. Moreover, the investigation of herbal drugs from plants to treat AIDS, cancer, and malaria, chronic complaints such as rheumatism, arthritis and asthma have been reported [6-7]. Herbal remedies are enjoying widespread popularity throughout the world [8, 9]. However, only 10% of medicinal plant species is cultivated today while the larger majority being left under wild stands threat [10, 11].

Ethiopia is endowed with a diverse biological resources including about 6, 500 species of higher plants, with approximately 12% endemic, hence making it one of the six plant biodiversity rich regions [12]. Of these, more than 62.5% of the forest area are found in southwest region of Ethiopia [13] where most of the medicinal plants are confined [14] and have been used as a source of traditional medicine to treat different human and livestock ailments [15,16].

Herbal medicine in Ethiopia, as it is the case in other parts of Africa, is facing with problems of continuity and sustainability [17]. It is therefore very important to investigate the ethnobotanical knowledge of the various socio-cultural groups in Ethiopia. Such studies are useful not only for documenting, analyzing and disseminating indigenous knowledge of local people but also to indicate interaction between biodiversity and human society [18]. Thus far, various ethnobotanical studies were conducted in Ethiopia [19-24]. However, much remains to be studied given the enormous ecological and cultural diversity in Ethiopia. For instance, no ethnobotanical study was conducted in Woreda Ganta-Afeshum of the Eastern zone of Tigray. Hence, the present study was conceived to explore medicinal plants and the associated indigenous knowledge on use of the plants in Woreda Ganta- Afeshum of the Eastern zone of Tigray.

II. OBJECTIVES OF THE STUDY

General objective

The main aim of the study was to conduct ethnobotanical study of medicinal plants in some selected Kebelles of Woreda Ganta-Afeshum and document indigenous knowledge of the people.

Specific objectives

- To gather, record, and document indigenous knowledge of the people on medicinal plants in the study area;

- To collect and identify traditional medicinal plant specimens used in the study area for treatment of human and livestock health problems;
- To document the management and conservation measures practiced in the study area;

III. MATERIALS AND METHODS

Data Collection

As the purpose of the study was to conduct ethnobotanical study of medicinal plants in some selected Kebeles of Woreda Ganta-Afeshum and document indigenous knowledge of the people, ethnomedicinal data was collected by the researchers using semi-structured interviews, quaternaries, guided field walks, observation and group discussions with the informants. A total of 40 (22 males and 18 females) traditional healers were interviewed. Twenty key informants were asked to rank medicinal plants in terms of their potency for selected ailment. The interview questions focused on local names of medicinal plants, parts of used, diseases treated, mode of preparation and administration of the traditional remedies. The interviews and discussions were carried out in the local language (Tigrigna).

Data analysis

In the present study, the study data collected through interviews, questionnaires and observation was analyzed using descriptive statistics such as frequency distribution and percentages. In this analysis descriptive statistics frequency was calculated and tabulated.

IV. RESULT AND DISCUSSION

This section of the study deals with the analysis and interpretation of the data gathered from study targeted population using interview and questionnaires in some selected Kebeles of Woreda Ganta-Afeshum of the Eastern zone of Tigray. In this part, the most important findings from the study were discussed.

Sex and Age structure of respondents

As indicated in Table 1, majority of respondents (50%) fall between the age group of 31-40 years old. 32.5% of the respondents fall between the age group of 20-30. The remaining 17.50% were found to be more than 18 years old.

Table 1: Informants sex and age group

Informants Age Group	Sex		Total	Percentage of Total
	M	F		
20-30	20	6	26	32.50
31-40	24	16	40	50.00
Above 50	10	4	14	17.50

Source: own survey 2017

As shown in Table2 the medicinal plants that are widely used by the local people or have higher informant consensus values are Rutachalepnis (50%), Schinusmolle (45%), Vernoniaamygdalina (40%), Terminalliabrownii (35%), Sennasingueana (30%), Zingiberofficinale (25%), Linumusatissimun (20%), Meriandradianthera (15%), Aloe elegance (10%) and Acacia etbaica (5%).

Table2: Percentage distribution of medicinal plant families in the study area

Scientific name	No. of respondents	Percentage	Rank
<i>Rutachalepnis</i>	22	50	1 st
<i>Schinusmolle</i>	18	45	2 nd
<i>Vernoniaamygdalina</i>	16	40	3 rd
<i>Terminalliabrownii</i>	14	35	4 th
<i>Sennasingueana</i>	12	30	5 th
<i>Zingiberofficinale</i>	10	25	6 th
<i>Linumusatissimun</i>	8	20	7 th
<i>Meriandradianthera</i>	6	15	8 th
<i>Aloe elegance</i>	4	10	9 th
<i>Acacia etbaica</i>	2	5	10 th

Source: own survey 2017

As indicated in Tab3 the most widely used part is the leaf and the root both accounting for 54.17% each for the reported ethnoformulations, followed by fruit, bark, stem and all parts.

Table 3: Parts of medicinal plants used for preparation of remedies

S/N ₂	Plant part	No. of species	Percent of species
1	Leaf	13	54.17
2	Root	13	54.17
3	Bark	3	12.5
4	Fruit	2	8.33
5	Seed	4	16.67

6	Stem	1	4.17
7	All parts	1	4.17

Source: own survey 2017

Table 1. List of medicinal plant species used by residents of some selected kebeles of Woreda Ganta -Afeshum (n=24) to treat 35 human ailments in Eastern Zone of Tigray in 2016/2017.

