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Ethnobotanical Survey of Medicinal Plants used by Traditional Healers of South Unguja Region in Zanzibar

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ABSTRACT

This study was conducted to document medicinal plants used by traditional healers in the Southern Region of Unguja, Zanzibar, and to preserve valuable indigenous ethnobotanical knowledge for future generations. Ethnobotanical information was collected through structured and semi-structured interviews with 252 participants from 64 shehias (wards) in the South and Central Districts of Unguja. Data collection focused on vernacular names, plant parts used, diseases treated, and the source of traditional knowledge. The data were analyzed using Statistical Package for the Social Sciences (SPSS) and Origin software to determine the frequency and distribution of plant use.A total of 79 medicinal plant families were recorded, with Euphorbiaceae (14 species), Fabaceae (11 species), and Verbenaceae (10 species) being the most dominant. The study identified fifteen major disease categories treated with traditional remedies, including asthma, respiratory tract infections, skin disorders, diabetes, hypertension, and malaria. Among the plant parts used, leaves (44%) and roots (35%) were the most frequently utilized, followed by fruits (8%), bark (6%), and herbs (4%). The majority of traditional healers (75%) acquired their knowledge through inheritance from ancestors, while smaller proportions obtained it through training (9%), dreams (12%), and other means (4%).The study also found that only 44% of respondents were aware of the Zanzibar Traditional and Alternative Medicine Council, and merely 15% were registered with it. Despite these limitations, traditional medicine remains an integral part of primary healthcare in South Unguja, especially in rural communities with limited access to modern healthcare services. The findings emphasize the need for systematic documentation, capacity building for traditional healers, and the conservation of medicinal plants. Moreover, the documented species provide a scientific foundation for further pharmacological and phytochemical investigations to validate their therapeutic potential and contribute to new drug discovery from Zanzibar's unique plant biodiversity.

Keywords: *Zanzibar, Traditional healers, ethnobotany, medicinal plants, disease.*

1. Introduction

Ethnobotany is the study of the interactions and relationships between plants and people over time and space. This includes the uses, knowledge, beliefs, management systems, classification systems, and language that both modern and traditional cultures have for plants and their associated terrestrial and aquatic ecosystems [1]. According to Vaidyanathan (2015) [2], the term “ethnobotany” refers to the scientific study of plants and how they are utilized by humans and various cultures for different purposes. This is crucial for advancing modern medicine. This intimate acquaintance with plants has been orally passed down from father to son [2]. In the last few decades, the study of local knowledge on medicinal plants has drawn public concern due to their effectiveness in treating different kinds of diseases[3]. These studies enable documenting the information on medicinal plants through ethnobotanical surveys, and as a result play a paramount role in providing access for the present and future medicine discovery.

The utilization of medicinal plants for the treatment and prevention of diseases has attracted much apprehension from the research community [4].

Medicinal plants have played an important role in the treatment of human diseases across the world [5]. The World Health Organization (WHO) has a keen concern in documenting the utilization of different kinds of medicinal plants by natives from various parts of the world [6]. Zanzibar is blessed with a rich cultural diversity, which is reflected in the applications of different traditional plants for various purposes, such as medicinal and food purposes[3] and [7]. The utilization of traditional plants is well known in Zanzibar as a recognized form of healing. However, the indigenous knowledge of using medicinal plants for healing purposes is in danger of becoming extinct, because this knowledge is passed on orally from generation to generation without being documented. Therefore, there is a need to conductan ethnobotanical survey of medicinal

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plants used by traditional healers and preserve the traditional knowledge through documentation. These will aid the discovery of new drugs and also help to preserve important knowledge of cultural heritage for future generations.

Ethnobotany studies are recognized as the most effective technique for identifying new medicinal plants or refocusing on those plants reported in earlier studies for the possible extraction of novel bioactive compounds [5]. The need to conductan ethnobotanical survey and document important medicinal plants cannot be overlooked[8]. Hence, this present study is aimed at collecting the information of medicinal plants from traditional healers located in the Southern Region of Unguja, Zanzibar, and exploring the medicinal application of traditional plants.

