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Assessment of conservation status and threatening factors of medicinal plant species in Harari Regional State, Eastern Ethiopia

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Abstract

The study was carried out from July - October, 2016 in Harari regional state eastern Ethiopia. Data were collected using questionnaires, semi- structured interviews and focal group discussion. Furthermore, field observation based on a checklist was used. A total of 90 respondents were selected and from this 70 of them were selected by using simple random sampling technique remaining 20 respondents were as key informants that were selected from regional agricultural office, environmental office and cultural and tourism office by using purposive sampling techniques. The Priority percentage ranking was done based on the level of destructive effects of each threatening factor collecting from the total respondents. A total of thirteen (13) different threaten factors were identified from the present finding and from this most of them (7) raised during focal group discussion and percentage ranking were done for the factors that obtained from questionnaires and individual interviews. Around 34% of the respondents were responded that agriculture expansion was the main threaten factor for the loss of medicinal plants. Next to this lack of awareness or conservation practice, modernization, construction, road expansion and invasive species were the other threatening factors responded by (20%, 18%, 11%, 9%, and 8%) of the respondents respectively. And the remaining factors also should be under consideration. Finally we recommend that concerned bodies as well as the whole society should have to make action and awareness creation should be done to conserve the endangered medicinal plant resources.

Keywords: Medicinal plant, threatening factors Harari region, Ethiopia

1. Introduction

Medicinal plants and traditional medicine play an important role in the health care system of most developing countries, including Ethiopia. Starting from ancient up to now most (85%) of the total population of Ethiopia is depending on traditional medicine to treat different types of human and animal illness [3]. As stated [11] in Ethiopia, traditional medicine faced with a problem of sustainability and continuity mainly due to loss of taxa of medicinal plants, loss of habitats of medicinal and other categories of plants and cultures. Now a day the majority of medicinal plants harvested either from wild habitats, farm lands, home gardens and cultivated area, which are highly under great threat [5]. The major cause for the threatening of these medicinal plants mainly due to lack of awareness for systematic conservation, research, sustainable utilization and documentation.

In Ethiopia the knowledge of medicinal plants is commonly secretly passed orally from generation to generation. In this process valuable information can be lost whenever a medicinal plant is lost or when a traditional medical practitioner dies without passing his/her indigenous knowledge to others [4]. On the other hand, pressures from agricultural expansion, construction, invasive alien species, modernization, wide spread cutting for fuel wood combined with seasonal drought have been reported by [2, 7, 6] as main factors for the depletion of medicinal plants. Hence, documentation of indigenous knowledge and making herbaria for future use is also recommended to conservation of the declining medicinal plants [9]. And also to create awareness on the contribution of traditional medical practice towards fulfilling the primary healthcare needs should be created among the youth [8]. It was pointed out that young generation has no interest to know about medicinal plants and efforts should be made to incorporate traditional medicine in school curricula so that younger people appreciate its usefulness [8].

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Therefore, the main objective of the present study was to assess different threatening factors that cause the lose of medicinal plant species, identify and recommend the appropriate conservation strategy in the study area.

2. Materials and Methods

The study have been conducted between July - October, 2016 in Harari Regional State, eastern Ethiopia. The study area was located 525km far from Addis Ababa which is the capital city of Ethiopia. The size of the sample does not necessarily depend on the total population, but depends on the available fund, time and other reasons [10]. A total of 90 (55 male and 35 female) respondents were selected and from this 70 (45 male and 25 female) of them were selected by using simple random sampling technique reaming 20 (12 male and 8 female) respondents were as key informants that were selected from regional agricultural office, environmental office and cultural and tourism office by using purposive sampling techniques. To collect the appropriate data for this study primary source of data collection method was employed using both open and closed ended questionnaires; interviews and focal group discussion were used. Field observation based on the rate of threatening factors given by the respondents regarding with the habitats of each medicinal plant species in the field was done. Based on their destructive effects Priority ranking was done for each threatening factor (“A” to “E” scores were assigned where “E” is for the least and “A” the most destructive threat). And finally the data were presented using tables, graphs and percentages using statistical package for social science (SPSS version 20).

