LOCAL PLANTS AND THEIR MEDICINAL USE AMONG RESIDENTS OF ILOCOS SUR

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ABSTRACT: *Nature hides a treasure trove of resources that would also help with the medicinal needs of the Earth's population. This study aimed to determine the local plants and their medicinal use among residents in Ilocos Sur. A descriptive type of research design is utilized. The 206 residents from upland, coastal, and lowland municipalities served as the respondents. The purposive sampling technique is employed. The study's findings showed that the majority of the respondents are 18-23 years old, female, Roman Catholics, with family members and social media as their sources of information about medicinal plants. A significant percentage are single, with a family monthly income of Php 5,000 and below, and unemployed. The Oregano is the most commonly used medicinal plant in upland and coastal areas and the guava in the lowland areas. Most of the respondents used the leaves as part of the plant to treat various ailments. The preparation method is mostly decoction and used orally as food/drink/gargle, taken at 1-2 glasses a day for twice a day. A significant percentage of the respondents use locally available medicinal plants mainly as an antiseptic or cleansing or washing wounds.*

Keywords: medicinal use, method of application, frequency of use, treatment of ailments

1. INTRODUCTION

Cultures worldwide, the power of medicinal plants is acknowledged to help cure illnesses. Highlights the vital role of medicinal plants in disease prevention and their promotion and use fit into all existing prevention strategies, especially Primary Health Care (PHC) [12].

Medicinal plants have been used for centuries in traditional health care systems, and numerous cultures worldwide still rely on plants for their primary health care. With the recent advancements in plant sciences, there has been a tremendous increase in the use of plant-based health products in developing and developed countries. About 70-80% of people around the globe rely on medicinal plants for primary health care [9].

In Ilocos Sur, there are around 53 traditional medicine healers who possess rich ethnic pharmacological knowledge on medicinal plants, which allows for the study of identifying many high-value medicinal plant species, which indicate high potential for economic development through the sustainable collection of these [7].

The diversity of medicinal plant species used and the associated indigenous knowledge are of great value to the local community, and their conservation and preservation are paramount. The therapeutic uses of the documented plants provide primary data for further research focused on pharmacological studies and conservation of the most important species [15].

Although approximately 80 percent of people today depend upon herbal medication as a component of their primary healthcare, according to the World Health Organization, there is still great concern about the safety and efficacy of herbal use. While herbal medicine can potentially contribute to the advancement of healthcare, many significant challenges must be overcome before the successful integration of herbal remedies into mainstream Medicine [16].

Furthermore, there seems to be a diminishing value of the knowledge or information of these traditional herbal medicines among today's younger and more educated populace and the advent of modern medicine; thus, the knowledge handed down from forefathers is threatened with extinction [6].

The solution would be to survey local medicinal plants in the Province of Ilocos Sur, which is the aim of this study. Through this study, the researchers will be able to provide the municipality with baseline information about the perceived medicinal use of local plants. This study could also provide pieces of evidence for planning effective practices and efficient programs that will improve the medicinal use of local plants.

This study determined the local plants and their medicinal use among the residents of Ilocos Sur CY 2021. Specifically, it looked into the profile of the respondents, the most common local medicinal plant and its parts used, method of preparation, method of application, dosage, and frequency of use of the most common local medicinal plants, and the perceived medicinal use.

2. METHODS

This study utilized a descriptive research design. The respondents were the 206 residents of Ilocos Sur from coastal, lowland, and upland municipalities. Purposive sampling was employed to determine the respondents. The data were collected and analyzed using descriptive statistics such as frequency and percentage. The participants were given informed consent for the data collection and their anonymity was given utmost consideration.