2. Materials and Methods

2.1. Description of the study area

The study was conducted inthe South Region of Unguja, Zanzibar archipelago. Zanzibar is located off the coast of the Tanzania mainland in East Africa on the Western Indian Ocean. The archipelago consists of the islands of Unguja and Pemba, which form the islands of the United Republic of Tanzania[7]. As of the last Population and Housing Census conducted in 2022, Tanzania's total population is 61,741,120, with1,889,773 residing in Zanzibar [9]. Zanzibar is classified as a biodiversity hotspot, where over 1,400 species are endemic to the region [10]. The survey covered both the South and Central Districts of the Southern Region of Unguja, whereby 64Shehias (Wards) were visited.

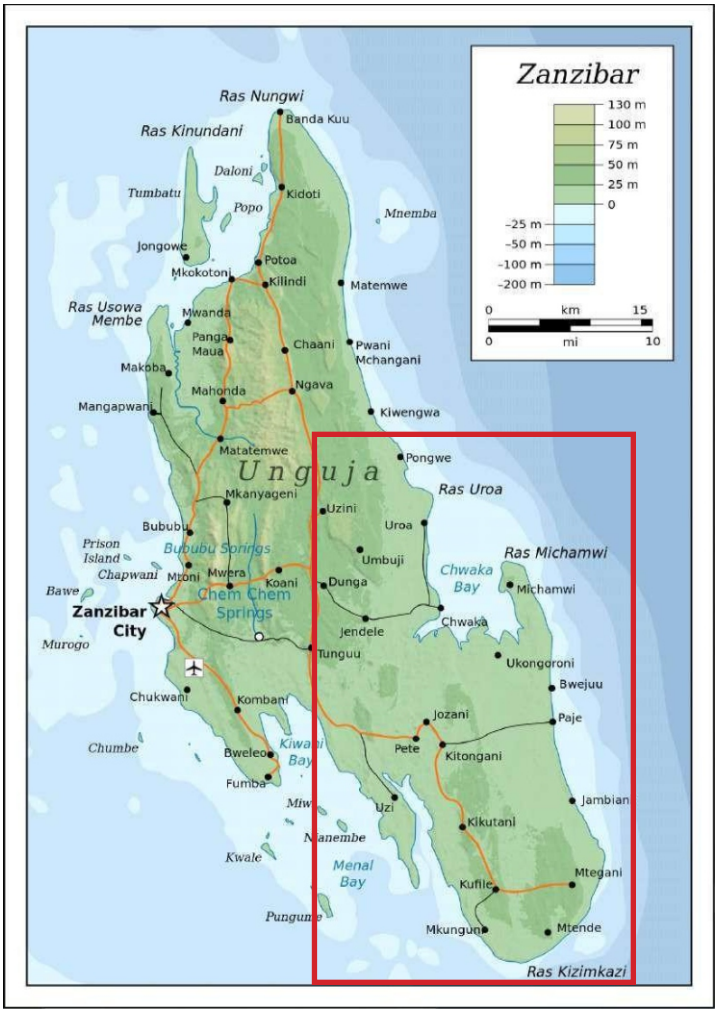

Figure 1: The map of the Island of Zanzibar, as indicated in the South Unguja Region

2.2 Study Population

This study was conducted in the South Unguja region of Zanzibar. Sixty-four (64) shehias (wards) of both Central and South Districts were considered, and two hundred and fifty-two (252) participants were enrolled for the interview.

2.3 Data Collection

The data were collected through semi-structured and structured interviews with individuals knowledgeable about traditional medicine and with traditional healers residing in villages surrounding the South Unguja region. Essentially, the individuals interviewed were either born in or had been living in the region for over 15 years.

The vernacular names were identified with the help of local traditional healers. The plants are tabulated with the botanical names, family names, vernacular names, and plant parts used. The comparison between field data and literature entries was based on the scientific names of the species, using a qualified and experienced botanist with relevant references.

2.4. Data management and analysis

Data were managed by the research team to ensure security and storage. The data from traditional healers were collected electronically using the Kobo program through questionnaires to ensure that saver is accessible, reliable, and timeless by authorized users. The other data were collected and analyzed by using the Statistical Package for the Social Sciences (SPSS) and Origin 8.5.1 software.

3. Results and discussion

3.1 Gender distributions of traditional healers

Male traditional healers from South Unguja Region contribute 73% of the male collected information of the ethno botanical use of medicinal plants compared to 27% coming from female respondents (Figure 2).

