Ethnobotanical study of traditional medicinal plant species and indigenous knowledge by the Konso people, South Ethiopia

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ABSTRACT

For thousands of years, indigenous people have developed their own localized knowledge of plant use, management, and conservation. However, this rich traditional knowledge on plant utilization was not well documented, and most of the indigenous knowledge acquired by the local people was verbally passed from generation to generation. The people of Konso in South Ethiopia use and maintain traditional medicinal plant species, according to their specific ethnobotanical pharmacopeia. This study explores the unique indigenous knowledge that enables the community to identify medicinal plants, prepare medications, and then apply the cures used to treat a variety of human diseases as dangers to their long-term use. The results of the study showed that some medicinal plant species are more popular than others. *Lepidium sativum, Hagenia abyssinica* and *Allium sativum* were cited by all the 80 informants for their medicinal value. 40.0% of the medicinal plant species are used in powdered form directly, while 51.4% are chewed, extracted with water, and / or with butter (17.1% each) and 8.6% are extracted with local beer. Of the herbal remedies used in the study area, 68.6% were applied orally and 31.4% were applied externally. Roots are the parts most used (35.7%), followed by leaves (32.9%), combination of parts (18.6%), root bark (5.7%), fruit (2.9%), in that order, respectively.

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INTRODUCTION

Indigenous peoples have developed their own local specific knowledge on plant resource use, management, and conservation over centuries (1, 2). Such knowledge is held by individuals, families, or villages in these cultures (2). Indigenous knowledge (IK) or traditional knowledge is the complex knowledge, beliefs, and practices that develop and change over time and space. As a result, indigenous (traditional) knowledge includes time-tested practice that evolved through human interaction with their environment (3, 4).

Ethnobotanical studies are useful for documenting, analyzing, and disseminating knowledge about the interaction of biodiversity and human society, as well as how biodiversity is valued in different societies and how it is influenced by human activities (5). Even though the Konso people have long standing wealth of knowledge regarding medicinal plants and their usage, there is very little or insufficient documentation of information on the usage and maintenance of traditional medicinal plant species and the associated indigenous knowledge and practices.

The people of Konso in South Ethiopia use and maintain traditional medicinal plant species, according to ethnobotanical research. This study explores the unique indigenous knowledge that enables the community to identify medicinal plants, prepare medications, and then apply the cures used to treat a variety of human diseases as dangers to their long-term use.

METHODS AND MATERIALS

- A total of 80 informants aged 25 to 87 years old were chosen (10 individuals of which 5 healers and 5 clients).
- 24 key informants were chosen from among the informants, six from each study kebele.
- The healers were chosen by snowball sampling, while the clients were chosen by systematic random sampling from the offices of the Peasant Association.
- Ethnobotanical data were collected using open ended, semi-structured interviews, group discussions and focus group discussions,
- Analyzed using descriptive statistics and simple linear correlation coefficient methodologies.
- This study was carried out from September, 2018 to July, 2019.

RESULTS

- A total of 70 medicinal plant species belonged to 59 plant genera and 30 plant families used by Konso People were recorded.
- The number of health problems that are possibly treated by traditional medicinal plants in the study area is about 36.
- Accordingly, *Lepidium sativum, Hagenia abyssinica* and *Allium sativum* took the lead as each was cited by all the 80 informants (100%) for their medicinal value.
- 40.0% of the medicinal plant species are used in powdered form directly and of the remaining 51.4% are chewed, extracted with water, and / or with butter (17.1% each) and 8.6% are extracted with local beer.
- 68.6% were applied orally and 31.4% were applied externally.
- Roots are the most used (35.7%), followed by leaves (32.9%), combination of parts (18.6%), root bark (5.7%), fruit (2.9%), in that order, respectively.
- 76.5% of the medicinal plant species were herbs, 8 or 11.8% were trees and the same number and percentage as the later were shrubs.
- The highest number of healers lies in the age group between 51 and 70 and it comprises around 50% of the total number of healers and were inherited from father, which is 38.1% of the total ways of acquisition.
- It was known that highest source of the medicinal plants was the forest (45.3%).
- Home gardens and agro forests together contribute 41.86% of the medicinal plants