3. RESULTS AND DISCUSSION

The majority of the respondents are 18 to 23 years old (54 or 26.21%), female (130 or 63.11%), single (100 or 48.54%), unemployed (71 or 34.47%) with a family monthly income of 5,000 pesos and below (92 or 44.66%), college graduates (76 or 36.89%), and Roman Catholics (155 or 75.24%). They obtain information about the medicinal uses of the local plants mainly from their family members (133 or 64.56%) and the social media (117 or 56.80%). One of the sources of information within the family comes from the family members themselves, as each

member is exposed to differing amounts and qualities of information at any given time. A study [3] further mentions the influential role of social media platforms in shaping public opinion and reaching large numbers of people quickly. Furthermore, harnessing the power of social media could allow people to overcome the inefficiencies and limited reach of more traditional knowledge dissemination approaches. Therefore, social media platforms present unique opportunities to share relevant information with key stakeholders. Key stakeholder groups, such as caregivers and patients, increasingly turn to social media to access and share health information.

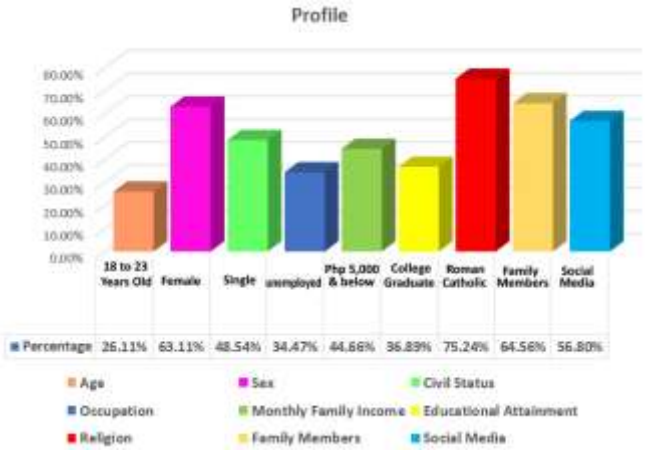

Figure 1: Profile of Respondents

Most Common Medicinal Plants in Lowland, Upland and Coastal Areas

Oregano is the most consistently used medicinal plant in all three areas since it can almost always be seen in gardens because of its ease of propagation. Oregano is a known herbal medicine for its potent antioxidant properties which help fight free radicals in the body that cause cellular damage and accelerate aging. It contains a rosmarinic acid compound, thymol, and carvacrol responsible for its anti-inflammatory, anti-bacterial, antioxidant, anti-fungal, and anti-viral properties. It also contains flavonoids, triterpenoids, sterols, vitamin C, and vitamin A. [8]. The parasol leaf tree (*Macaranga tanarus Linn.)* for example, contains chemical constituents such as sterols, flavonoids, saponins, glycosides, and tannins, all of which have medicinal properties.[2].

Table 1: Ranking of Commonly Used Medicinal Plants

Rank	Area/Location		
	Lowland	Upland	Coastal
1st	Guava	Oregano	Oregano
2nd	Oregano	Lagundi	Lagundi
3rd	Garlic	Guava	Malunggay
4th	Lagundi and Malunggay	Malunggay	Calamansi and Guava
5th	-	Ampalaya and Guyabano	Aloe Vera and Guyabano

Most Commonly Used Plant Parts

The leaves are the most commonly used plant part (88.35%). The extracts and juices are used for asthma, dyspepsia, chronic coughs, bronchitis, and rheumatism. Ear aches have also been cured by the infusion prepared from its leaves. The leaves relieve painful swellings, boils, and sprains when their poultices are applied directly to the affected area. A similar study [10] shows similar results, where, in their study, the most commonly used part of the plant is the use of the whole plant (28%) followed by fruits followed by fruit (27%), leaves (21%), stem (13%) and flowers (13%). It can be attributed to Republic Act 8423, which created the Philippine Institute of Traditional and Alternative Health Care (PITAHC). Since its establishment, the DOH has endorsed only ten scientifically validated herbal plants in which guava and lagundi are included. Article IV of RA 8423 states that The Institute shall promulgate a nationwide campaign to boost support for realizing the objectives of this Act.