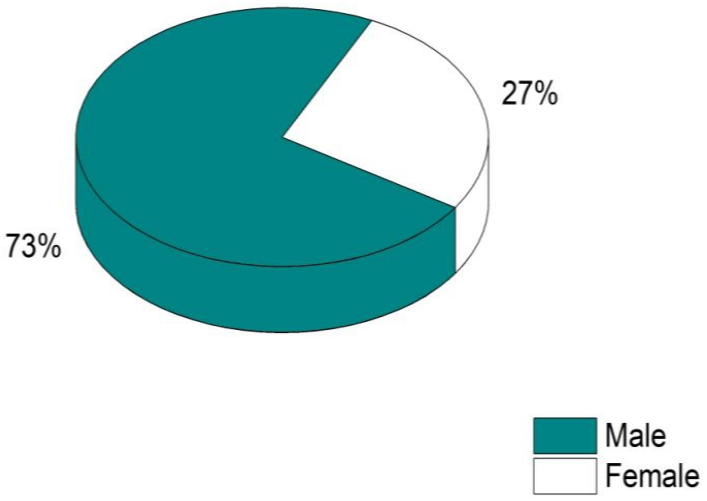

Figure 2: Percentage information contributed by sex

3.2 Participants' distribution by gender and age group

From the data collected, male respondents were higher compared to female in age group of 18-39 (25% male, 7% female), 40-59 (49% male, 44% female) while at age group 60-79 (24% male, 49% female), 80-99 (2% male, 4% female) and 100+ (2% female) show the frequency of female respondents were higher as compared to male interviewed (Figure 3).

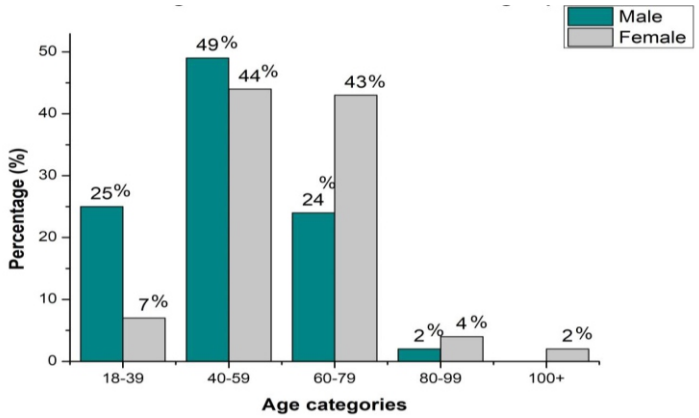

Figure 3: Percentage distribution between different groups

3.3 Number of Medicinal Plants and Diseases Treated

Figure 4 below provides the number of medicinal plants mentioned by traditional healers that they use to treat different diseases. Fifteen (15) diseases has been recorded in this study, where by large number of medicinal plants mentioned to treat asthma (67)followed by respiratory tract infections (59),skin disorders (55), blood pressure (49) vaginal infections (48), diabetes (51), malaria (42), sexual transmitted disease (41), ulcer (40),abdominal pain (37), urinary tract infections (35), ear disorder(33), eye disorder (30), oral infection (27), and wound (26).

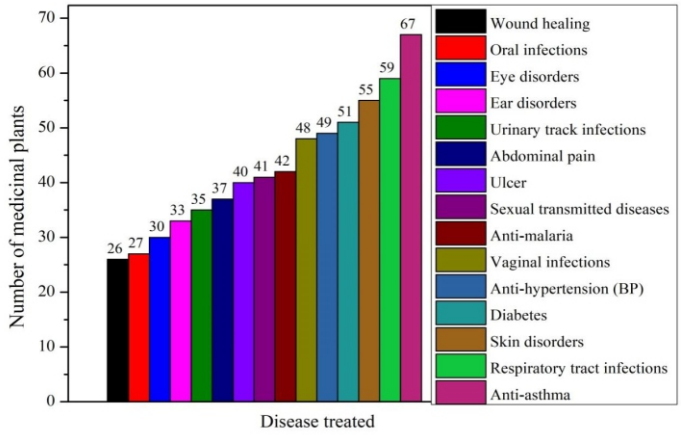

Figure 4: Number of medicinal plants and diseases treated

3.4 Number of family occurrences

A total of 79 plant families were identified from the medicinal plants collected in this study. Most of the medicinal plant species belonged to the Euphorbiaceae family (14 species), followed by Fabaceae (11), Verbenaceae (10), Rutaceae (9), and Rubiaceae (7). Other frequently occurring families included Anacardiaceae, Annonaceae, Labiatae, Meliaceae, Moraceae, and Sapindaceae (each with 6 species), while the remaining 63 families were represented by fewer species stipulated in Table 1below: -

