

**ORIGINAL ARTICLE****MEDICINAL PLANTS USED IN TRADITIONAL MEDICINE IN JIMMA ZONE, OROMIA, SOUTHWEST ETHIOPIA****Balcha Abera\***, MSc**ABSTRACT**

**BACKGROUND:** *Locally available and widely used medicinal plants would need to be identified and a list compiled as well as propagated to alleviate the risk of extinction due to accelerated urbanization, recurring drought and deforestation. This study was conducted to document locally available medicinal plants and empirical or local knowledge of traditional healers on commonly used medicinal plants in Jimma.*

**METHODS:** *An ethnobotanical survey was conducted in six districts of Jimma zone Oromia Regional State, Southwestern Ethiopia to document commonly used medicinal plants used for treatment of common diseases. The study was conducted during 20 January to 30 April, 2000. A structured questionnaire was used to collect the specimens and record pertinent information on their use. Preserved specimens were described by taxonomists of the Faculty of Science, Addis Ababa University.*

**RESULTS:** *Thirty-nine medicinal plants recognized for the treatment of various diseases were collected; recorded with their vernacular names and associated information. Ultimately, the plants were described with their scientific names. The leaf parts were widely used, followed by roots and stems, fruit, bark and flower in 42.0%, 18.0%, 18.0%, 12.0%, 8.0% and 2.0% respectively as a means and source of medicine. Few plants (31.0%) needed other ingredients either for taste preference or as a portion of medicine. Ten (25.0%) of the collected species consisted of more than one part of the plant parts as a source of medicine, while 29(79.5%) of them had a single part for use. Regarding the method of preparation, decoction and vegetable drug constituted 3.9.0% and 37.0%, followed by concoction and infusion in 22.0% and 2.0% respectively. The response of traditional healers towards collaborating with the researcher ranged from complete refusal to willing to work with all aspects. The major uses of the medicinal plants ranged from pain killer to malaria and cancer treatment.*

**CONCLUSION:** *This study signals the information and identification of varieties and usage of medicinal plants in the study area. The scientific validity of these remedies, however, needs further investigation. [Ethiop J Health Sci 2003; 13(2): 85-94]*

**Key words:** Medicinal plant, Traditional medicine, Decoction, Concoction, Ethnobotany, Infusion.

---

\* Department of Biology, Faculty of Education, Jimma University, P.O. Box 378, Jimma, Ethiopia.

## INTRODUCTION

Out of a quarter of a million identified higher plants in the world about one fourth it has at one time or other used by some people or cultures for medicinal purpose (1). The present activities of international organizations in the field of traditional medicine, like WHO in designating the world in six regional zones (African, American, South-east Asian, European, western Mediterranean, Western pacific), and providing a technical and financial supports, are the most encouraging system to collect, describe and investigate the medicinal plants at institutional level (2). The recent reports have indicated that, 25% of the modern drugs are derived from the extract of medicinal plants (3).

In the Industrialized countries people are seeking alternative herbal medicine because of the side effect from the strong modern drugs. According to World Health Organization (WHO) 70 to 90 percent of world population especially from developing countries, use plant remedies for their health care (1,4). However, the effort to provide public acceptance and ascertain scientifically remained to minimum in developing countries (4). More over, the high cost of drugs and the inability of many developing countries to purchase modern drugs have prompted them to look for local products in the form of medicinal plants, that have proved to be effective, safe, inexpensive and culturally acceptable (2). Developing countries like India, Pakistan and China have identified potential usage of medicinal plants, and integrated them in to their overall health care system (5).

Ethiopia, with its diverse topography, has a rich endemic element in its flora approximately thousands of higher plants species including medicinal plants (6). Similarly, Ethiopia is rich with diverse heritage of traditional medical practices.

