



Ethno-botanical survey on medicinal plants used by ethnic groups of Denbia district, north-western Ethiopia.

Zewdu Birhanu*

Medicinal plant documentation unit; Department of Pharmacognosy, School of Pharmacy. Po. Box 197
University of Gondar, Ethiopia.

Abstract

To document information on medicinal plants and to describe the traditional health care practices of ethnic groups of Denbia district. Field survey and personal discussion methods had been used in the collection of data. A list of 25 plants belonging to 24 genera and 18 families that are used for their therapeutic purposes by the ethnic groups of Denbia district, North Gondar zone, North western Ethiopia with their local names, ethno medicinal claims, modes of preparation and methods of applications to treat common ailments are highlighted here. The present study has documented curious ethno medicinal facts on the plant therapies currently utilized by the ethnic groups of Denbia district. The study could contribute partial remedies in the preservation of cultural heritage and a base to researchers for further pharmacological and phytochemical studies.

Key words : Medicinal plants, ethno medicinal, Denbia district, Ethiopia.

1. Introduction

It is estimated that the Ethiopian flora contains between 6500 to 7000 species of higher plants in which about 10% to 12% are estimated to be endemic. Among the higher plant species that are known to exist in the country, 800 to 1000 of them are employed in traditional health care delivery system to prevent and treat nearly 300 physical and mental disorders. In fact the richness of Ethiopian flora has led researchers

to classify it as world centre of diversity and the country is often quoted as one of the six countries in the world where about 60% of plants said to be indigenous with their healing potential^[1,2,3]. In Ethiopia, loss of indigenous knowledge is not too far from developed countries; the vast knowledge on traditional use of plants is not fully documented, most of the knowledge is conveyed from generation to

* Corresponding author

Email: zbirhanu@yahoo.com, zbirhanu@gmail.com

generation through word of mouth^[1] and the rapid loss of these valuable plant species should be documented to take appropriate intervention measures. Today, in Ethiopia up to 80% of the population uses traditional healing practices in one or another way^[4]. With this background, a study of medico ethno botanical survey was performed to document the indigenous knowledge of medicinal plants used by the ethnic groups of Denbia district.

2. Ethnography

Denbia district is one of the 18 districts in north Gondar administration zone of Amhara regional state in North western Ethiopia. The district covers a total area of 127,000 square kilometre encompassing forty five kebeles (the smallest administrative unit in Ethiopia) among which five kebeles are in urban administration and the rest forty kebeles in rural area. The total population of Denbia district is 334,519 among which 169,274 (50.6%) are males and 165,245(49.4%) are females. The total population of the five urban kebeles are 35,798 of which 17,286 (48.29%) are males and 18,512 (51.71%) are females. The total population of the forty rural kebeles is 298,721 among these 151,988 (50.9%) are males and 146,733 (49.1%) are females. Denbia district is bordered by Layarmachio woreda from the North, Lake Tana from the South, Gondar zuria district from the East and Chilga & Takusa district from the West. The capital city of the district is Kolladiba, 35 kilometres from Gondar, the capital city of North Gondar administrative zone. The district has an altitude range of 1,740 to 2,080 metres above sea level. 90% of the population relies on agriculture. Major part of the district is rounded by hills and gentle slopes and partially surrounded by higher elevation. The dominant soil types are silty-clay and sandy-loam with brown colour. The soil depth is in between 20 to 70 centimetres. Concerning religion,

Orthodox Christians (83.3%), Muslims (15.8%), Protestants (0.4%), Catholics (0.1%). Majority of the people follow Orthodox Christianity. The official language of the district is Amharic; the official language of the country^[4].

3. Methodology

Field trip was made in each village of Denbia district from September 2nd to January 30th 2010 to collect ethno medicinal information from traditional healers by using semi-structured questionnaires. For ethical consideration, in each village, the local community leaders and all the informants were informed about the purpose of the survey. Each informant was asked to consent verbally to participate in the study.

During the course of the study, each informant was visited three times in order to verify the reliability of data obtained. If what was said during the first visit concerning the use of a particular medicinal plant by an informant did not agree with what was said during the second or third visit, the information was considered unreliable and was rejected. Repeated visits also helped to gather additional information that was not mentioned during earlier interviews. The interview and discussion was conducted in Amharic, the official language of the country. Vernacular names are given in Amharic language and are denoted as 'A'. The voucher specimen of all the plants have been stored in the herbarium at the survey of medicinal plant collection unit, School of Pharmacy, University of Gondar, Ethiopia.

