

Ethnobotanical study of locally available medicinal plants that manages intestinal diseases in Phoka, Rumphi district, Malawi.

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Abstract- For hundreds of years, medicinal plants have been a source of treatment of intestinal diseases which has remained as one of the major global health issues. The use of medicinal plants has significantly mitigated the impacts of the scarcity and shortages of drugs in public hospitals. This study was conducted to identify the medicinal plants used to manage intestinal diseases in Phoka area, an area with a diversity of plants in Rumphi district. A total of 20 traditional herbal practitioners were purposively sampled to collect information on the names of the medicinal plants for management of intestinal diseases, parts used and mode of administering the medicinal plants to the patient. This survey reveals that 20 woody species that are found in this area of Phoka are used to manage intestinal diseases. All the 20 species of the medicinal plants contain phytochemicals that are not known to the traditional herbal practitioners. Medicinal plants are a promising source of compounds that can be used for drug development of intestinal diseases.

Index Terms- Intestinal diseases, Medicinal plants, Phytochemicals, Traditional herbal practitioners.

I. INTRODUCTION

For hundreds of years, medicinal plants have been a source of treatment in indigenous people all over the world. This is still important today as a primary healthcare system for about 80 percent of the population in developing countries (Kassaye et al., 2006). According to a study conducted in Sub-Saharan Africa, estimates of the number of people who rely on traditional herbal medicine could be up to 70 to 80 percent of the population in the region (Silveira et al, 2018). The traditional herbal medicine is used to treat various illnesses such as cholera, gastroenteritis, malaria, yellow fever, cancer and chronic illnesses such as HIV/AIDS and HIV-related issues (Tugume et al, 2016). In addition, herbal medicines are used to manage depression, nausea, pain, immune system boosters and mitigate stress. The use of medicinal plants provides a distinct alternative in healthcare services for people in developing countries because health care

facilities fail to meet the demand for essential medicines (Worku et al, 2020).

In Malawi, it is estimated that over 80% of the population rely on traditional herbal medicine because the health services are inadequate (Sibanda et al, 2016). The Malawi government honors rural communities' dependence on traditional herbal treatment by formally incorporating traditional birth attendance into national health care services. Furthermore, the relevance of traditional herbal medicine in rural communities has been recognized by studies, that have promoted its use (Malawi Government, 2020). Traditional herbal medicine access in Malawi, on the other hand, goes far beyond issue of limited health services. Traditional healing is linked to wider belief systems and is still an important part of most Malawians' lives. Whether or not they can afford medical treatments, many visit traditional healers.

This study reveals that the people living in Phoka (District of Rumphi, Malawi) and its adjacent areas have a strong demand for traditional medicine that manages intestinal diseases. The reasons for this demand is that the health care system of Malawi is not able to sufficiently provide for the needs of its rural population besides their belief of their society (Bundschuh et al, 2011). To enable the people to overcome this inadequate of governmental services to a certain point, it is critical to promote the long-term use of medicinal plants that can be used for medicinal purposes. Therefore, this study identifies the medicinal plants of a representative area, plant parts used in preparation of the remedies and mode of administration to manage intestinal diseases. To a certain extent, such information would aid government health services and provide solutions for the long-term usage of medicinal plants.

II. MATERIALS AND METHODS

2.0 Description of the study area

This study was carried out in the Phoka Area, a place with traditional herbal practitioners specializing in the use of medicinal plants in Rumphi District in Northern Malawi. The Phoka area has an estimated population of 176,000 people in Rumphi District (Malawi National Statistical Office, 2018). The area is comprised

of savannas, deciduous woodlands, and grasslands from a biogeographical aspect (Breckle 1999). The climate is characterized by two seasons: a wet season that lasts from mid-November to April, and a dry season that lasts from May to October. The zonal natural vegetation of most sections of Malawi is Miombo woodland (Cole 1986), which includes both humid and dry subtypes (White 1983). This wood grows on the shallow stony soils of the rift escarpment, which are best represented by the Nyika hills. "Woodlands and low-altitude thickets" develop miniature island-like thickets between the farmed fields where the slopes are undifferentiated, and deeper soils and sandy soils are detected (Bundschuh et al. 2011).