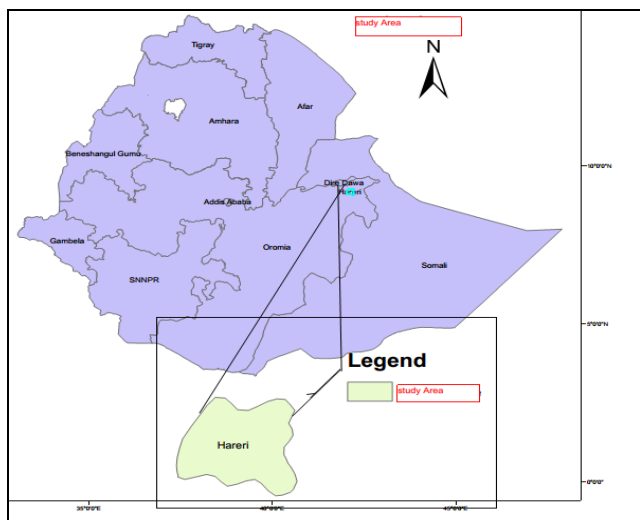


Fig 1: Study area (Harari regional State)

3. Result and Discussion

3.1. Threats of Medicinal plants in the Study Area

Various factors were considered as threats to existence of medicinal trees and shrubs in the study area among which expansion of agriculture was the most important threaten factor followed by the conservation activates of the society (Fig 2). This is almost in agreement with earlier studies conducted in Sothern Ethiopia that indicated that agriculture was the most threaten factor of medicinal plants [1]. Pressures from agricultural expansion, lack of conservation practice combined with different threatening factors like seasonal drought have been reported by previous findings of [6] and [7] as main factors for environmental degradation as well as the depletion of medicinal plants in different parts of Ethiopia. Medicinal plant species like *Vernoniaamygdalina* Del.,

Lagenariasiceraria, *Acacia brevispica* Harms. and *Withaniasominifera* (L), were threatened due to the above factors in the study area. In general the present study indicated that agricultural expansion and lack of conservation practice were the predominantly occurred problems that threaten the medicinal plants. This result is almost in agreement with the works of [12] on ethnobotanical study of medicinal plants in Asgede Tsimbila district, northwestern Tigray, which states that Agriculture was the most threatening factors based on their level of destructive effects on medicinal plant species followed by lack of community awareness for conservation practice.

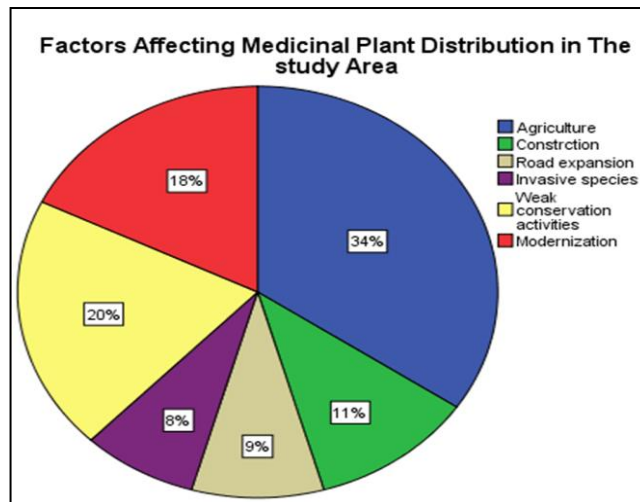


Fig 2: Percentage of major threaten factors of medicinal plant in the study area

3.2. Level of destructive effects of each threatening factor

Table 1: The level of destructive effects of each threatening factor (“A”to “E” scores were assigned where “E” is for the least and “A” the most destructive threat)