Table 1: Number of family occurrences

No	Family	Occurrence	No	Family	Occurrence
1	Euphorbiaceae	14	41	Arecaceae	1
2	Fabaceae	11	42	Asteraceae	1
3	Verbenaceae	10	43	Boraginaceae	1
4	Rutaceae	9	44	Bromeliaceae	1
5	Rubiaceae	7	45	Burseraceae	1
6	Anacardiaceae	6	46	Canellaceae	1
7	Annonaceae	6	47	Cannabaceae	1
8	Labiatae	6	48	Capparaceae	1
9	Meliaceae	6	49	Caricaceae	1
10	Moraceae	6	50	Casuarinaceae	1
11	Sapindaceae	6	51	Combretaceae	1
12	Gramineae	5	52	Convolvulaceae	1
13	Malvaceae	5	53	Ebenaceae	1
14	Solanaceae	5	54	Euphobiaceae	1
15	Apocynaceae	4	55	Gentianaceae	1
16	Caesalpiniaceae	4	56	Guttiferae	1
17	Celastraceae	4	57	Lamiaceae	1
18	Compositae	4	58	Lamiaceae	1
19	Myrtaceae	4	59	Leguminaceae	1
20	Amaranthaceae	3	60	Leguminasae	1
21	Lauraceae	3	61	Liliaceae	1
22	n.a	3	62	Loranthaceae	1
23	Rhizophoraceae	3	63	Melianthaceae	1
24	Alliaceae	2	64	Moringaceae	1
25	Araliaceae	2	65	Musaceae	1
26	Bombaceae	2	66	Myristicaceae	1
27	Cucurbitaceae	2	67	Oleaceae	1
28	Lythraceae	2	68	Oxalidaceae	1
29	Mimosaceae	2	69	Papilionaceae	1
30	Palmae	2	70	Phyllanthaceae	1
31	Pandanaceae	2	71	Pleurotaceae	1
32	Passifloraceae	2	72	Polygalaceae	1
33	Piperaceae	2	73	Rhamnaceae	1
34	Ranunculaceae	2	74	Salicaceae	1
35	Sapotaceae	2	75	Thymelaeaceae	1
36	Sterculiaceae	2	76	Tiliaceae	1
37	Ulmaceae	2	77	Umbelliferae	1
38	Vitaceae	2	78	Arecaceae	1
39	Zingiberaceae	2	79	Asteraceae	1
40	Apiaceae	1			

3.5 Education status of Traditional healers

As presented in Figure 5, the levels of education for the interviewed traditional healers were depicted as percentages in five categories for secondary level (44.4%), primary level (39.7%), uneducated (9.1%), Quran school (6.3%), and University level (0.4%).

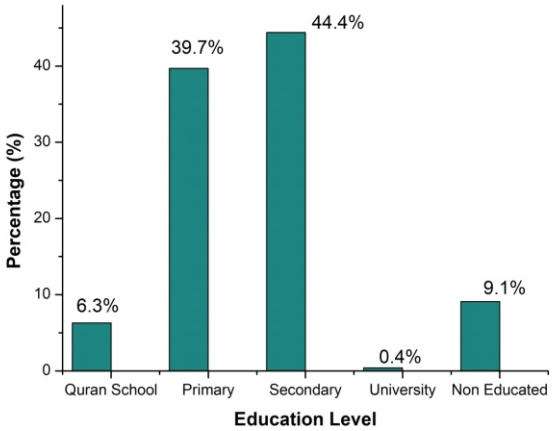

Figure 5: Education status of Traditional healers

3.6. Ways of acquiring Medicinal plants knowledge in the South Unguja Region

It was observed from the data collected on ways of acquiring knowledge that the total of 75% of interviewed traditional healers inherit their traditional medicinal knowledge from their ancestors, while the remaining 9.0%, 12.0% and 4.0% of traditional healers acquired by training, dreaming, and other in different ways, respectively (Figure 6).