Phoka area faces the challenges of inadequate health services. Many people rely on traditional herbal medicine because of societal beliefs and the unavailability or inability to afford conventional pharmaceuticals.

2.1 Sample size and recruitment

The study was conducted through purposive sampling method. Only traditional herbal practitioners who deal with medicinal plants that manages intestinal diseases were purposively selected in the study area.

2.2 Data collection

Two instruments were used for data collection: (1) Traditional herbal practitioners were given open-ended questionnaires to collect information on the name of the medicinal plants for management of intestinal diseases, parts used and mode of administering the medicinal plants to the patient. The items in the questionnaire also consisted of the demographic information (2). The medicinal plant samples were collected and pressed in

sheets for identification of their scientific and plant family names by a taxonomist from Malawi National herbarium.

2.0 Data analysis

All questionnaire administered in the field were verified for completeness. Open-ended questions were coded and the data were entered on Microsoft excel 2016 for computation of frequency of medicinal plant mentioned, part of plant used for preparation of the remedies and mode of medicinal plant administration. The findings were presented in the form of graphs and tables.

2.1 Ethical Considerations

Mzuzu University Research Ethical Committee (MZUNIREC) approved the study prior to implementation. Any participation in the study was carried out with full consent of the respondents involved. The information obtained was used for academic purposes only.

III. RESULTS

3.0 Names of medicinal plants that manages intestinal diseases

The results of names of medicinal plants that manages intestinal diseases are presented in Figure

1. The results presented in Figure 1 indicate the frequency the medicinal plant was mentioned as a traditional herbal medicine that manages the intestinal diseases. The results revealed the maximum frequency of 20 times was mentioned on muwawani while the minimum frequency of 5 times was mentioned on papaya and nyere. The mean frequency of naming the medicinal plant was 11 times.