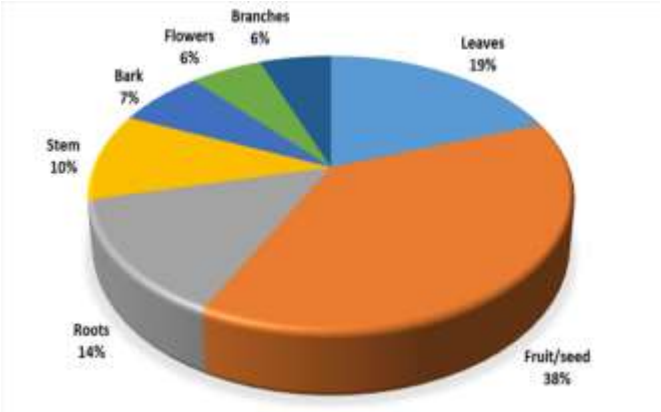

Figure 2: Most Commonly Used Plant Parts

Methods of Preparation, Application/Use, Dosage, and Frequency of Use

On the method of preparation, a great majority of the respondents (172 or 83.50%) prepare their medicinal plants through decoction. On the method of application or use, most of the respondents (193 or 93.69%) take the herbal plants through oral (food/drink/gargle). On the dosage of use, most of the respondents (133 or 64.5%) take in 1 to 2 glasses of herbal plant extract. On the frequency of use, a substantial number of respondents (94 or 45.63%) use the herbal plants twice a day. A study [1] shows that the most commonly used plant parts for herbal medicines are the leaves, and the most employed method of preparation is decoction. Among the illnesses mentioned for herbal medication were cancer (as the most cited), followed by kidney problems. It also documented plants that are prepared in mixtures to treat illnesses like severe cough, severe diarrhea, and varicose veins.

This implies that residents of Ilocos Sur still use herbal plants as medicine in a traditional way wherein they drink 1 to 2 glasses twice a day. The residents also prepared their herbal plants via the oral route, for it is the easiest and most convenient way to take in herbal plants as medicine. The decoction is still the

leading method of preparation for it is easy to employ, and no additional equipment or gadgets are used; all of the medicinal contents of the plant can be easily extracted, and all parts of the plants can be utilized in this method. A study [11] stated that the most employed way of preparing the plants for medicinal applications is through decoction. It is done by boiling the materials in sufficient amounts of water to extract water-soluble compounds in plants like tannins, which are known to have antimicrobial properties and medicinal values. Similar studies [13] showed their findings that the highest mode route administration of medicinal plant`s remedies for human ailments are taken via oral route with 64.5 percent in their study. Carica papaya and Glaricidia sepium contain saponins, alkaloids, and tannins. Likewise, the two plant extracts and their combined extract exhibited variable efficacy. Carica papaya and Glaricidia sepium extracts were efficient at 100mg/mL concentration while the combined extract of the two was effective at 75mg/mL and very effective at 100mg/ml. [5]

