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Ethnobotanical Study of Traditional Medicinal Plants Used by Indigenous People of Gemad District, Northern Ethiopia

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Ethnobotanical study on traditional medicinal plants were conducted between April and May, 2013 in Tabiya Gemeda district and documented different types of traditional medicinal plants used by the indigenous peoples. The study was focused on identifying medicinal plants, disease treated, part of the plant used, methods of preparation, route of administration, ingredients added etc. The data was collected using interview and questionnaires by selecting 16 healers using purposive sampling method. A total of 31 medicinal plant species were collected and identified from the study area for treating 32 human aliments. Out of these 18(58%) were wild where as 11(35.48%) of them were cultivated and 2(6.44%) were wild and cultivated plants. The most dominant plant part was leaf (50 %). The route of administration was oral administration about 20(64.5%) and the most common method of preparation is grinding about 7(22.5%).

Keyword: Ethnobotany, Indigenous Knowledge, Aliments, Medicinal Plants, Tabia Gemad, Healers

1. Introduction

Ethnobotany is the study of the interaction between plants and people, with a particular emphasis on traditional tribal cultures. According to the World Health Organization (WHO) about 65-80% of the world's population in developing countries depends essentially on plants for their primary healthcare due to poverty and lack of access to modern medicine[1]. About 80% of the total population of Ethiopia is depending on traditional medicine to treat different types of human ailments[2].

They use their perceptions and experiences to categorize plant species indigenously and local people over the past period take traditional medicine.

Traditional medicinal practices are common in Ethiopia in which about 80% of the population in the country use plant based traditional medicine by indigenous knowledge as their major primary health care system[3].

Traditional knowledge of medicinal plants and their use by indigenous healers and drug development in the present are not only useful for conservation of cultural tradition and biodiversity but also for community health care and drug development in the local people. The indigenous knowledge on medicinal plants appears when humans started and learned how to use the traditional knowledge on medicinal plants[4].

The lack of conservation actions and activities is observed in klete Awlaelo woreda, which is similar to other areas of Ethiopia. Even though it is known the Woreda has relatively better plant resource and associated traditional knowledge resource is expected to be significant. The current

plant use trend shows that the environment is facing problems of resource depletion and loss of indigenous knowledge like other area of the country. Thus concerned ethno botanical research plays an important role for conservation and sustainable utilization of these medicinal plants. In different parts of Tigray, medicinal plants have been used as traditional medicine to treat different human ailments. People who live in these areas have traditional knowledge on use of medicinal plant species. However, it is not widely used as it could be because the skills are fragile and not written document (easily forgettable) as most of the medicinal plants are in the hands of a handful and kept as a secret[5]. Therefore, the present study was conducted to assess and document the knowledge and use of medicinal plant species used by the traditional healers to treat different human ailments in Wukiro kiltie awulaelo. The study focuses in identifying the parts of plants used for medicinal purposes, their mode of preparation, ingredients added and other use of the plant.

2. Materials and Methods

The study was conducted in Woreda Wukro klete Awlaelo specifically in Gemeda district which is found in eastern zone of Tigray regional state, northern Ethiopia. The study area is located 52km far from north of Mekelle which is the capital city of Tigray regional state. The total area of the study site accounts about 249km^2. Major activity of the local people depends on agriculture and they do not have access to medical service.

3. Sample Size and Sampling Techniques

In this study one kebele was selected from the area using purposive sampling techniques. This is because the kebele is mostly covered by different plant species and these plants are used for traditional medicinal value to treat different diseases. The researcher selected 16 healers using purposive sampling technique to gather the relevant data.

4. Data Collection

Ethnobotanical data was collected between April 2013 to May 2013 on sixteen individual healers were interviewed using semi-structured interviews and observations. The information collected included local name of the traditional medicinal plant, type (cultivated or wild), diseases treated, parts used, condition of plant used, method of preparation, route of administration, ingredients added, other uses of the plant and existing threats to medicinal species. Finally, the data were analysis using descriptive statistics.

Table 1: List of Medicinal Plants, Disease Treated, Ingredients Added and Condition of plant used and other uses of Medicinal Plants in the Study Area