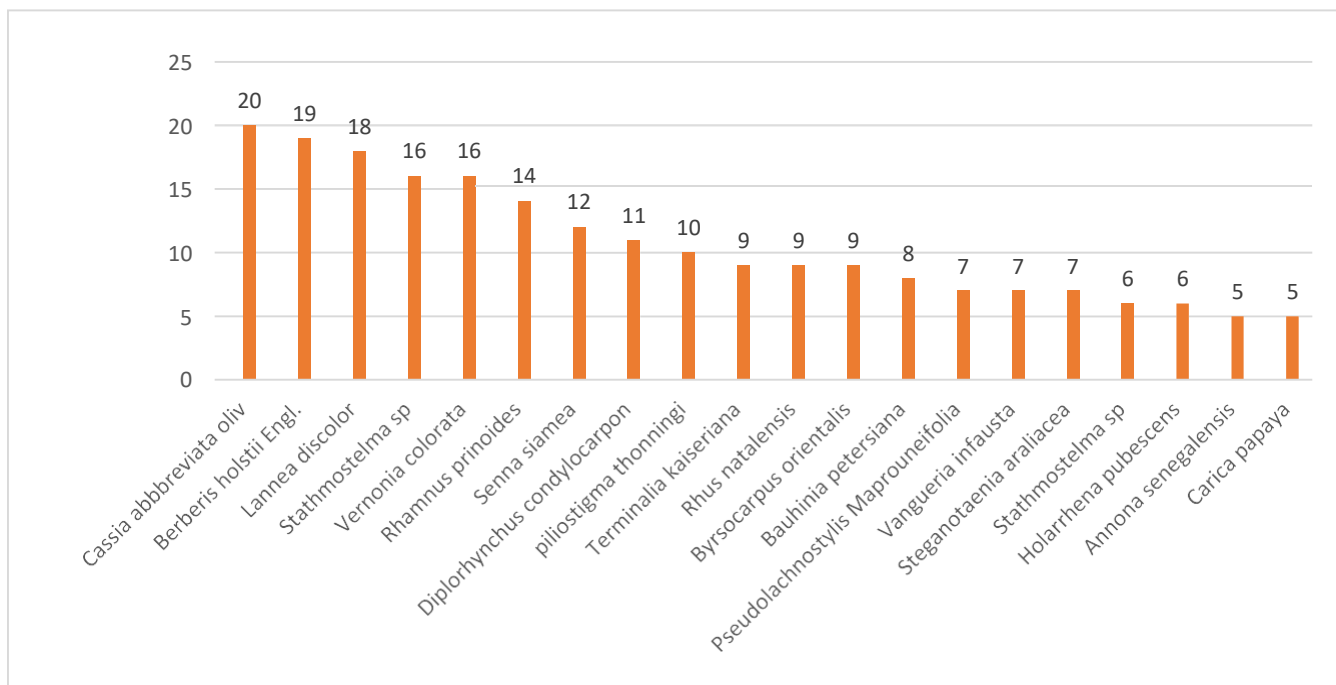


Figure 1. Scientific names of medicinal plants that manages intestinal diseases

3.0 Plant parts used in preparation of the remedies

The results on plant parts used in preparation of the remedies are presented in Figure 2. The results in figure 2 indicate the frequency of the plant parts used for preparation of the remedies to manage

intestinal diseases. The majority of herbal practitioners that were interviewed (20 out of 20) use bark from the medicinal plants to manage intestinal diseases. The stem and leaves are second from bark as 18 out of 20 respondents mentioned them. The least mentioned parts were tubers and fruits with 2 and 3 out of 20 respondents respectively.