S/Nº	Scientific name	Family	Local name	Plant part	Mode of preparation	Use
1	<i>Acacia</i> sp	<i>Leguminosae</i>	Kentefefe	Root	Paste is mixed with honey from <i>apis mellifera</i>	Swelling
2	<i>Acacia etbaica</i>	<i>Fabaceae</i>	Seraw	Leaf	Dried, crushed and consumed	Abdominal-helminthes
3	<i>Achyranthes aspera</i> duss.	<i>Amaranthaceae</i>	Michello	Leaf, root	Juice; infusion; dried; fresh	Stomach ulcer, eye ache, scorpio bite, wound, cold, sprain, anti-inflammation
4	<i>Aloe</i> sp.	<i>Asphodelaceae</i>	Ere	Root	Roasted	Sprain
5	<i>Asystasia gangetica</i>	<i>Acanthaceae</i>	Girbia	Leaf, root	Juice	Stomach ache, stomach ulcer
6	<i>Argemone mexicana</i> l.	<i>Papaveraceae</i>	Medafe tilian		Macerate in wate	Wound
7	<i>Azadirachta indica</i>	<i>Meliaceae</i>	Neem	Fruit	Crushed fruits, boiled, decanted and drunk	Hemorrhoids
8	<i>Buddleja polystachya</i> fresen.	<i>Buddlejaceae</i>	Metere	Leaf	Burn in charcoal in closed house for 10min	Tonsil inflammation
9	<i>Bechumgrandiflorum</i>	<i>Lamiaceae</i>	Tebeb	Leaf	Crushed ,mixed with water, filtered and drunk for 3-10daysmalaria	malaria
10	<i>Cordia africana</i> lam.	<i>Boraginaceae</i>	Awahi	Leaf	Paste is mixed with hot water and sugar	Stomach ache
11	<i>Calpurnia aurea</i> baker	<i>Leguminosae</i>	Hitswits	Bark, root	Roasted	Bronchitis
12	<i>Carissa edulis</i> vahl.	<i>Apocynaceae</i>	Agam	Root	Antidepressant, sprain combination of more plants smoke inhalation	Antidepressant, sprain
13	<i>Clutia abyssinica</i>	<i>Euphorbiaceae</i>	Teshwealalito	Leaf	Crushed,boiled in water ,decanted and drfunk	Malaria and hepatomegaly
14	<i>Croton macrostychus</i>	<i>Euphorbiaceae</i>	Tambuk	Leaf	Crushed,mixed water and drunk	Antibiotics
15	<i>Cucumidipsaceus</i>	<i>Cucurbitaceae</i>	Hafaflo	Root	Crushed ,mied with water decanted and drunk	Abdominal – helminthes
	<i>Datura stramonium</i>	<i>Solanaceae</i>	Mestenagr	Leaf	Crushed,boiled and then creaming the hair	Dan druff
16	<i>Echinops maracandicus</i> bunge	<i>Asteraceae</i>	Dender	Root	Decoction	Headache
17	<i>Eucalyptus globulus</i> labill.	<i>Myrtaceae</i>	Tsaeda bahrizaf	Leaf	Infusion	Sprain
16	<i>Lepidium sativum</i>	<i>Brassicaceae</i>	Shimfa	Seed	Crushed mixed with whole parts of <i>hypoestes Forskaolii</i> , roots of	Anthrax

					<i>solanum incanum</i> and roots of <i>verbascum sinaiticum</i> , filtering the fluid and drunk	
	<i>Linum itatis simon</i>	Linaceae	Entatie	Seed	Dried, roasted, mixed with water and creamed the injured part	Limb-inflammation
17	<i>Ocimum basilicum</i>	Lamiaceae	Sesg	Leaf	Crushed ,boiled in water, decanted and drunk	Asthma and hypertension
18	<i>Ototsegiaintegrifolia</i>	Lamiaceae	Chendog	Leaf	Crushed, mixed with water, filtered and drunk	Hypertension and tonsillitis
19	<i>Phytolaccadodecandra</i>	Phytolaccaceae	Shibiti	Stem	Crushed, mixed with water, decanted and drunk	Tb and gastritis
	<i>Plumbagozeylanica</i>	Plumbaginaceae	Aftuh	Root	Crushed make the patient to smell	Evil eye and snake bite
20	<i>Rumex abyssinicus</i> jacq.	Polygonaceae	Mekmoko	Root	Paste is mixed with cow butter	Bone tuberculosis
21	<i>Rumexnervosus</i>	Polygonaceae	Hihot	Leaf	Grinding, adding water and drunk	Itching and eczema
22	<i>Rutachalepnesis</i>	Rutaceae	Chena adam	All parts	Crushed,mixed with water boiled and inhle the vapour	Cough and cold
23	<i>Trigonella foenum-graecum</i>	Fabaceae	Abeake	Seed		Abdominal pain
24	<i>Withania somnifera</i>	Solanaceae	Agol	Root	Infusion; combination of more plants	Antidepressant, sprain

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