4. List of medicinal plants

4.1. *Syzygium guineense* [Wild.]DC. Family Myrtaceae A: Dokma

A decoction is made from each one teaspoon of root and leaf powder and a cup of this decoction is given orally three times a day for seven days to treat syphilis.

4.2. *Tragia pungens* [Forrsk.] Muell. Arg. Family Euphorbiaceae A: Aleblabit

A teaspoon of leaf and root powder is boiled in water to make decoction. A cup of the decoction is taken orally twice a day for forty days in the morning and evening to treat impotence. Leaf paste is applied externally over the bitten area to cure snake bite.

4.3. *Tragia cinerea* [Pax]. Gilbert & Radcl-Smith. Family Euphorbiaceae A: Aleblabit

Fresh root is chopped and grounded to make paste with the help of stone mortar and pestle. The paste is applied over the affected area to relieve pain from scorpion sting. Fist of fresh leaf are minced and applied externally for healing the wound.

4.4. *Croton macrostachyus* Del. Family Euphorbiaceae A: Bisana.

Handful of fresh bark is soaked in 300ml of water over night, filtered and a cup of the filtrate is taken orally for fortnight to treat gonorrhea. A fist of leaves grounded to get half a cup of juice and taken orally in the morning and evening to treat jaundice, malaria and taeniasis. The fresh stem of the tree chopped in to pieces, boiled in excess water for about an hour and filtered. Then the filtrate is poured on to the head twice a day for five consecutive days to treat sever headache.

4.5. *Piper capense* L.f. Family Piperaceae A: Timiz

Half teaspoon of seed powder mixed with fresh milk to prevent the milk from microbial attach for several days.

4.6. *Securidaca longepedunculata* Fresen. Family Polygalaceae A: Siemenhe

Fresh leaf paste applied on the tooth to get rid of trigeminal oriented tooth pain.

4.7. *Rumex nepalensis* Spreng. Family Polygonaceae A: Tult

A teaspoon of root powder boiled in 200ml of water to make decoction. A cup of this decoction is given orally in the morning for five consecutive days in an empty stomach to treat ascariasis, abdominal bleeding and gastric ulcer.

Piece of fresh root grounded in to paste and applied externally to stop bleeding and to facilitate wound healing.

4.8. *Gomphocarpus stenophyllus* Oliv. Family Asclepiadaceae A: Chifrig

A teaspoon of root powder is boiled in two cups of water, filtered and a cup of this decoction is given orally in the morning for 30 days to treat gynaecological problems like leucorrhoea and dysmenorrhoea.

4.9. *Calpurnia aurea* [Ait.] Benth. Family Fabaceae A: Zigitta

A teaspoonful of seed powder boiled in 250ml of water, filtered and a cup of this filtrate is taken orally in the morning and evening to treat dysentery. The root bark is chewed and the menstrum swallowed to treat amobiasis. The leaf is chopped and rubbed on to the animal body to kill ticks and other external parasites.

4.10. *Snowdonia polystachya* [Fresen.] Plig. Family Poaceae A: Muja

A fist of fresh vegetative parts of the plant is grounded with water and small quantity of the resultant paste applied externally to treat ringworm.

4.11. *Brucea antidysentrica* J.F. Mill. Family Simaroubaceae A: Abalo

Handful of fresh leaf grounded to make paste and to it small quantity of honey is added and applied externally to treat leprosy, scabies and other skin diseases. Half cup of fresh leaf juice is taken orally to treat diarrhea.

4.12. *Maytenus senegalensis* Lam. Exell Family
Celastraceae A: Atat

Handful of leaves is minced to make paste and small quantity of honey is added and taken orally in the morning and evening to treat cancer.

4.13. *Dodonaea Angustifolia* L.F. Family
Sapindaceae A: Kitkita

Small quantity of seed powder is mixed with honey and taken orally in an empty stomach to treat gastric and colic pains. Handful of leaves is minced to make paste and applied over the injured area to heal bone fracture.

4.14. *Vernonia adoensis* Sch.Bip.ex Walp.
Family Asteraceae A: Girawa

The root part is chewed and the juice swallowed to treat snake bite. Whole root is fumigated as snake repellent.

4.15. *Lupinus albus* L. Family Fabaceae
A: Gibtto

Seeds infused in water and a cup of the filtrate taken orally in the morning to treat hypertension.

