

TRADITIONAL PLANTS UTILIZED BY INDIGENOUS PEOPLE “HERBOLARIOS”

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Abstract: This study delved on the traditional plants with medicinal property as utilized by the indigenous “herbolarios” in treating sickness. The objective of this research is to disseminate and familiarized indigenous people traditional plants locally grown in the community as use to treat existing sickness, and to identify and classify these plants according to their uses, such as leaves, fruits and trunks/barks, and be able to introduce the health benefits. It used the qualitative research method and has ten herbolarios samples and conducted at Nueva Ecija, Philippines. Its findings confirmed that the traditional plants have medicinal property to treat local diseases of the indigenous people. It also provides information to the tribal people to use these plants and conserved the same for future use. The herbolarios used these plants to treat diseases existed in their locality. The traditional plants were collected during Holy Week. The indigenous people cultivated and conserved these plants for their uses. It was concluded that public awareness and community based management need to be encouraged at all levels to maintain the biodiversity and the ethno curative knowledge of the indigenous people. The researchers recommended that promotion on the use of natural remedies derived from various locally based resources such as medicinal plant species should be encourage among the younger generation.

Keywords: herbolarios, medicinal plants, indigenous people, sickness.

I. INTRODUCTION

The word “herb” has been derived from the Latin word, “herba” and an old French word “herbe”. Now days, herb refers to any part of the plant like fruit, seed, stem, bark, flower, leaf, stigma or a root, as well as a non-woody plant. Earlier, the term “herb” was only applied to non-woody plants, including those that come from trees and shrubs. These traditional plants are also used as food, flavored, medicine or perfume and also in certain spiritual activities. (Aura Natural Products, 2014).

Medicinal plants sprawled and grow in the community be it herbs, shrubs, trees or any other species. “Herbolarios” are known to these plants to use as medicine for health enhancement and for medicine depending on its use.

These plants have nutritional value but also, have medicinal property.

The locale of the study took place in the different municipalities in Nueva Ecija wherein affected indigenous people are currently resettling. Abundant forest trees and fruit bearing trees, shrubs and herbs are grown along the hilly contour slopes, and creeks where local edible and non-edible plants are grown. There are abundant plants that are considered to have medicinal property known by practicing “indigenous herbalist” in the area.

In the resettlement area of the indigenous people, has low access to the formal health care system, traditional healing modalities provide the alternative. Integrating traditional health knowledge systems into the formal health systems not only helps preserve an invaluable and functional aspect of our cultural heritage, but also enhances the formal health delivery system.

OBJECTIVES:

The study delves on the locally grown medicinal plants that have medicinal property used by the indigenous herbalist. It aims to inventory the naturally grow plants available and grown locally plants that has medicinal property to treat human health problems and to identify these known plants. To classify the different native medicinal plants according to their uses and preparations. To identify the medicinal plants with their common name and vernacular name with medicinal value and their common uses. To categorize the use of medicinal plants for their preparation and their uses.

II. METHODOLOGY

The qualitative method of research was utilized to identify the commonly grown herbal plants with medicinal properties which were used by the Indigenous herbalist.

The informants of the study are the herbalist practitioner in the resettlement area. The criteria in selecting them were actually practicing for more than ten (10) years, can identify and classify the medicinal plants with their uses and voluntary participated in the whole process of the study.

Research tools employed include an unstructured guide prepared in English translated in Filipino and vernacular of the IP together with a guide questionnaire for in-depth interviews and focus group discussions. Discussion with the respondents was conducted in Tagalog since all of them could speak the dialect and this is to develop the interviews as informal conversations in order to let them speak spontaneously and not feel pressured as well. Since the researcher is from the area, he is immersed with the IP, he observed the informants activities and prowess, mingled with the IP since they were resettled in the area, and friendly relations were developed with the informants.


Data collection includes the acquiring and recording the observations, practices, and activities of the indigenous "herbolarios" as well as observations and informal interviews of the researcher. This also includes the recording and documenting of plants specimens identified by them.





Medicinal plant samples are abundant in the vicinity of the resettlement area while others are brought by the IP which they have collected from the remote forest in their residence. Plants were identified with the help of the literature. Finally, the researchers took pictures of each sample directly.




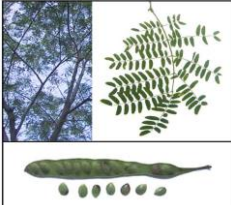
The information were gathered and analyzed was achieved through the description and interpretation of the local uses of common medicinal plants, the cultural beliefs for plants' uses, and comparing plants' traditional medicinal uses with that of the medical and botanical literature. Inferences from the gathered data were drawn and reviews of theories from related studies were needed to support the interpretations of the researcher.



The medicinal plants are common and known by the practitioners and the users but there is no laboratory test due to money consideration.

