



Marketable Medicinal, Edible and Spice Plants in Endasilase-Shire District Tigray Regional State, Ethiopia

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ABSTRACT

Background: Explorations of medicinal, edible and spice plants are essential from the view point of documentation of indigenous and traditional knowledge, which accordingly helps in formulation of potential raw materials in modern industry for further availability and utilization by human being for different purposes. The aim of the present study was to document the indigenous knowledge and utilization of different marketable medicinal plant species, edible fruits and spices sold by the marketer of Endasilase-Shire. Semi-structured questionnaire from purposely selected marketer /local informants/, interviews and group discussion were carried out to collect data from the market of Endasilase-shire. Snowball sampling was also used to select marketer of key informants of medicinal, edible and spice plant. **Result:** About twenty-eight plant species belonging to 22 families and 28 genera used as medicinal, edible and spice were identified. The life forms of these plants were 47% herbs, 39% tree and 12% shrub respectively in their decreasing order. Higher numbers of medicinal plants were cited by middle age group informants than lower age group informants and males were involved more than females in traditional healing practice. The local people in the study district use these medicinal, edible and spice plants due to cheap price, their effectiveness and availability. Agricultural expansion was ranked first as a most threat followed by deforestation for fire wood collection and over grazing respectively; the least one was drought. **Conclusion:** Such investigations are crucial from the view point of documentation and conservation of ethnobotanical and traditional knowledge, which helps in formulation of potential raw materials in modern industry for further availability and utilization of human beings.

Key words: Endasilase-Shire district; Marketable; Spice; Medicinal and Edible.

INTRODUCTION

Since ancient times plants have been vital sources of consumption, preventive and curative traditional medicines for human beings and livestock [1]. More than 3.5 billion people in the developing world rely on medicinal plants as components of their health care systems [9]. Above and beyond their use in fighting various ailments among local populations, certain medicinal plants are also export commodities, valuable as sources of considerable income for harvesters and for use as raw materials for modern bio-pharmaceutical industries. About 80% of the human population in Ethiopia rely on traditional medicines. The concern for medicinal plant conservation in Ethiopia these days calls for insistent studies and documentation before accelerated ecological and cultural transformation deforms the habitats of these plants and culturally held knowledge bases [4]. Information regarding medicinal plants in Africa is transmitted through words of mouth, from generation to generation, therefore knowledge of wild marketable, medicinal, edible and spice plants

are in danger of being lost as habitats through value systems and natural environments change [6]. Thus, precious indigenous knowledge associated with medicinal plants deserves proper documentation. The main objectives of this study were to identify marketable, medicinal, and edible and spice plants and document local knowledge about their utilization and management in the markets of Endasilase-Shire City District of Northern Ethiopia.

Study Area Description:

Endasilase-Shire City district is found in the Northern West zone of Tigray regional state, Ethiopia surrounded by Tahtay Koraro Wereda. It is found 1087 km North of Addis Ababa, the capital city of Ethiopia, at geographical coordination of 14⁰8'18''N, 38⁰2'10''E and altitude of 1953 meter above sea level. It is the capital city of North West zone of Tigray, Endasilase-Shire and Tahtay Koraro districts and characterized by midland agroecological zone.

2.1 Data Collection and Analysis:

Ethnobotanical data were collected using semi-structured questionnaires from purposely selected households, interviews and group discussion. The interviews and discussions were conducted in the local language, Tigrigna, and translated in to English for reporting. Information collected includes local name of the traditional medicinal plant, diseases treated, parts used, and method of preparation and route of administration. The key informants were selected using a snowball sampling method [8] in which famous traditional herbalists

were contacted and each asked to mention other one with related familiarity and abilities. The collected data were analyzed using descriptive statistics and Microsoft Excel sheet.

3. Result:

3.1 Background Information of Informants:

Knowledge distribution of medicinal plants was compared between age, *kebele* (smallest administration below district), gender and educational level of informants (Fig. 1).