However, due to population pressure, accelerated urbanization, recurring drought, and deforestation, most of the medicinal plants are either destroyed or are on the verge of extinction (3). Documentation of this indigenous knowledge of healing system still remains at minimum level (7). Some investigations in certain parts of Ethiopia have indicated the rate of erosion of both indigenous knowledge and the herbs signals for the need of intervention (8).

The aim of this study was, therefore, to identify and document the species of the plants associated with medicinal parts, methods of preparation of medicine and major uses in Jimma Zone. In addition, the willingness of local healers of the study area in sharing information was assessed.

## MATERIALS AND METHODS

### Study area and population

This ethnobotanical study was conducted in six districts of forest areas (*Kersa, Manna, Gomma, Dedo, Limmu Genet, Limmu Seka*) of Jimma Zone in Oromia Region, Southwestern Ethiopia. The altitude is in the range of 1000-3360 meter above sea level. The long wet period extends from late may to early September. In addition February, March and April are months of “*Belg rain*”. Most parts of the zone is bounded by three main rivers: Gibe, Didessa and Gojab. According to the 1997 National census, the rural and urban population of Jimma was 2,315,281. About 51.0% of the rural inhabitants were females. The Zone has a hospital in Jimma town and health centers in towns of each district. However, both hospital and health centers and clinics have a shortage of facilities and drugs. Moreover, most of the rural areas do not have vehicles road that connect to the main way.

There was a limited supply of clean water in the rural areas except in small

towns of the districts. Among twelve districts of the zone six were selected based on a pre-tested survey.

#### **Survey Instruments and data Collection**

The survey was undertaken to identify medicinal plant species based on the structured questionnaire from 20 January to 30 April 2000. The structured questionnaire was arranged in such a way filling the blank spaces provided in front of each item; like locality, scientific and vernacular names, part(s) of the plant used, Method(s) of preparation for use, with/without additive(s), disease(s) for which plant is used. Among ten local healers responded, an interview was conducted with seven volunteers in Afan Oromo and Amharic languages. No further attempt was made to influence those traditional practitioners who completely refused to provide information, even though a great effort was made to convince the importance of documenting their knowledge for the use of future generations.

The survey was made with volunteers and the plants were collected from

surrounding forests of study areas to know its in-situ aimed to use in further research. One of the samples of collected specimens were preserved and deposited in the laboratory of Biology department Jimma University for future reference. The other collected samples of medicinal plants were pressed and taken to the National Herbarium (NH) for taxonomic identification. Finally, data were compiled and further analyzed using scientific calculator.

#### **RESULTS**

Thirty-nine medicinal plants were collected simultaneously recording their vernacular /local names using both Afan Oromo and Amharic Languages. 5 and 34 respectively were named in their generic and species names at National Herbarium by taxonomists at Science Faculty of Addis Ababa University. The local names were indicated in a “bracket” written under italicized scientific names (Table 1).

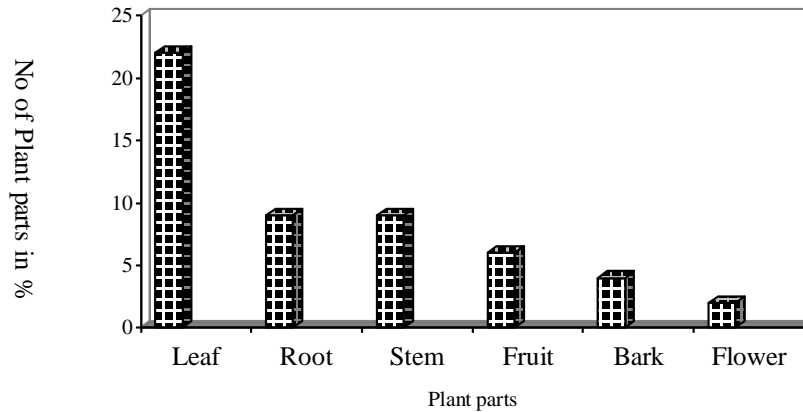
**Table 1.** Some common Medicinal Plants species in Jimma zone, Oromia, Southwest Ethiopia, January20 -30 April, 2000