III. RESULTS AND DISCUSSIONS**Table 1: List of Medicinal Trees with their Common Name and Vernacular Name**

| Medicinal Plants/ Local Name | Scientific Name | Common Name | Uses and Preparation |
|---|------------------|-------------|--|
| Abukado*  | Persea americana | Abocado | Avocado leaves tea for kidney cleansing 1. Gather fresh avocado leaves from your backyard or your neighbor. With this demonstration I got some leaves from my herbalist neighbor. 2. Clean around 7 big leaves under running water with your bare hands to wash off any dirt. You can use a toothbrush to be more thorough. 3. Put in pot and add at least 1.5 liters to 2 liters of filtered, reverse osmosis water or distilled water. Do not use tap water or mineral water. 4. Allow to boil for 10 to 15 minutes. 5. Allow to cool to taste. 6. Drink up and enjoy the whole day. Or for |



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| | | | cleansing purposes, drink first thing in the morning and drink the last thing at night. Drink at least 1 liter at night. Of course you will be peeing but that is the idea. Gauge your progress with the state of your disease. |
| <p>Balete</p>  | Ficus stipulosa Miq. Linn. | Balete | <ul style="list-style-type: none"> • Skin eruptions and dermatitis: Boil one cup of chopped bark in 1/2 gallon of water for 10 mins; use decoction to wash involved areas, twice daily. • Decoction of aerial rootlets used for wounds, cuts and sores. • Bark is astringent and used as styptics for wounds. • Decoction of latex for parasitic worms. |
| <p>Banaba</p>  | | Banaba | <p>Note: Fresh leaves, dried leaves, flowers, ripe fruit, root and bark of Banaba can all be used.</p> <ul style="list-style-type: none"> • Wash the leaves in running water (if fresh). Cut into smaller pieces if desired. • Boil Banaba (one cup Banaba to cup of water) for 30 minutes. Drink like tea. |
| <p>Bayabas*</p>  | Psidium guajava L | Guava | <ul style="list-style-type: none"> • Boil one cup of Bayabas leaves in three cups of water for 8 to 10 minutes. Let cool. • Use decoction as mouthwash, gargle. • Use as wound disinfectant - wash affected areas with the decoction of leaves 2 to 3 times a day. Fresh leaves may be applied to the wound directly for faster healing. • For toothaches, chew the leaves in your mouth. • For diarrhea, boil the chopped leaves for 15 minutes in water, and strain. Let cool, and drink a cup every three to four hours. • To stop nosebleed, densely roll Bayabas leaves, then place in the nostril cavities. |
| <p>Bignay</p>  | Antidesma Bunius | Bignay | <p>below are bignay tea health benefits:</p> <ul style="list-style-type: none"> • dysentery treatments • good for diabetics • treats indigestion • appetite suppressant • prevents gastric intestinal problems • packed with antioxidants • contains essential vitamins and nutrients • packed with phytochemicals and flavonoids • boosts your immune system and metabolic rate • cleanses your colon • fat burning effects • lowers your blood cholesterol • reduces your SGPT and SGOP levels (liver) • prevents hypertension and other infectious diseases • prevents cancer and slows aging |




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| <p>Buwa*</p>  | Areca catechu | Nga - nga | <p>Dosages and Preparations</p> <ul style="list-style-type: none"> • Powdered nut for tapeworm 1 to 2 teaspoonsful. Of the Fluid Extract of Areca Nut, 1 drachm. Of the Arecoline Hydrobromide, for colic in horses, 1 to 1 1/2 grains. Of the Arecoline Hydrobromide, for human use, 1/15 to 1/10 grains . |
|  <p>Caimito*</p> | Chrysophyllum cainito Linn. | Star Apple | <p>To prepare the decoction of the star apple, you will need a chunk of the bark, a source of heat and water. The essence of the bark is concentrated by thorough heating or boiling. After obtaining the bark, it is important that you crush or ground it to ensure maximum utilization of the available ingredients. The bark is hard and the decoction method of brewing tea is the perfect way to prepare it. The taste of the decoction may not be very pleasant, it may however be improved by introducing substances like honey. Even so, the substance should be one that does not worsen the cough.</p> |
| <p>Guyabano*</p>  | Anona Muricata Linn | Guyabano | <p>Uses of concoction prepared from guyabano leaves</p> <ul style="list-style-type: none"> • As sudorific or to cause one to sweat • As an agent to cause vomiting (emetic) • As tranquilizer and sedative • To treat head lice and bedbugs and other parasites • To treat inflammation • Treatment for eczema and skin diseases • Treatment of catarrh or inflammation of mucous membrane in the respiratory tract. • Treatment of pain and inflammation associated with arthritis, rheumatism <p>Uses of guyabano fruit / Juice from guyabano fruit</p> <ul style="list-style-type: none"> • Used as diuretic, • Treatment of hematuria and urethritis • Treat Dysentery • Treat Scurvy <p>Uses of concoction of bark, roots and leaves</p> <ul style="list-style-type: none"> • To treat diabetes • As tranquilizer and sedative |
| <p>Ipil-ipil</p>  | Leucaena glauca L | Ipil-ipil | <p>Indications and Preparations:</p> <p>1. Deworming: Ipil-ipil is a good cure for intestinal parasites. Its seeds are dried and powdered. Powdered seeds can be prepared as tea or can be mixed with milk to make it more palatable to drink. Only one teaspoon of powdered seeds to a glass of water. Drink 2 hours after eating.</p> |