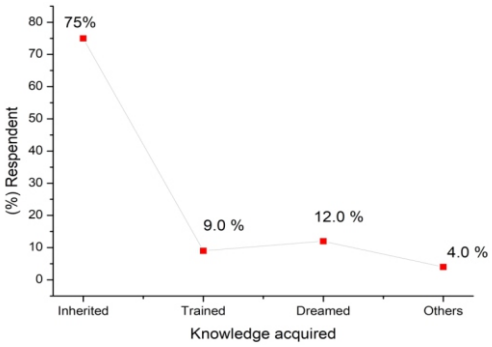

Figure 6: Ways of acquiring Medicinal plants knowledge in the South Unguja Region

3.7. Awareness and registration of Traditional healers towards the Zanzibar Traditional and Alternative Medicine Council

Only 44% and 15% of interviewed traditional healers from the south Unguja region have awareness and have been registered to the Zanzibar Traditional and Alternative Medicine Council, respectively, while the remaining 56% and 85% were neither aware nor registered to the Zanzibar Traditional and Alternative Medicine Council (Figure 7).

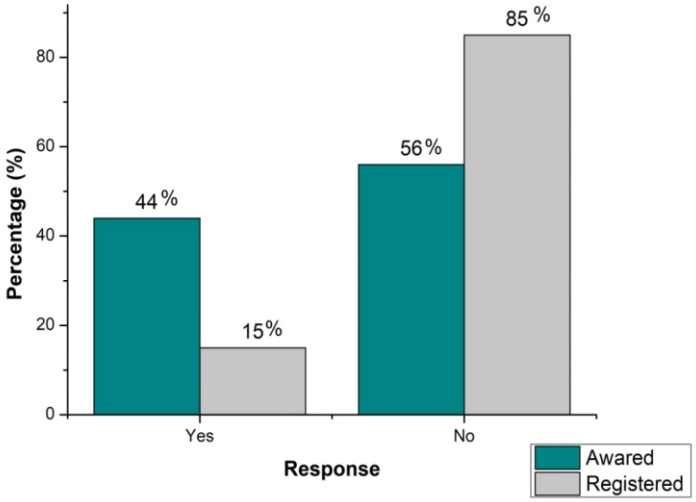

Figure 7: Awareness of Traditional healers towards the Zanzibar Traditional and Alternative Medicine Council

3.8 Plant parts used for disease management

Leaves (44%) and roots (35%) have been observed to be the most commonly used plant parts for medicine by the South Unguja region communities. Fruits (8%), Barks (6%), and herbs (4%), flowers, stems, seeds, and buds (1%) were rarely mentioned to be used (Figure 8).

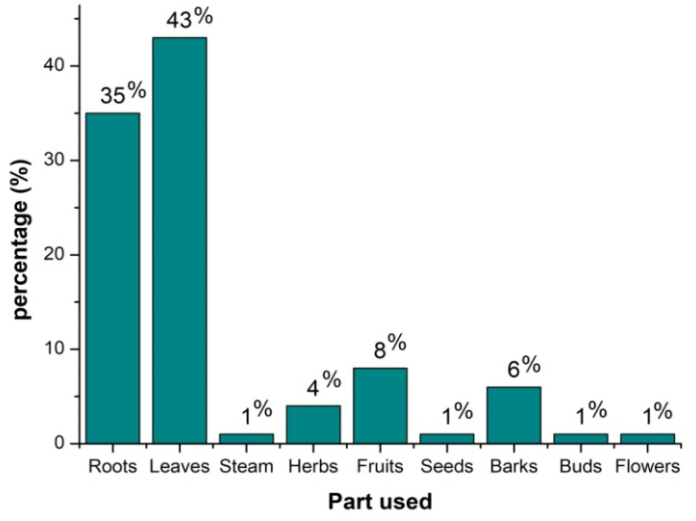

Figure 8: Plant parts used for disease management

3.9. Conservation awareness of Medicinal plants

According to the results obtained from the interview, 67% of Traditional healers were aware of the conservation of medicinal plants, while33% were not aware (Figure 9).