Scientific and local names of medicine plant species	Plant part used	Additives	Major uses
<i>Acacia catechu</i> (Lafftoo)	Leaf	Decoction	Stomachache
<i>Ajuga intergrifolia</i> (Harma guusaa)	Leaf	Vegetable drug	Anti-Hypotensive, Elephantiasis Breast massage
<i>Artemissia rehan</i> (Arti)	Leaf	Vegetable drug	Nose bleeding
<i>Bhammus Prinoides</i> (Geeshoo)	Leaf, fruit	Vegetable drug	Fungicide
<i>Bersama abyssinica</i> (Loichiisaa)	Leaf, Root, Bark stem	Decoction vegetable drug	Anti malaria, Taeniafuge, wound treatment
<i>Brucea antidysentrica</i> (Aballo)	Stem, Bark	Decoction	Anti-cancer, Anti-malaria
<i>Calpura aurea</i> (Ceekaa)	Root, bark	Decoction	Amoebic dysentery
<i>Catha edulis</i> (Caatii)	Leaf, bark	Decoction	Stomachache Amoebic dysentery Anthelmatic Psychoactive
<i>Coffee arabica</i> (Buna)	Leaf, seed	Concoction	Alleviate stress and headache
<i>Croton macrostachyas</i> (Bakkanniisa)	Leaf, steam	Vegetable drug & decoction	Taenicide, Haemostatic
<i>Cynodon dactylon</i> (coqorsa)	Stem	Concoction	Wound healing, snake bites
<i>Datura starmonium</i> (Asaangira)	Leaf	Vegetable drug	Wound healing
<i>Echinops</i> (Qabricho)	Root	Vegetable drug	Fumigant
<i>Embelia schimperi</i> (Enqooqo)	Fruit	Concoction	Taenicide
<i>Eurphobia</i> (Adaamii)	Leaf	Vegetable drug	Wound healing
<i>Glinus Lotoides</i> (Metire)	Fruit	Decoction	Taenicide
<i>Hagenia abyssinica</i> (Kossoo)	Fruit	Concoction	Taenifuge
<i>Kalanchoe lenceolata</i> (Bosoqqee)	Leaf, Root	Decoction	Epistaxis (Nasal bleeding)
<i>Leonotis ocymifolia</i> (Raasqamir)	Leaf	Concoction	Ascaricide
<i>Linum usitatissimum</i> (Talbaa)	Stem	Concoction	Anti-gastritis
<i>Maesa lanceolata</i> (Abbayii)	Stem	Concoction	Eye disease

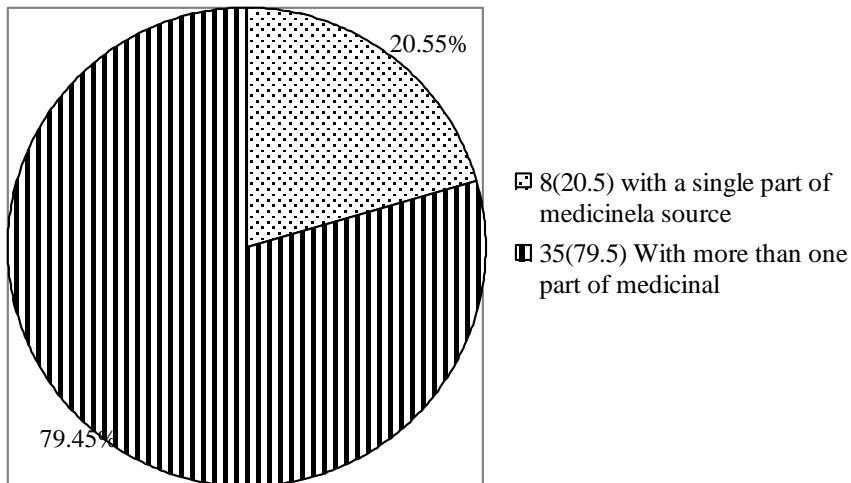
Continued...