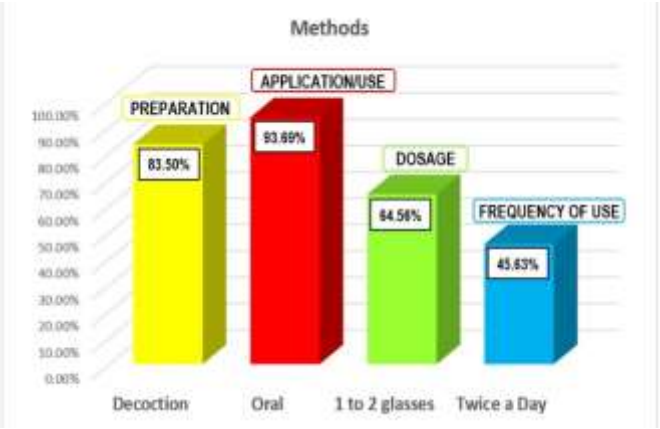

Figure 3: Methods of Preparation, Application/Use, Dosage, and Frequency of Use

Perceived Medicinal Use of the Most Common Medicinal Plants

A significant percentage of the respondents (95, or 46.12%) use locally available medicinal plants mainly for antiseptics or in cleansing or washing of wounds, among others. This implies that the popularity of the perceived medicinal benefits of a particular local plant is determined by the availability of information about its claimed therapeutic benefits, the extent of its usage in the household, and its availability and accessibility. Other perceived medicinal uses include relief of difficulty of breathing/cough/colds and other respiratory ailments (84, 40.78%); relief of body pains (73, or 35.44%); reduction of swelling/tenderness of the affected part (59 or 28.54%); and reduction of blood sugar levels (56, or 27.18%). To date, the Department of Health (DOH) has only endorsed ten scientifically-validated herbal plants in the country since the enactment of RA 8423, or the Traditional and Alternative Medicine Act (TAMA), which led to the creation of the Philippine Institute of Traditional and Alternative Healthcare (PITAHC) [4]. How the PITAHC and the DOH profitably interact determines the advancement of traditional and alternative systems that are seen to favor the promotion of herbal plants as alternative treatments for common diseases in the absence of conventional medicines. On the other hand, environmental conditions such as geographical considerations seem to significantly influence the availability of medicinal plants in terms of growth and propagation, which eventually determines the popularity of their usage. Different parts of medicinal plants are used in treating various ailments such as leaves, fruits, roots, flowers, and bulbs. Among the different parts being used, leaves are the most frequent part utilized by the traditional folk healers and local inhabitants of the study area. Usually, the leaves are being boiled with water and taken orally to treat almost various illnesses in the community such as rheumatism, gout, urinary tract infection, blood-related problems, swelling and mumps, headache, dizziness, fainting, convulsion, fever, eczema, and body odor. Aside from this preparation method, extracting is also commonly used wherein the juice is extracted from the leaves and applied directly to the affected body parts. Other parts of the plant, like the fruit, are also used in the community to treat various illnesses in which it is consumed directly. Roots and flowers are also used through extraction, boiling, pounding, and heating. The result also revealed that the majority of the plant species [of plants] in the area could be used to treat the same illnesses and ailments with the same mode of preparation, such as boiling and extracting. Few species of plants are being utilized in the area to treat the same ailments with different modes of preparation [14]

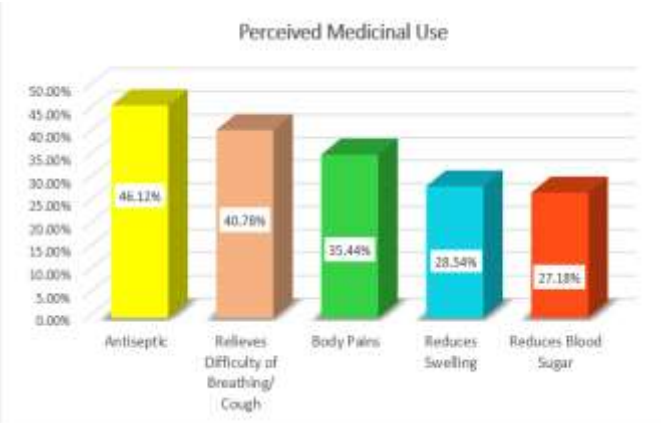

Figure 4: Perceived Medicinal Use of the Most Common Medicinal Plants

4. CONCLUSIONS AND RECOMMENDATIONS

The upland, lowland, and coastal areas of the province of Ilocos Sur have a wide variety of local plants used as medicinal plants. The study resulted in the documentation of 34 medicinal plants

in lowland areas, 112 medicinal plants in upland areas, and 68 medicinal plants along coastal areas. The leaves were found to be the most frequently used part of the plant for the preparation of traditional remedies. These plants are used in the treatment of a wide range of ailments. The analyzed data may provide an opportunity for further studies. Thus, the conservation of medicinal plants by local communities and responsible bodies is vital. Further, a localized bibliographical compilation of these medicinal plants is recommended.