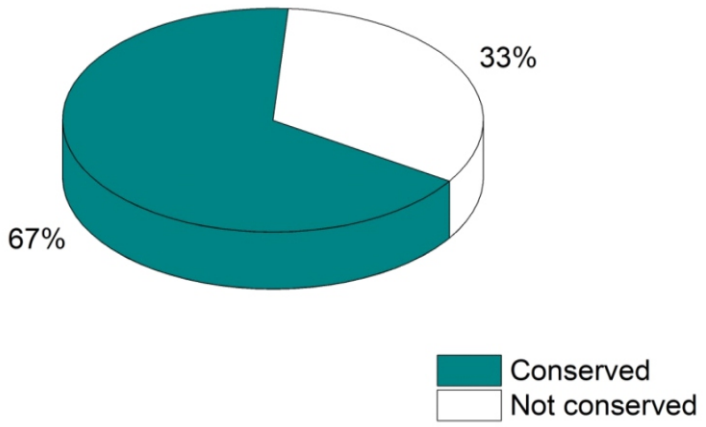

Figure 9: Conservation of Medicinal Plants

4.0 Discussion

4.1. Demographic characteristics of Interviewees

The information gathered shows that about 73% of Traditional healers in South Unguja were male participants, while only 27% were female. Different ages were interviewed and recorded, such as 18-39, 40-59, 60-79, 80-99, and 100+. However, most of the participants were observed to fall at the age of 40-59whereby male and female contributed 49 and 44%, respectively. These data show that the majority of Traditional healers were male rather than female; this might be because female populations are taking care family rather than engaging in production activities, as compared to male populations who have the burden of responsibilities of bringing food, clothes, and shelter. Also, the traditions and customs that have been inherited from the ancestors have played a paramount role in affecting the spatial labor distribution through marital conduct in Zanzibar. This has cast out women from engaging in production activities and led them to concentrate more on home-based family care. These findings are consistent with the study reported by Magwede et al.(2014) [11] showing that male Traditional healers were reported in higher numbers as compared to female. Also, the study showed that male respondents have more knowledge (understanding) of traditional medicine practices as compared to female respondents [11]. In addition, the findings of this present study on the age group distribution are similar to the study reported by Alfa et al. (2018) [12], whereby the majority of traditional healers were around the age of 50 years. This could be because most of the population at this age usually stays with elders who have traditional medicine practice and knowledge [12].

4.2. Characteristics of medicinal plants used by the communities or populations

According to the results obtained in this study, about seventy-nine (79) medicinal plant families were used by Traditional healers in the community of the South Unguja region. Some of these families were frequently used, including the Euphorbiaceae family (14), followed by Fabaceae (11), Verbenaceae (10), Rutaceae (9), Rubiaceae (7), Anacardiaceae (6), Annonaceae (6), Labiatae (6), Meliaceae (6), Moraceae (6),

and Sapindaceae (6). Most of these plant families are available in the South Unguja region could be influenced by culture and availability of the plant species due to the geographical position of the site where plants were collected. Also, some other literature shows the same data of the same families which are available in the South Unguja region, like those reported by Mahwasane et al (2013) [4]. The Euphorbiaceous plant family was most commonly used by traditional healers of South Unguja and then followed by Fabaceae.

4.3 Plants and disease management

The medicinal plants species used by traditional healers of South Unguja reported to treat various disease like blood pressure, respiratory tract infections (RTI), vaginal infections, diabetes, malaria, asthma, urinary tract infections (UTI), sexual transmitted disease (STDs), oral infection, skin disease, abdominal pain, wounds, eye disorder, and ulcer and ear disorder. The mentioned diseases are very common in developing countries, including Tanzania and Zanzibar. In this study, asthma was reported to be the most common disease treated with medicinal plants in the South region of Unguja, followed by respiratory tract infections, skin disorders, diabetes, hypertension (blood pressure), vaginal infections, malaria, sexually transmitted diseases, ulcers, and abdominal pain. Traditional healers mentioned the medicinal plants that treat both communicable and non-communicable diseases. Most of the diseases reported in this study were related to life lifestyle of the populations of South Unguja. The data obtained are comparable with the study conducted from the Nandi people in Kenya showed that the medicinal plants are capable in the treatment of treating both communicable and non-communicable diseases[13].

5. Conclusions

In Zanzibar, especially the South region of Unguja, where data have been collected, traditional medicine still plays an important role in improving health care, where most of the medicinal plant species are widely used to treat different diseases, including asthma, abdominal pain, diabetes, eye, ear, and fever in general. Thus, the data revealed that in South Unguja, people still depend on Medicinal plants for their primary health care needs, which play a role in the management of different diseases. Most of the reported plants found in South Unguja District, compared to Central District, this due to the presence of many Traditional healers who inherited the knowledge from their ancestors. The Basic information of medicinal plants identified from the South Unguja region of Zanzibar will serve as a platform for ethno botanists and pharmacologists to further research regarding pharmacological and phytochemical screening of the plant species.

Acknowledgement

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