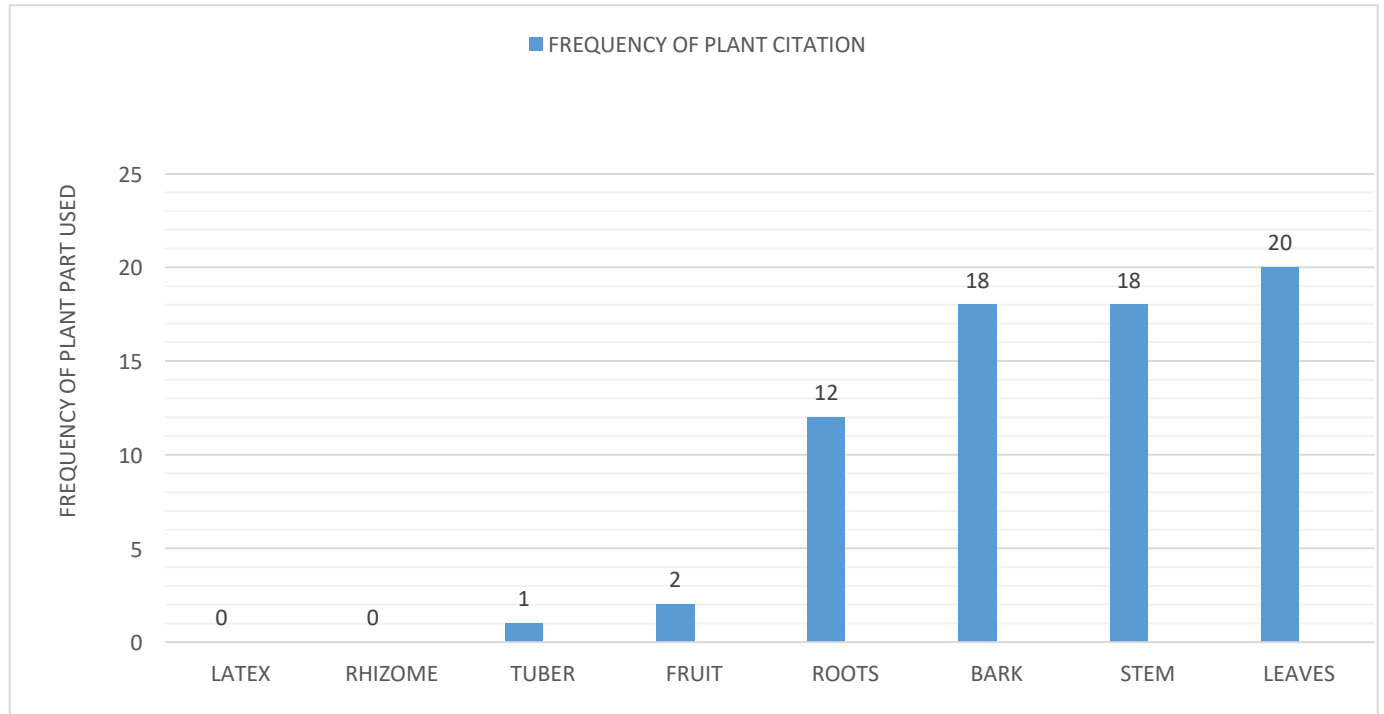


Figure 2: Plant parts used to prepare the remedies

3.1 Mode of preparation and administration of medicinal plants

The results on mode of preparation and administration of medicinal plants are presented in Figure 3a and 3b. The results in figure 3a revealed 20 (n=20) of respondents indicated cooking of

the plant part in water as the highest followed by powder as mode of preparation of the remedies to manage intestinal diseases. The results in Figure 3b revealed 100% of the respondent in the study area reported that they use oral mode when administering medicinal plants that manages intestinal diseases.