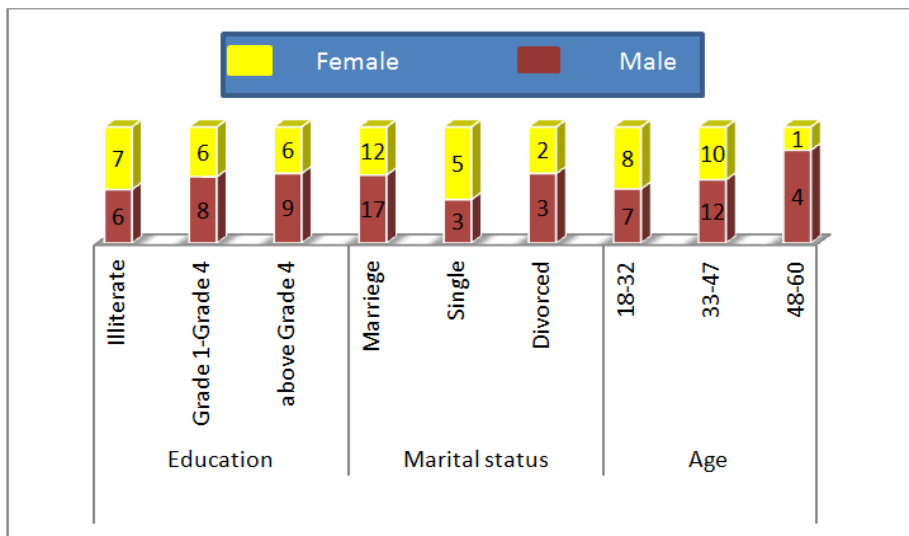


Fig. 1: Back ground of informants

3.2 Marketable Traditional Medicinal Plants and Potential Threat :

Medicinal, edible and spice plants are exposed to various anthropogenic factors. From these factors,

agricultural expansion was ranked first by selected key informants followed by deforestation for fire wood collection and over grazing respectively; the least one is drought (Table 1).

Table 1: Reasons for the acceptance of traditional medicinal plants and potential threat

Traditional medicinal plants use	Percent (N=42)	Potential threat	Percent (N=42)
Socio cultural	10	Agricultural encroachment	45
Economical reason	40	Deforestation	22
Effectiveness	31	Over grazing	14
Availability	19	Over harvesting	12
Total	100	Drought	7
		Total	100

3.3 Diversity of Marketable Medicinal, Edible and Spice Plants:

A total of 28 plant species which had market value and sold at the market of Endasilase-Shire City district were documented (Table 2). The Species were represented 28 genera and 22 families. In terms of species composition, the family Solanaceae consisted of 3 species (14%) is the

dominant family in the study district. The growth form of the medicinal, edible and spice plants were 47% herbs, 39% trees and 12% shrubs respectively in their decreasing order. Most of the medicinal plants had no or few market value (Table 3). They were accessed to the market in different parts, but the most common forms sold in the market were leaves, roots, seeds, Stem and fruits (fig. 2).



Fig. 2: Marketable medicinal plants

Table 2: List of Marketable Medicinal, Edible and Spice Plants in the market of Endasilase-Shire

No	Scientific name	Family name	Local name	Habit	Parts used	Use value	Disease treated	Route of administration
1	<i>Plumbago zeylanica</i> L.	Plumbaginaceae	Aftuh	H	Root	Medicinal	Wound	Dermal
2	<i>Withania somnifera</i> (L.) Dunal	Solanaceae	Agol	H	Leaf	Medicinal	Eye infection Evil eye	Dermal Nasal
3	<i>Ruta chalepensis</i> L.	Rutaceae	Chena adam	H	Leaf	Medicinal	Abdominal pain Cough	Oral Nasal
4	<i>Lepidium sativum</i> L.	Brassicaceae	Shinfae	H	Seed	Medicinal	Wound/sore Abdominal pain Hemorrhoids	Dermal Oral Anal
5	<i>Ziziphus spina</i> (L.) Desf.	Rhamnaceae	Gaba	T	Leaf, Fruit	Medicinal Food	Dandruff Head wound	Dermal Dermal
6	<i>Olea europaea</i>	Oleaceae	Awlie	T	Stem	Medicinal	Teeth	Oral