<i>Nigella sativum</i> (Abaasuda)	Fruit	Vegetable drug	Headache
<i>Ocimum lamifolium</i> (Damakasee)	Leaf	Concoction	Anthelmintic
<i>Ocimum sp</i> (Ancabbii)	Leaf	Vegetable drug, Decoction	Taenicide, fever
<i>Phytikacca dodecandra</i> (Andoode)	Fruit, stem, flower	Decoction	Abortion, Rabies, STDs
<i>Phamnus prinoides</i> (Geeshoo)	Leaf, fruit	Vegetable drug	Fungicide
<i>Rumex abyssinicus</i> (Monyoqoo)	Leaf, stem	Vegetable drug	Fever
<i>Rumex steudelli</i> (Tult)	Root	Concoction	Abortion
<i>Salix subserrata</i> (Alaltuu)	Stem	Vegetable drug	Tooth abstraction
<i>Solanum sp</i> (Hiddii adii)	Leaf	Vegetable drug	Nose bleeding
<i>Solanum sp</i> (Hiddii gurraacha)	Root	Decoction	STD
Taverniera abyssinica (Dingatanyaa)	Root		Pain Killer
<i>Teclea nobilis</i> (Delal)	Root		Antipyretic
<i>Thymus schumperi</i> (Tassini)	Leaf		Cough medicine
<i>Trigonella foenugraceum</i> (Senqoo)	Fruit	Decoction	Headache, Stomachache
<i>Verbena officinalis</i> (Attuchi)	Leaf		Headache
<i>Vernonia amygdalina</i> (Eebicha)	Leaf		Anti-dysentry
<i>Vernonia hymenolepis</i> (Qilxuu)	Leaf		Anti-tumor
<i>Vernonia sp</i>	Leaf		Anti-tumor
<i>Zingibel officinale</i>	Root		Thermal burns, Anthelmintic

STD:Sexuallytransmitteddiseases



**Figure 1.** Comparison of Plant Parts Used as a Source of Medicine, Jimma Zone, January - April 2000



**Fig 2.** Comparison of Medicinal Source of Individual Plant With One or More than One Part, Jimma Zone, January - April 2000.

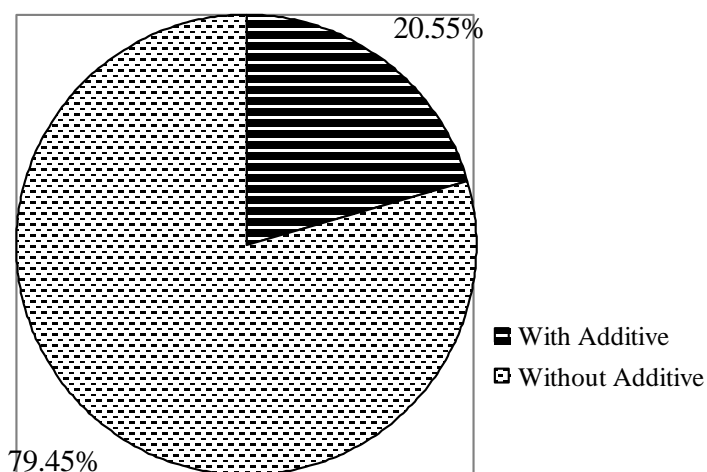


Fig 2. Comparison of the Preparation of Medicinal plant(s) With or Without Additive

**Table 2.** Comparison of Methods of Preparation of Medicinal Plant Products, Jimma Zone, January - April 2000

Methods used	Number	Percent
Decoction	13	33.3
Vegetable drug	12	30.8
Concoction	9	23.1
Decoction & vegetable drug	4	10.3
Infusion & vegetable drug	1	2.5
Total	39	100