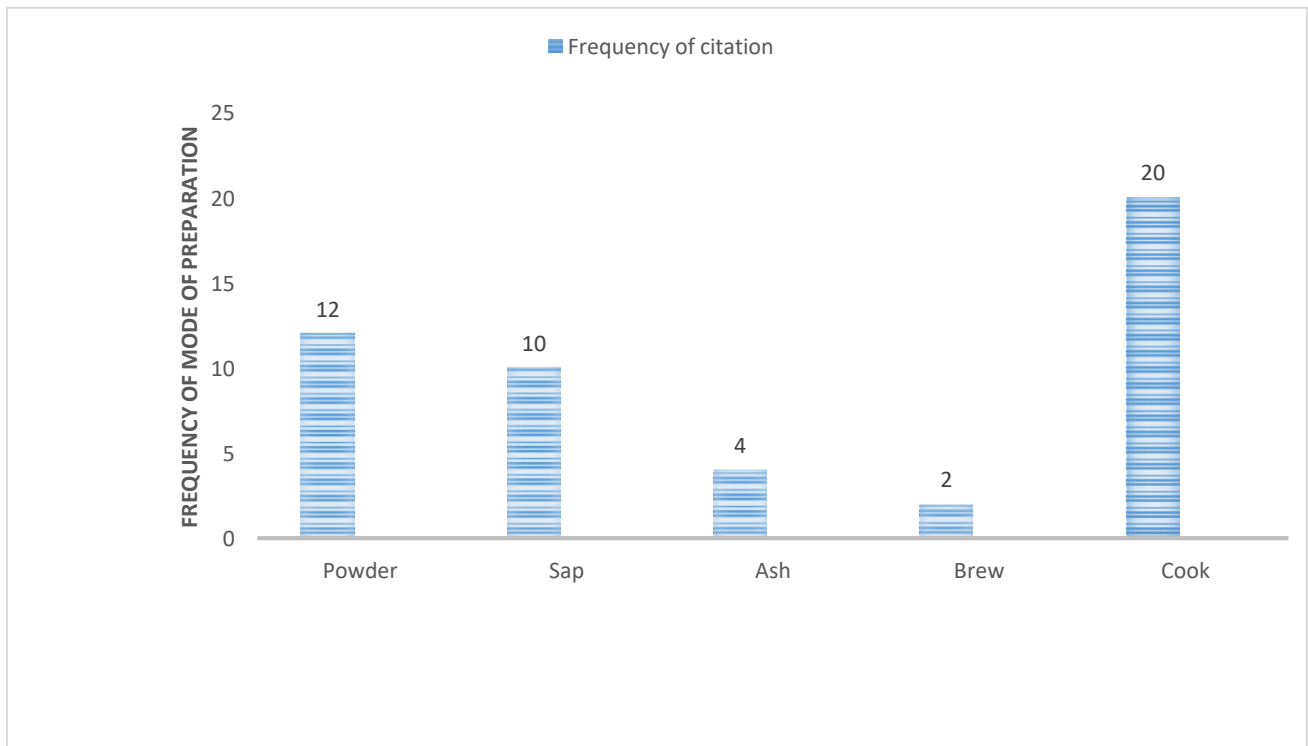


Figure 3a: Mode of preparation of the medicinal plant

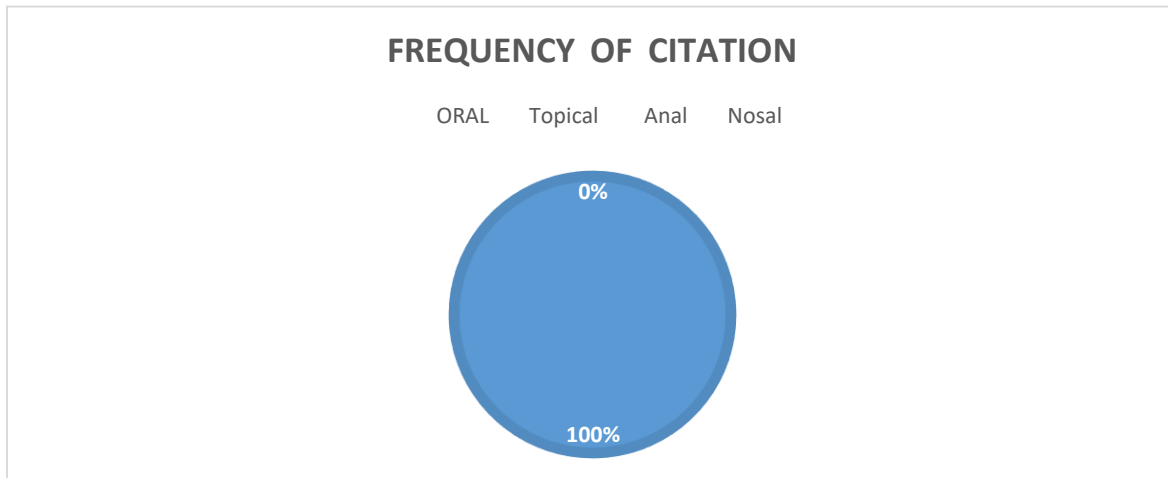


Figure 3b: Mode of administration of medicinal plants that manages intestinal diseases

IV. DISCUSSION

This study found that medicinal plants are used to treat a variety of diseases in Malawi, and that several of these diseases have symptoms that are similar to those of intestinal diseases. The demand of medicinal plants is rapidly increasing as an alternative of conventional synthetic drugs.

According to the findings of this study, all herbal practitioners in Phoka employ muwawa as a medicinal plant for treating intestinal diseases. This means that all traditional herbalists in the study area prioritize muwawani as the first medicinal plant to treat intestinal diseases. Muwawani needs conservation to maintain the biodiversity in the study area. The higher use of leaves from the medicinal plant can be attributed to the knowledge of the herbal practitioners on sustainability of the plants in the study areas. The use of leaves therefore, give an opportunity for the plants to regenerate hence ensuring the sustainability of the medicinal plants in the area.

In Phoka, the usage of traditional herbal medicine does not conflict with the primary intention of hospitals, which is to provide patients with conventional pharmaceuticals that treat intestinal diseases. Patients with intestinal diseases should be treated with drugs that manage the presenting symptoms such as diarrhea, vomiting, and fever, according to the World Health Organization (2019). Traditional remedies may be sources of therapy in the quest for new treatments for intestinal diseases before people go to hospitals, according to the WHO.