No	Scientific name	Family name	Local name	Habit	Parts used	Use value	Disease treated	Route of administration
	subsp. <i>cuspidata</i> (Wall. Ex G.Don) Cif., L'Olivicoltore				Leaf		infection laziness	Oral
7	<i>Zingiber officinale</i> Roscoe.	Zingiberaceae	Gingble	H	Rhizome	Medicinal Spice	Abdominal pain	Oral
8	<i>Ximenia americana</i> L.	Olacaceae	Milio	T	Root -fruit	Medicinal Edible	Anti-vomit Evil eye	Oral Nasal
9	<i>Trigonella foenum-graecum</i> L.	Fabaceae	Aba-ake	H	Seed Seed	Medicinal Spice	Abdominal pain Swelling	Oral Dermal
10	<i>Rumex abyssinicus</i> Jacq.	Polygonaceae	Meqmeqo	H	Leaf /root	Medicinal Spice	Headache Ascariasis Toothache	Oral Oral Oral
11	<i>Lycopersicum kesculantum</i> Mill.	Solanaceae	Komidere	H	Leaf Fruit	Medicinal Spice	Leeches	Nasal
12	<i>Grewia ferruginea</i> Hochst	Malvaceae	Tsinquait	S	Bark Fruit	Medicinal Edible fruit	Leech fire burn	Nasal Dermal
13	<i>Cordia africana</i> Lam.	Boraginaceae	Akui/awhi	T	Leaf	Medicinal Edible	Tonsillitis Tinea capitis	Oral Dermal
14	<i>Citrus aurantifolia</i> (Christm.) Swingle	Rutaceae	Lemin	T	Fruit	Medicinal Edible	Infection skin/teeth	Oral
15	<i>Capsicum annum</i> L.	Solanaceae	Gueberbere	H	Fruit	Medicinal Spice	Leech Gum infection	Oral Oral
16	<i>Brassica rapa</i> L.	Brassicaceae	Hamli adri	H	Leaf	Medicinal Food	Wound	Dermal
17	<i>Allium sativum</i> L.	Amaryllidaceae	Tsaeda shingurti	H	Bulb	Spice Medicinal	Cough Fibril illness	Oral Dermal
18	<i>Rhamnus prinooides</i> L'Herit.	Rhamnaceae	Gesho	S	Seed	Medicinal Local drink	Tinea capitis	Dermal
19	<i>Syzygium guineense</i> Cham.	Mrytaceae	Liham	T	Fruit	Medicinal Edible fruit	Evil eye Wound sore	Nasal Dermal
20	<i>Diospyros mespiliformis</i> Hochst. Ex A. DC.	Ebenaceae	Aye	T	Fruit Flower	Medicinal Edible	Ring worm	Oral
21	<i>Rhus glutinosa</i> A. Rich.	Anacardiaceae	Tetaelo	T	Leaf Seed	Medicinal Edible	Depression	Oral
22	<i>Ricinus communis</i> L.	Euphorbiaceae	Gulie	H	Leaf	Medicinal	Hornworm	Dermal
23	<i>Balanites aegyptiacus</i> (L.) Delile	Xygophyllaceae	Mekie	T	Flower Fruit	Medicinal Edible	Tuberculosis	Oral
24	<i>Tamarindus indica</i> L.	Fabaceae	Humer	T	Flower Fruit	Medicinal Edible	Hypertension , Splenomegally	Oral
25	<i>Pennisetum glaucifolium</i> Hochst. ex A.Rich.	Poaceae	Bierir	S	Stem	Medicinal	Skin disease	Dermal
26	<i>Prunus Persica</i> (L.) Batsch.	Rosaceae	Kuek	T	Fruit	Medicinal Edible	Constipation	Oral
27	<i>Rosmarinus officinalis</i> L.	Lamiaceae	Azmarino	S	Leafy stem	Spice Medicinal	Constipation Stomach ache	Oral
28	<i>Eugenia sps</i>	myrtaceae	Qinfir	H	Stem	Medicinal	Skin itchiness	Oral

Key T = Tree, S= Shrub, H=Herb

Table 3: Marketability of Medicinal, Spice and Edible plants with their measurement and unit price

Scientific name	Family name	Local name	Use parts of the tree	measurement	Unit price in ETH. birr
<i>Plumbago zeylanica</i> L.	Plumbaginaceae	Aftuh	Root	pieces	10-5
<i>Withania somnifera</i> (L.) Dunal	Solanaceae	Agol	Leaf	pieces	25
<i>Ruta chalepensis</i> L.	Rutaceae	Chena adam	Leaf	Pieces	5
<i>Lepidium sativum</i> L.	Brassicaceae	Shinfae	Seed	Cup of tea	20
<i>Ziziphus spina</i> (L.) Desf.	Rhamnaceae	Gaba	Leaf, & Fruit	Tea cup	5
<i>Olea europaea</i> subsp. <i>cuspidata</i> (Wall. Ex G.Don) Cif., L'Olivicoltore	Oleaceae	Awlie	Stem & Leaf	Pieces	1
<i>Zingiber officinale</i> Roscoe.	Zingiberaceae	Gingble	Rhizome	Tea cup	25
<i>Ximenia americana</i> L.	Olacaceae	Milio	Root & -fruit	Tea cup	10
<i>Trigonella foenum-graecum</i> L.	Fabaceae	Aba-ake	Seed &	Tea cup	25