S. No	Local name of medicinal plants	Scientific name of medicinal plants	Condition of the medicinal plants	Disease treated	Ingredients add	Other uses of medicinal plants
1	Aftuh	*Plumbago zeylanica*	Dry	Anti bacterial infection	None	None
2	Duba	*Cucurbita maxima*	Dry	Tap worm	None	Used as source of food
3	Mezerbae	*Datura stramonium*	Fresh	Wound	None	Used for fertilizer
4	Limo/nim	*Azadirachta indica*	Fresh	Anti insecticides	None	None
5	Shibti	*Phytolacca dodecandra*	Fresh	Abortion	None	Used for Washing cloth
6	Ere	*Aloe vera*	Fresh	Diabetes	None	Source of food for animal
7	Awhi	*Cordia africana*	Fresh	Acute febrile	Coffee	As a source of food and wood

				illness(AFI)		
8	Agol	*Withania somnifera*	Fresh	Hepatit	Garlic	None
9	Tikur-berbere	*Schinus molle*	Fresh	Abdominal. Cramp/colic	Water	None
10	Tseada Shingurti	*Allium sativum*	Fresh	Common cold, Malaria	None	Used for a source of food in the form of spices
11	Gesho	*Rhamnus prinoides*	Dry	Dandruff	None	Used for preparation of "tella"
12	Agam	*Carissa edulis*	Dry	Goiter	None	Used for a source of food and wood
13	Shenfae	*Lepidium sativum*	Dry/fresh	Pancreas disease	None	None
14	Kinchib	*Euphorbia tirucalli*	Drsy/fresh	Warts	Butter	Food for animal
15	Harmazo	*Flueggea virosa*	Powder	Spider poison	Water	Used for a source of food
16	Awesda	*Nigella sativa*	Fresh	Bandit	Tella	None
17	Gaba	*Ziziphus spina-christi*	Fresh	stomach pain	Honey	Food source
18	Papayo	*Carica papaya*	Fresh	amoebas	None	Food source
19	Lemon	*Citrus limon*	Fresh	Diarrhea	Sugar	None
20	Shilan	*Foeniculum vulgare*	Fresh	Anuria	None	None
21	Engule	Solanum incanum	Dry	Twinge	None	None
22	Shingurti zibe	*Albuca abyssinica*	Dry	Rheumatism	None	None
23	Shashito	*Tragia cinerea*	Liquid	Skin damage	None	None
24	Hafafo	*Cucumis dipsaceus*	Fresh	Eyeblindness	Water	None
25	Kolkal	*Euphorbia candelabrum*	Liquid	TB	None	None
26	Micheale	Achyromaspera	Fresh	Crown of the head	None	None
27	Tirnaka	*Verbascum sinaiticum*	Fresh	Fire burning Body	None	None
28	Moqmoqo	*Rumex abyssinicus*	Dry	Vomiting	None	Use for teased for food
29	Awlie	*Ovia Euroia*	Fresh	Gardoa	None	Used for food for soking kita for preparation of Tella
30	Demakase	*Ocimun laminafollum*	Fresh	Acute febrile illness(AFI)	Coffee	None
31	Tambok	*Croton macrostachyus*	Dry/fresh	Rabies	Water	None

As indicated from the above table a total of 31 medicinal plant species were collected and identified by the researchers from the study area (table 1). Those 31 medicinal plant species were treated around 32 different human ailments. Some of the medicinal plants were added different ingredients but around 61.29% of the plants were not adding any ingredient to treat human ailments. The healers responded that Coffee, Garlic, Water, Butter, Tella, Honey and Sugar were some of the ingredients added to the medicinal plants in different mode of preparation. The present study was in line with previous findings of[4] related with the ingredients added.

The above listed medicinal plant species were also used for different purposes in addition to the disease treatment like for food source for human and different animals, use as fertilizer, for washing cloth, for preparation of traditional alcohol "Tella", for fair wood, for smoking milk and others. A previous study by[6] was agreed with the present findings regarded with the other important of medicinal plants.

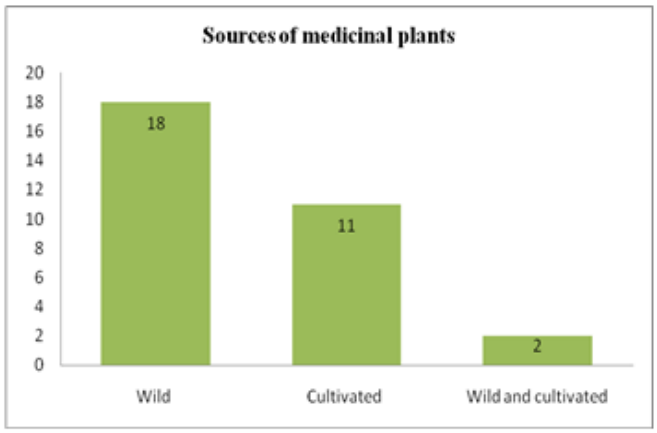

Figure 1: Source of medicinal plants in the study area

Previous studies of[4] in Inderta woreda south-eastern Tigray, northern Ethiopia indicated that (62.96%) of the traditional medicinal plants were wild while 5 species (18.52%) were gotten from cultivation and the remaining 5 species (18.52%) were obtained both from cultivation and the wild and[7] reported that (69.1%) of the medicinal plants in Wonago Wereda, Southern Ethiopia was from the wild. In various parts of the world, medicinal plants are mostly harvested from the wild sources either for local use or trade purposes[8]. But the present finding showed that 18 species (58%) were wild, 11 species 35.5% were collected from cultivated and only 2species (6.4%) were both wild and cultivated (Fig.1). So the present finding was agreed with the previous finding of [8].