**Table 3.** Common diseases treated by different medicinal plants, Jimma Zone, January - April 2000

Common diseases	Number of plants used	Percent
Fever	6	20.0
Wounds	5	26.6
Parasites/worms	12	40.0
STDs	2	6.7
Malaria	2	6.7
Cancer	3	10.0
Total	30	100.00

**Table 4.** Traditional Healers Reaction Towards Collaborating with an Investigator in sharing their knowledge, Jimma Zone, January - April 2000

Response	No of traditional healers	Percent
Completely unwilling	2	20.0
Need to be more secured	2	20.0
Need financial assistance	5	50.0
Willing to work in all aspects	1	10.0
Total	10	100

Comparison of the plant parts used as medicinal source indicates that the leaf predominates followed by root and stem (the same coverage); fruit, bark and flower constitute 21(42.0%), 9 (18.0%), 9(18.0%), 6 (12.0%), 4 (8.0%) and 1(2.0%) respectively (Fig 1). Out of the total number of collected medicinal plants 20.5% contains medical products in more than one of their parts in general, (Fig. 2): the leaf and stem parts were identified in 30% of the same plant species in particular. For instance, *B.abysinica* (lolchiisaa), *B.antidysentrica* (Aballoo) and *K.lanceolata* were identified consisting of more than one part as medicinal sources (Table 1). In contrast, 8(20.5%) of the plants need additive either as flavoring agent to synergize the action of the drug. However, most of the herbs 31(79.5%) were administered with out any additional ingredients (Fig 3). Most of the additives were plants, while a few include like salt/sugar and boiled coffee (Table 1).

The herbal medicines were administered in different forms; 13(33.3%) plants are prepared as decoction, 12(30.8%) as vegetable drug, 9(23.1%) as concoction and 1(2.5%) as infusion. Moreover 4(10.3%), 1(2.5%) are prepared as vegetable drug and decoction, and as vegetable drug and infusion respectively (Table 2).

The traditional healers of the study area use these medicinal products for

treatment of different diseases that ranges from painkiller to malaria and cancer. The most common diseases treated by these traditional healers include fever 6(20.0%), wounds 5(16.0%), parasitic worms 12(40.0%), sexually transmitted diseases 2(6.7%), Malaria 2(6.7%) and cancer 3(10.0%) as indicated in (Table 3).

The most frequently used plants for treatment of various diseases include *C.macrostachys*, *A. integrifolia*, *C. edulis* and *P. dodecandria* (Table 1). According to the information gathered by this study, the response of traditional healers towards collaborating with an investigator ranges from complete refusal to willing to work in all aspects. Nevertheless, 50.0% of the traditional healers need financial reward to provide pertinent information (Table 4).

## DISCUSSION

Beliefs about causes of health problems are determinants of treatment seeking decisions (9). Hence, one of the alternatives for the solution of health problem, rises in a large segment of rural population is employing traditional medicine in general and medicinal plants in particular.

However, documentation of this indigenous knowledge of healing system still remains at minimum level (7,10).

The finding of this study also predicts that, most of the medicinal plants (42.0%) employed by the community of study area



contain medical substances in their leaf that might be dependant on consistent supply of fresh metabolites, also agrees with other reported studies. The root and stem, part of surveyed plants spaced also share high coverage as a source of medicine in traditional health care system. Moreover, the results of this study have indicated that, there was many individual medicinal plants consist of two or more parts used for treatment of the same or different diseases. Similar observations have also been reported in other studies (11).