			Seed		
<i>Rumex abyssinicus</i> Jacq.	Polygonaceae	Meqmeqo	Leaf /root	Pieces & Tea cup	20
<i>Lycopersicum kesculantum</i> Mill.	Solanaceae	Komidere	Leaf & Fruit	Pieces & tea cup	8
<i>Grewia ferruginea</i> Hochst	Malvaceae	Tsinquait	Bark & Fruit	Pieces & tea cup	5 & 10
<i>Cordia africana</i> Lam.	Boraginaceae	Akui/awhi	Leaf	pieces	5
<i>Citrus aurantifolia</i> (Christm.) Swingle	Rutaceae	Lemin	Fruit	pieces	1
<i>Capsicum annuum</i> L.	Solanaceae	Gueberbere	Fruit	kilo	20
<i>Brassica rapa</i> L	Brassicaceae	Hamli adri	Leaf	stalk	10
<i>Allium sativum</i> L.	Amaryllidaceae	Tsaeda shingurti	Bulb	stalk	45
<i>Rhamnus prinoides</i> L'Herit.	Rhamnaceae	Gesho	Seed	Full of 50 kilo sack	300
<i>Syzygium guineense</i> Cham.	Mrytaceae	Liham	Fruit	Tea cup	10
<i>Diospyros mespiliformis</i> Hochst. Ex A. DC.	Ebenaceae	Aye	Fruit Flower	Tea cup	10
<i>Rhus glutinosa</i> A. Rich.	Anacardiaceae	Tetaelo	Leaf Seed	Pieces & tea cup	5&10
<i>Ricinus communis</i> L.	Euphorbiaceou s	Gulie	Leaf	Kilo	30
<i>Balanites aegyptiacus</i> (L.) Delile	Xygophyllacea e	Mekie	Flower Fruit	Pies and Tea cup	7 & 15
<i>Tamarindus indica</i> L.	Fabaceae	Humer	Flower Fruit	Pies and Tea cup	7 & 15
<i>Pennisetum glaucifolium</i> Hochst. ex A.Rich.	Poaceae	Bierir	Stem	stalk	15
<i>Prunus Persica</i> (L.) Batsch.	Rosaceae	Kuek	Fruit	pieces	3
<i>Rosmarinus officinalis</i> L.	Lamiaceae	Azmarino	Leafy stem	stalk	6
<i>Eugenia sps</i>	myrtaceae	Qinfir	Stem	stalk	10

Discussion:

Based on the data obtained from the informants in the study site higher number of medicinal plants was cited by middle age group informants than lower age group informants. Besides this, males were involved more than females in traditional healing practice. This compares with the findings of who found that those above 40 identified more medicinal plants among the Zay people of Ethiopia. A similar observation was also reported by. A higher number of species were also reported by males in each locality. also indicated that a significantly higher number of medicinal plants were reported by informants above 40 years of age among the Bench ethnic group. However, reported a statistically insignificant correlation between age and the number of medicinal plants by the local people in Jimma zone, Southwestern Ethiopia. This could relate to knowledge acquisition by the lower age class in that locality. In the present study, the reason elders were more knowledgeable was due to their personal experiences using these plants. The variation in the awareness of the age classes relating to the utilization of marketable traditional medicinal plants would likely result in the loss of plant knowledge over time.

Pressures from agricultural expansion, wide spread cutting for fuel wood combined with seasonal drought have been reported by [18] as main factors for environmental degradation as well as the depletion of medicinal plants. in Asgede Tsimbla, Tigray regional state of North Ethiopia confirms that the highest threat to medicinal plant was agricultural expansion. In general, several studies in

different parts of Ethiopia had resonated with the above mentioned factors. The local people use these medicinal, edible and spice plants due to their reasonable price, effectiveness and availability. Although few medicinal plants had market value, their market price was not still gorgeous [18].

Conclusion:

Explorations of medicinal plants are essential from the view point of documentation of indigenous and traditional knowledge, which accordingly helps in formulation of potential raw materials in modern industry for further availability and utilization by human being for different purposes. In Endasilase-Shire, the people with low daily income of the local community collect plants from the wild and sold in the market in order to complement their daily incomes. Due to continued agricultural expansion and increasing market demand, numerous plant species are threatened with extinction. For rational and regulated collection, local community control measures are necessary. It is also essential to promote the cultivation of these medicinal, edible and spice plants that would provide strong motion to agricultural transformation, increased income for farmers and conservation of the wild population of the indigenous, medicinal, edible and spice plants.

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Competing Interests:

Author has declared that no competing interests exist.

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