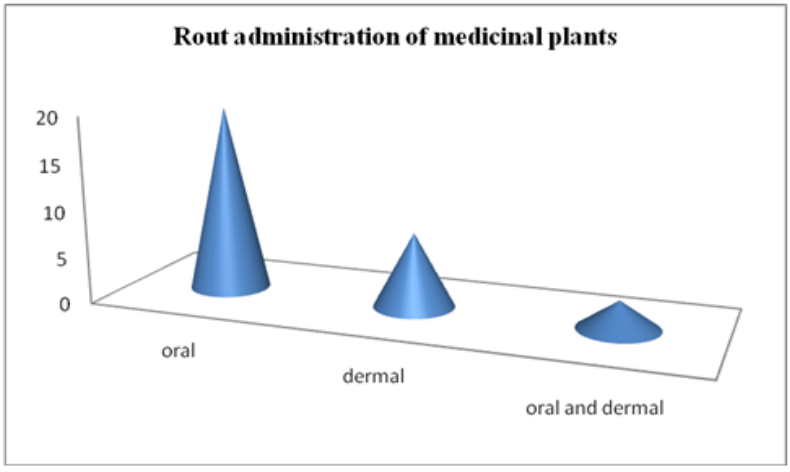

Figure 2: Rout administration of medicinal plant`s remedies for human ailments in the study area.

As figure two indicated that 20 species (64.5%) of the medicinal plants were taking by oral, about 8 species (25.8%) of medicinal plants were taking by dermal and the rest 3 species (9.7%) of medicinal plants also taking both by oral and dermal mode of application. So this finding showed that the highest mode rout administration of these medicinal plants were oral.

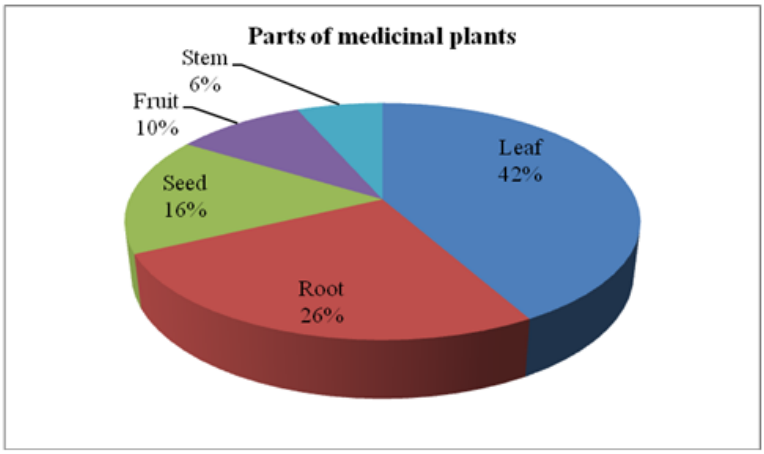

Figure 3: plant part used in the preparation of remedies in the study area.

The above pie chart indicated that 42% part of the medicinal plant species used to treat human aliments was leaf. However, only 6% of stem parts were used as traditional medicinal value in the study area. This is similar with the works of[9] which was conducted in south-western Nigeria where 11 species (33%) of the leaves of plants were used in the treatment of ailments, this was followed by fruit representing 12% and then root and stem (9.1%). Similar studies were conducted by [10] in Zangelanlo district, Northeast Iran in which among the medicinal plant parts, leaf was used in majority of cases 28 species (25%) of the total uses. This was followed by fruits (19%), roots (15%), seeds (12%), and barks (2%).

Such wide harvesting of leaves for traditional medicine compared to roots in the study area which are important for survival of plants has a less negative influence on the survival and continuity of useful medicinal plants and hence does not affect sustainable utilization of the plants. However, in the study area root was the second most part used to treat different human aliments. Comparatively utilization of root part highly affects the survival and ecological aspect of the plant.