S. No.	Threatening factors	Observation check list				
		A	B	C	D	E
1.	Agriculture	√				
2.	Construction	√				
3.	Firewood					√
4.	Modernization	√				
5.	Invasive alien Species			√		
6.	Road expansion			√		
7.	Conservation activates	√				
8.	Drought					√
9.	Over-grazing				√	
10.	Land fragmentation				√	
11.	Lack of awareness		√			
12.	Deforestation				√	
13.	Urbanization				√	

Key: E: Very low D: Low C: Medium B: High A: Very high

The above table indicated that the observation check list of both the threatening factors that responding during individual interview and focal group discussion during data collection and field observation in the study area.

From the table we can understand that agricultural expansions, lack of Conservation activates, Construction and Modernization were categorized under most destructive threat of medicinal plant species in the study area. This means those threatening factors are highly affected medicinal plant species when compare with others. And drought and use of medicinal plants for fire wood were less threatening value as compared with the rest in the study area.

3.3. Trends and status of medicinal plants in the study area

From the total respondents during the data collection most of the informants (76.7%) of them indicated that the trends of the community using medicinal plants as well as the abundance of the plant in the study area become highly decreased from time to time (Fig. 3).

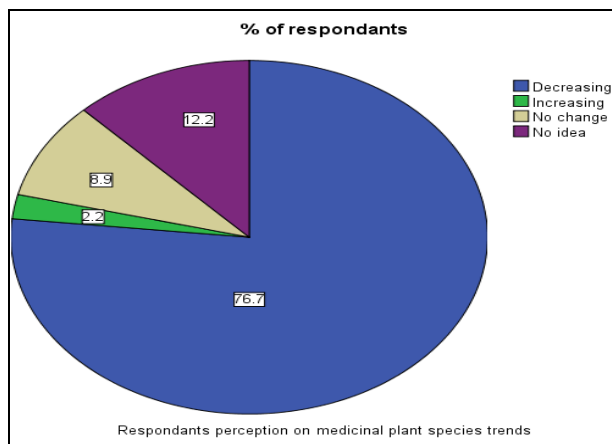
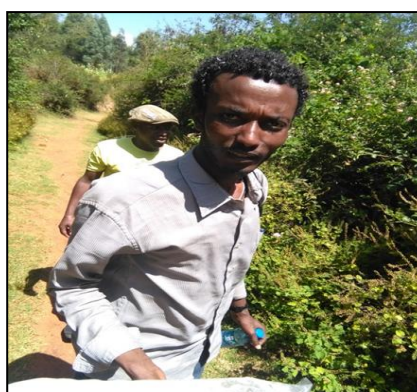


Fig 3: Trends and status of medicinal plant in the study area

4. Conclusions and Recommendations

In general the result of the present study indicated that the

conservation status and abundance of medicinal plants become decreasing at an alarming rate due to the threatening factors that are commonly practice in the study area. Existing mismanagement of medicinal plants like, agriculture, modernization, lack of awareness for conservation practice, Construction, urbanization, Invasive alien spices, road expansion and factors that raised during focal group discussion like over-grazing, land fragmentation, drought, deforestation and urbanization were the major threatening factors identified in the study area. When compared with the level of destructive effects of each t threatening factor agricultural expansion and lack of awareness for conservation practice were the most identified problem. Therefore, awareness creation with regards way of agricultural practice and conservation system and in deeply importance of medicinal plants are timely needed to improve local community's knowledge on the conservation and management of medicinal plants in order to keep on the knowledge as well as the plant for the future generation. It is advisable to Awareness campaigns on the importance of cultivating medicinal plants should be carried out to grass root levels, to eliminate the cultural beliefs that bar people from cultivating the plants. A policy should be enacted that would empower traditional herbalists to practice without restriction or fear of intimidation from their counterparts in conventional medicine.



Appendix: Photo that was taken during interview and focal group discussion

5. Acknowledgments

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