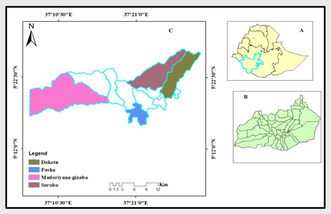

Figure 1. Map of the study area

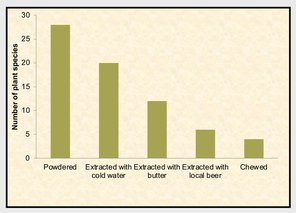

Figure 2. Modes of preparation.

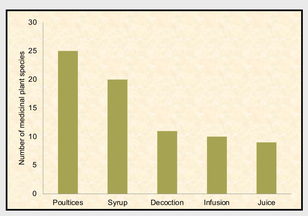

Figure 3. Types of preparation.

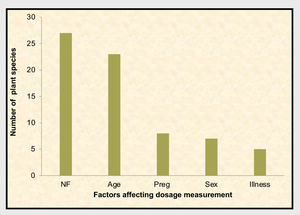

Figure 4. Factos affecting dosage.

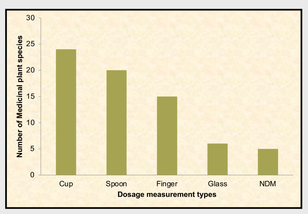

Figure 5. measuring the dosages

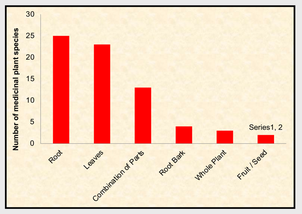

Figure 6. Parts of the plants used.

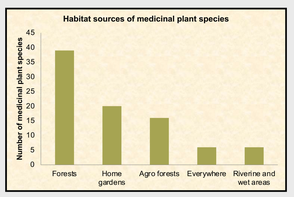

Figure 7. Habitat source of medicinal plants.

Table 1: Based on the informant consensus plant species cited as medicinally important by 40% and, NI=number of informants

Botanical Name	NI	(%)	Rank
Hagenia abyssinica	80	100	1st
Lepidium sativum	80	100	1st
Ruta chalapensis	80	100	1st
Allium sativum	80	100	1st
Croton macrostachyus	78	97.5	5th
Andrachne ephmera	77	96.3	6th
Achyranthes aspera	75	93.8	7th
Ocimum lamifolium	75	93.8	8th
Terminalia brownii	56	70	9th
Pterocephalus frutescens	45	56.3	10th
Oxalis anthelmintica	45	56.3	11th
Vangueria madagascarensis	39	48.8	12th
Silene flamulifolia	35	43.8	13th
Rubia cordifolia	35	43.8	14th
Caeslpina volkensii	32	40	15th

DISCUSSION

- Like many other communities in Ethiopia, the Konso people use herbal medicine for their primary health care systems.
- This community, the herbal practitioners are consulted to attend to common ailments such as spasm, headache, retained placenta, rheumatism, mouth thrush, wounds, tonsillitis, urine retention, anthrax infection, snakebite, and evil eye.
- This is true in many other traditional set up the use of plant remedies to treat this line of ailments, is common in indigenous communities when compared with western drugs which are often used to treat disorders of cardiovascular and nervous systems, neoplasm and microbial ailments.
- This trend is attributed to the fact that, indigenous people can easily detect inflammations, skin diseases and gastrointestinal disorders as compared to cancer and cardiovascular diseases.
- The most widely used medicinal plant species for the preparation of remedies are harvested from the wild and also true in many parts of the country.

CONCLUSIONS

The present study was conducted in Konso's selected Kebeles has various plants currently used for medicinal and other purposes, suggesting the deep indigenous knowledge of Konso people, South Ethiopia. These natural resources are important for local people's economic well-being and health, particularly the impoverished. The home gardens and forest systems that make up the study area contribute significantly to the conservation of medicinal plant species.

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