This is based on medicinal plants' long history of usage in basic healthcare in many parts of the world, as well as phytochemicals' role as precursor molecules for a number of regularly used biomedical medications. Since ethnobotanical surveys are used to identify possible plant species for plant-derived lead chemicals or medications, this study was done as a supplement to the quest for remedies for intestinal diseases. The WHO, on the other hand, advises against using traditional medicines without first assessing their efficacy, toxicity, and safety.

Even though the WHO acknowledges that traditional, complimentary and herbal remedies have therapeutic effects and that traditional medicine has a longstanding experience in Africa, herbal medicines can also be hazardous, and the effectiveness of medicinal plants might differ depending on geographical region.

The medicinal plants identified contained unknown phytochemicals. Therefore, the review of the pharmacological effects of the medicinal plants will confirm why they have potential for managing the intestinal diseases. The findings, for example, on mululuzga and muwawani, are consistent with those published by T.V. Bundschuh et al., (2011), who found that these plants have the potential to treat a variety of ailments in the Karonga district. Furthermore, the findings are consistent with those of Li et al, who describe the Shufeng Jiedu Capsule/Granule (SFJD) in China, which is said to have antiviral, antibacterial, anticancer, and anti-inflammatory properties, as well as good protection against lung injury.

V. CONCLUSION

Intestinal pathogens have been around for years, and new varieties will continue to evolve in the future. Drug discovery are still working to create sustainable, affordable, and appropriate medicines. Medicinal plants have played a vital part in the management of intestinal diseases to differing degrees, based on various community practices around the world. Natural resources, especially plant products, are unquestionably a promising source of molecules for potential therapeutic leads and vaccines in pharmaceutical research. Holistic approaches to studying active phytochemicals should be advocated and supported in order to isolate acceptable compounds that can be utilized as is or developed into potential therapies for intestinal diseases and other diseases.

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The people of Phoka area use medicinal plants in the treatment of various illnesses. The significant illnesses were gastroenteritis, cholera. Hepatitis and appendicitis (Table. 1).

Table 1: Medicinal plants and the diseases they treat

Local name	Scientific name of the plant	Plant family	Diseases treated by the plant
Muwawani	Cassia abbreviata oliv	Fabaceae (caesalpinioideae	gastroenteritis, cholera, Gonorrhoea, syphilis
Kayunga	Berberis holstii Engl.	Berberidaceae	Cholera, gastroenteritis, hepatitis
Kawumbu,	Lannea discolor	Anacardiaceae	Gastroenteritis, cholera, Gonorrhoea, syphilis
Mpeta	Stathmostelma sp	Apocynaceae	Gastroenteritis, appendicitis
Mululuzga	Vernonia colorata	Asteraceae	Gastroenteritis, intestinal worms
Lipindula	Rhamnus prinoides	Rhamnaceae	Cholera, gastroenteritis, diabetes
Ndengere	Senna siamea	Fabaceae	Syphilis, gonorrhoea, gastroenteritis
Munyanyata	Diplorhynchus condylocarpon	Apocynaceae	Gastroenteritis, appendicitis
Mnthukutu	piliostigma thonningi	Fabaceae	Gastroenteritis, toothache
Mpululu	Terminalia kaiseriana	Combretaceae	Gastroenteritis, appendicitis
Nyamtatu	Rhus natalensis	Apocynaceae	Gastroenteritis
Muyokayoka	Byrsocarpus orientalis	Connaraceae	Gastroenteritis, diabetes, hepatitis
Msolo	Pseudolachnostylis Maprouneifolia	Euphorbiaceae	Gastroenteritis
Maviru	Vangueria infausta	Rubiaceae	Gastroenteritis
Mnyongoloka	Steganotaenia araliacea	Apiaceae	Gastroenteritis

Mpeta	Stathmostelma sp		Gastroenteritis
Njenje	Holarrhena pubescens	Apocynaceae	Gastroenteritis
Mnyere	Annona senegalensis	Annonaceae	Gastroenteritis
Papaya	Carica papaya	Caricaceae	Gastroenteritis, syphilis, gonorrhoea