Regarding the methods of preparation, decoction constitutes 39.0% indicates that, the local healers of study areas possess an indigenous knowledge that partially share the modern knowledge of drug preparation method for effective treatment, however, needs further research. Vegetable drug that accounts for 37.0% implies easy application of the method in an accessible health system. Concoction is some times confused with decoction because both methods of preparation are carried out through similar procedures. While infusion is with less ingredients; addition of boiled water to plant material might be easy way of effective treatment. In addition, the comparison of the preparation of medicinal plants with additives demonstrates, on one hand, the different possible ways of preparation either to enhance the effectiveness of the healing system or to utilize as flavoring agent. According to the traditional healers view, additive plants are used to increase the effectiveness of curing, whereas additives like salt, sugar are used for the outcome of normal taste of the mixtures. But most of the herbs 27(69.0%) were administered with out any additives.

The major uses of different medicinal plants for treatment of different diseases in the areas of study ranges from pain killer to fatal diseases like malaria and cancer, mainly based on the distribution of the

species, experience and knowledge of traditional practitioners, that agrees with other reported studies (11). To minimize the reluctance of traditional healers in sharing information, the investigator of this study personally made a payment for those who need; to be more secured, to get financial assistance and those who strongly displayed their willing to work in all aspects. Nevertheless only 20.0% (2) of the local healers have refused at all to provide any information, even though a great effort /attempt/ was made, to convince the importance of this documentation. As suggested by this group, lack of confidence on investigators and insufficient reward for share of their knowledge were the main reasons for complete refusal. According to a discussion made with local healers, the current accessibility of medicinal plants is limited to only some species, while others are on verge of extinction. Some healers have reported that they conserve in-situ most of their medicinal plants used in treatment of diseases.

It is concluded that, the overall collection successes of species (80.0%), identification of medicinal parts, methods of preparation and major uses for treatment revealed by this study, strongly realizes the accessibility of this traditional healing system in Jimma zone as in other zones of the country. Finally the author recommends the need of further study in other (left) districts of Jimma zone, where the survey is not undertaken.

#### **ACKNOWLEDGMENTS**

I am very grateful to the Research and Publications Office of Jimma University for the financial support. I would like to thank Dr Ensermu Kelbessa for his great contribution in describing the plant species, and my wife Nigist Tadesse for typing the paper. I also appreciate those traditional

healers who showed their willingness to share their knowledge on the use of medicinal plants.

#### REFERENCES

1. Nair M, Nathan G. Medicinal plants: cure for the 21<sup>st</sup> century: Biodiversity, conservation and utilization of medicinal plants: Proceedings of the seminar UPM, Serdang, Malaysia 1998; 162 – 170.
2. Sofowora A. Medicinal plants and traditional medicine in Africa. University of Ife, Nigeria. 1982; 19–25.
3. Robert H. John B. Traditional medicine and health care coverage. WHO, 1983; 326 – 327.
4. Belachew D. Ethiopian traditional herbal drugs: potentiality and appropriate utilization. 8<sup>th</sup> International Conference of Ethiopian Studies 1984:763 –766.
5. Andrew T. Natural Foods and unconventional medical treatment. A bibliography on herbs and herbal medicines. Libraries Unlimited Inc. USA. 1982.
6. Harlan JR. Ethiopia: A center of diversity. *Econ. Botany*. 1969; 23:309-310.
7. Kloos H, Tekle A, Yohannes A, Akililu L, Yosef A. Preliminary studies of traditional medicinal plants in 19 markets in Ethiopia. Use patterns and public health aspects. *Ethiop Med J* 1976; 16:33–40.
8. Akililu L, Yau P. Studies on the molluscicidal properties of *Endod (Phytolaca dodecandra)*. Toxicity of various molluscicides to fish and snails. *Ethiop Med J* 1974; 12: 109-116.
9. Central Statistics Authority (CSA). Statistical report series, 1989, Addis Ababa, Ethiopia.
10. Mirgisa K. Utilization of Medicinal plants in health care system of Chora district. Illuababor zone south West Ethiopia. *Ethiop J Health Dev.* 1996; 10: 160-166.
11. Getachew A, Dawit A, Kelbessa U. A survey of traditional medicine plants in Shirka district, Arsi Zone, *Ethiop Pharm J.* 2001; 19: 31– 47.