4.16. *Piliostigma thonningii* (Schum.) Milne-
Redh. Family Fabaceae A: Yekola wanza.

The fresh bark is crushed and the resultant paste applied on the wound after male circumcision as wound healer. The wood is chipped in to pieces for fumigation of milk pot to improve the flavor of milk.

4.17. *Salvia nilotica* Juss.ex Jacq. Family
Lamiaceae. A:Kinchette

Handful of fresh leaf is squeezed and applied externally on the skin affected by wart.

4.18. *Macaranga capensis* (Baill.) Benth. ex
Sim. Family Euphorbiaceae A: Misanna

Fresh root bark juice is taken orally with honey in the morning for seven days to treat male impotence.

4.19. *Prunus Africana* (Hook.f.) Kalkman.
Family Rosaceae A: Tikurinchet

The fresh leaves chewed and the juice swallowed to treat tonsillitis.

4.20. *Guizotia abyssinica* (L.F) Cass. Family
Asteraceae A: Nug

The seed is grinded, mixed with water, filtered and the filtrate taken orally once a day to treat dry cough.

A cup of seed oil is taken in empty stomach for seven days to prevent rabies infection soon after exposure from infected dog (best if used within seven days of contact with the infected dog).

4.21. *Galium aparine* L. Family Rubiaceae
A: Chigogot

A piece of fresh root is chewed and the juice is swallowed to treat gonorrhea. Leaves are squeezed and rubbed on the body except near the heart to treat sunstroke.

4.22. *Carissa spinarum* Linn. Family
Apocynaceae A: Agam

Handful of fresh leaves made in to paste and applied externally on the affected part to cure snake bite. Juice from fresh twigs is swallowed in the morning and evening to cure throat cancer.

4.23. *Adansonia digitata* L. Family
Bombacaceae A: Bamba

The bark is made in to decoction and taken in the morning and evening to cure cholera and bloating of stomach.

4.24. *Ficus Palmata* Forssk. Family Moraceae
A: Beles

Sap obtained from the fruit and the leaf (milky exudates) is applied over the affected area to cure hemorrhoid.

4.25. *Maytenus undata* (Thunb.) Blakelock.
Family Celastraceae A: Checho

Fresh and healthy leaves (3-5) are squeezed and

two drops of the juice is instilled in to the affected eye twice a day to treat eye infections.

5. Result and discussion

The present ethno botanical survey has documented 25 plant species representing 24 genera and 18 families that are frequently employed in the health care delivery system of the people of Denbia district, North Gondar administrative zone, North-western Ethiopia. These medicinal plant species are distributed in 18 families: Euphorbiaceae (4), Fabaceae (3), Celastraceae (2), Asteraceae(2) and 1 in each family of Piperaceae, Polygalaceae, Polygonaceae, Asclepiadaceae, Poaceae, Simaroubaceae, Sapindaceae, Lamiaceae, Rosaceae, Rubiaceae, Apocynaceae, Bombacaceae, Myrtaceae and Moraceae.

According to the study most of the preparations were from single plants and the leaf part is mainly used plant part. In some of the preparations honey is used as a sweetening agent and concerning their route of administration,

medicinal plant preparations taken orally 8 (32%), topically 6 (24%), both orally and topically 8 (32%), both topically and fumigant 2(8%), added to milk as preservative 1(4%).

6. Conclusion

The present study has documented medico ethno botanical information of plants used by the community of Denbia district for various illnesses. The study could contribute partial remedies in the preservation of cultural heritage and a base to researchers for further Pharmacological and Phytochemical studies.

7. Acknowledgement

My greatest appreciation goes to all the community leaders in Denbia district in convincing the traditional healers to give their information openly by staying at my side until the end of the survey. I am also grateful to University of Gondar librarians and Pharmacognosy department members for their unreserved support.

References

1. Addis G, Abebe D, and Urga K, [2001] a survey on traditional medicinal plants in Shirka district Arsi zone, Ethiopia *Ethiopian Pharmaceutical journal* 19:30-47.
2. Giday M [2001] an ethno botanical study of medicinal plants used by the Zay people in Ethiopia CBMS Skriftserie 3: 18-99 Uppsala.
3. Kloos H, Tekle A, Yohannas L, Yosef A, Lemma A [1978] preliminary study of medicinal plants in nineteen markets in Ethiopia, use patterns and public health aspects *Ethiopian medical journal* 16:33-43.
4. Central Statistical Authority of Ethiopia (CSA) Gondar population survey 2009.