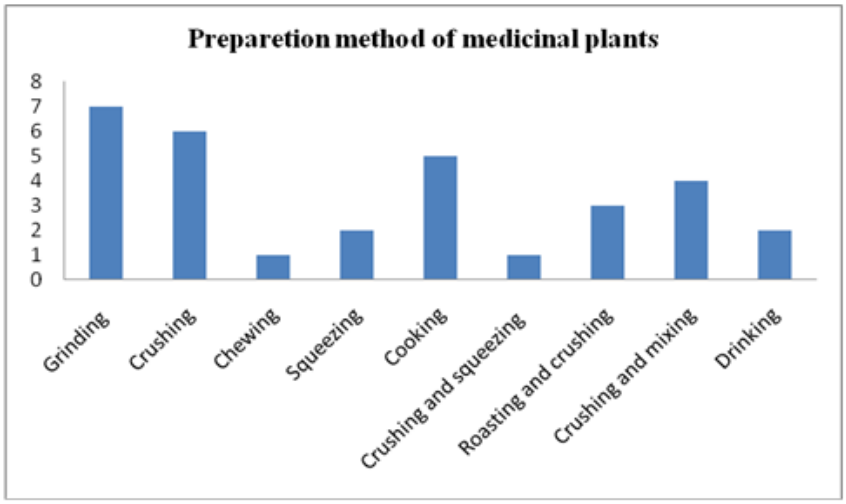

Figure 4: methods of preparation of traditional medicinal plant remedies in the study area

The above figure indicated that Grinding (22.5%), Crushing (19.4%), Chewing (3%), Squeezing (6.5%), Cooking (16%), Crushing and

squeezing (3%), Roasting and crushing (10%), Crushing and mixing (13%) and Drinking (6.6%) were the different ways of preparation of medicinal plants in the study area. The present finding indicated that Grinding was the most widely used mode of preparation. This finding was disagreed with the previous results of[11] in which 32 (36.4%) preparations were made in the form of powder, 29 (32.9%) followed by crushed and pounded, and 12 (11.3%) in the form of chewing of plant parts used for treatment of human health problems.

Deforestation, soil erosion, overgrazing and drought are the major factors that affect different medicinal plants in the study area. So the community of Gemeda district should work incorporates with governmental and nongovernmental organizations in order to sustainable the traditional knowledge and the medicinal plant species for further generation. Finally to conclude the present study a total of 31 medicinal plant species were collected and documented to treat 32 different human aliments. The most mode of administration was through oral and dermal. In the study area 58% of medicinal plant species were reported from wild sources but only 6.4% were gathered from both wild and cultivated sources. Leaves were found to be the most frequently used plant part followed by root. Grinding was the best mode of preparation of medicinal traditional plants to treat different disease in the study area. Encouraging the community to grow different medicinal plants in their home gardens by mixing with different crops and protected the medicinal plants found in the wild is principal important.

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6. References

1. Awoyemi OK, Ewa EE, Abdulkarim IA, Aduloju AR et al. Ethnobotanical assessment of herbal plants in southwestern Nigeria. Academic research international 2012; 2: 50-57.
2. Bekele E. (2007). Study on Actual Situation of Medicinal Plants in Ethiopia. Prepared for Japan Association for international Collaboration of Agriculture and Forestry, Addis Ababa.
3. Dawit A. (2001). Plants as primary source of drugs in the traditional health care practices of Ethiopia. Plant genetic resource o Ethiopia, **6**,101-113.
4. Emiru B, Ermias A , Wolde M, Degitu E et al. Management, use and ecology of medicinal plants in the degraded dry lands of Tigray, Northern Ethiopia. Journal of Horticulture and Forestry 2011; 3(2): 32-41.
5. Fisseha M. 2007. An ethnobotanical study of medicinal plants in Wonago oreda, SNNPR, ETHIOPIA. M.Sc. Thesis, Addis Ababa University, Ethiopia.
6. Gidey Y. (2010). Use of traditional medicinal plants by indigenous people. Thesis, Mekele University Mekelle, **17**, 1799-1804.
7. Lange D. (1997). Trade figures for botanical drugs worldwide. Medicinal Plant Conservation, **3**, 16-17.
8. Mesfin F. (2007). An ethnobotanical study of medicinal plants in Wonago oreda, SNNPR, ETHIOPIA. MSc thesis. Addis Ababa University, Ethiopia.
9. Mohammad SA, Parham J, Mahdi A et al. An ethnobotanical survey of medicinal plants used by indigenous people in Zangelanlo district, Northeast Iran. Journal of Medicinal Plants Research 2012; 6(5): 749-753.
10. Sharma KA, Kumar R, Mishra A, Gupta R et al. Problems associated with clinical trials of Ayurvedic medicines. Rev Bras Farmacogn Braz J Pharmacogn 2010; 20(2): 276-281.
11. Yirga G. (2010). Assessment of indigenous knowledge of medicinal plants in Central zone of Tigray, Northern Ethiopia. African Journal of Plant Science, **4**, 6-11.