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REFERENCES

[1] Agapin, J. Medicinal Plants Used by Traditional Healers in Pagadian City, Zamboanga del Sur, Philippine Journal of Science, Vol. 149 No. 1, (2020).

[2] Banez, S. "Organoleptic Properties of Macarangatanarius Linn. (Parasol Leaf Tree) Vinegar and Experiences of Fishers in Toughening Fish Nets." *Asia Pacific Journal of Multidisciplinary Research, Volume 8, No. 3, (*2020).

[3] Castillo, L. Hadjistavropoulos, T. and Brachaniec, M. "The Effectiveness of Social Media in the Dissemination of Knowledge About Pain in Dementia" Pain Medicine, Volume 22, Pages 2584–2596, https://doi.org/10.1093/pm/pnab157, (2021).

[4] Castro. G. M. Fast Facts: What Herbal Medicines are being Promoted by DOH? https://www.rappler.com › newsbreak › 243056-things-, (2019).

[5] Corpuz, A. and Savella, M."Larvicidal Activity of Papaya (Carica papaya) and Madre de Cacao (Gliricidia sepium) Leaf Extracts Against Aedes aegypti." *International Journal of Scientific & Engineering Research Volume 10,* (2019).

[6] Ducusin M B. Ethnomedicinal Knowledge of Plants among the Indigenous Peoples of Santol, La Union, Philippines. Electronic J Biol, 13:4, (2017).

[7] Molina, G., Eder M., Gascon V., Indigenous Knowledge of Medicinal Plants Used by Traditional Healers in Ilocos Sur. *International Journal of Scientific and Engineering Research, Volume 6,* (2015).

[8] Philippine Herbal Medicine © 2005-2020 Key to Nutritional Healing Philippine Medicinal Plants List

[9] Rather, M. A., Baba, S. A. Traditional Use of Medicinal Plants in Kashmir: A Review, https://www.rroij.com/open-access/traditional-use-of-medicinal-plants-in-kashmir--a-review-.php?aid=66893, (2015).

[10] Shedayi, A. A. Gulshan, B. Journal of Medicinal Plants Research Vol. 6(29), pp. 4540-4549,1 Available online at http://www.academicjournals.org/JMPR DOI: 10.5897/JMPR12.719 ISSN 1996-0875 ©2012 *Academic Journals Full Ethnomedicinal uses of plant resources in GilgitBaltistan of Pakistan, (*2012).

[11] Siqueira C. F, Cabral D. L, Sobrinho J., Amorim E. L, Melo J., Araujo T. A., Albuquerque *Philippine Journal of Science Fabie-Agapin: Plants Used as Medicines,* (2020)

[12] Sofowora, A., et al. The Role and Place of Medicinal Plants in the Strategies for Disease Prevention. African *Journal of Traditional, Complementary, and Alternative Medicines,* (2013).

[13] The Journal of Medicinal Plants Studies, Volume: 1, Issue: 4 First page: (32) Last page: (37) ISSN: 2320-3862 Online Available at www.plantsjournal.com *Journal of Medicinal Plants Studies Vol. 1 No. 4 2013 www.plantsjournal.com Page | 32 Ethnobotanical Study of Traditional Medicinal Plants Used by Indigenous People of Gemad District, Northern Ethiopia),* (2013).

[14] Tindowen et al. Ethnopharmacology of medicinal plants in a rural community in Northern Philippines, *Journal of Biodiversity and Environmental Sciences (JBES),Vol. 11, No. 1, p. 296-303,* Retrieved from http://www.innspub.net, (2017).

[15] Tugume Patience et al. Ethnobotanical survey of medicinal plant species used by communities around Mabira Central Forest Reserve, UgandaPMID: 26762159 PMCID: PMC4712608 DOI: 10.1186/s13002-015-0077-4, (2016).

[16] Wongvibulsin, S. BS Candidate, UCLA, UCLA Center East-West Medicine, Staff Writer, https://exploreim. ucla.edu/research/challenges-and-future-directions-of-herbal-medicine-research/, (2014).