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| <p>Mabolo</p>  | <p>Diospyros blancoi</p> | <p>Mabolo</p> | <ul style="list-style-type: none"> • Decoctions of the bark and leaves of mabolo are used for all the health concerns that have been listed on the left. • Cough, stomach pains, fever, and skin ailments are treated by preparations of the mabolo leaves and bark. • Used as medicine for diarrhea, dysentery, heart ailments, hypertension and diabetes |
| <p>Mangga</p>  | <p>Mangifera Indica</p> | <p>Mangga</p> | <p>Mango leaves are very useful for managing diabetes. The tender leaves of the mango tree contain tannins called anthocyanidins that may help in treating early diabetes. The leaves are dried and powdered, or used as an infusion to treat the same. It also helps to treat diabetic angiopathy and diabetic retinopathy. Soak the leaves in a cup of water overnight. Strain and drink this water to help relieve the symptoms of diabetes. It also helps in treating hyperglycemia.</p> <p>Mango seeds are valuable in diarrhea. The seeds should be collected during the mango season, dried in the shade and powdered and stored for use as medicine. It should be given in doses of about one and a half gram to two grams with or without honey. Juice of fresh flowers when taken with one or two teaspoonful of curds, is also valuable in diarrhea.</p> |

Based on the table above, the following medicinal trees were identified, classified and elaborated by the respondents. The identified medicinal trees are Abocado, Balete, Banaba, Guava, Bignay, Nga – nga, Star Apple, Guyabano, Ipil-ipil, Mabolo and Mangga. The researcher counterchecked these names on the list of medicinal plants of the Philippines published online and there really are some plants which were listed by the respondents and aren't found on the reliable list.



Table 2: List of Medicinal Shrubs with their Common Name and Vernacular Name




| Medicinal Plants/ Local Name | Scientific Name | Common Name | Uses and Preparation |
|---|------------------------------------|------------------|--|
| <p>Gumamela*</p>  | <p>Hibiscus rosa-sinensis Linn</p> | <p>Gumamela</p> | <ul style="list-style-type: none"> • Decoction is used to treat: Bronchitis, coughs, fever, dysentery, urinary and bladder infections, high blood pressure and constipation. • Poultice is applied externally on the afflicted area. This is used to treat: headaches (on the forehead), boils, swelling, abscesses and mumps. • Intake of gumamela (alone or mixed with papaya or papaya seeds) specially in large quantities can be an abortifacient |
| <p>Kalamansi*</p>  | <p>Citrus x microcarpa Bunge</p> | <p>Calamansi</p> | <p>In preparing Calamansi Juice, you will need: 5 pieces big green calamansi fruit White Sugar A glass of cold or warm water according to your choice</p> <ol style="list-style-type: none"> 1. Clean the calamansi fruit and cut into two. 2. Squeeze to get the juice and pour into the glass of water. 3. You can separate the seed using a fork when squeezing. 4. Add the sugar to taste then stir and drink. <p>Nonetheless, drinking Calamansi Juice is definitely a natural and effective, to keep your kidney healthy. At no specific time, ten or more calamansi fruit in a glass of water are needed to consume. Aside from that, it also eliminates urine odor and lighten urine color.</p> |

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| Lagundi/Dangla*  | Vitex negundo | Lagundi | <ul style="list-style-type: none"> Boil half cup of chopped fresh or dried leaves in 2 cups of water for 10 to 15 minutes. Drink half cup three times a day. For skin diseases or disorders, apply the decoction of leaves and roots directly on skin. The root is specially good for treating dyspepsia, worms, boils, colic and rheumatism. |
| Malunggay*  | Moringa oleifera Lam | Malunggay | For simple preparations however, as when the concoction would be used for uncomplicated ailments like hiccups, as a means to end constipation, or as wound cleanser, one may eat the cooked leaves of the malunggay plant during his last meals of the day. This should be accompanied by water, especially when the ailment to be addressed is constipation. Now, as wound cleanser, the leaves may be crushed and applied to the affected area directly. In all instances, cleanliness should be observed to avoid complications. |
| Niyug-niyogan  | Quisqualis Indica L. | Niyug - niyogan | <ul style="list-style-type: none"> Seeds of niyog-niyogan can be taken as an anthelmintic. These are eaten raw two hours before the patient's last meal of the day. Adults may take 10 seeds while children 4 to 7 years of age may eat up to four seeds only. Children from ages 8 to 9 may take six seeds and seven seeds may be eaten by children 10 to 12 years old. Decoctions of its roots are also sometimes used as a remedy for rheumatism while its fruits are used as an effective way to relieve toothaches. |

Based on the table above, the following medicinal shrubs were identified, classified and elaborated by the respondents. The identified medicinal shrubs are Gumamela, Calamansi, Lagundi, Malunggay and Niyug – niyogan. The researcher counterchecked these names on the list of medicinal plants of the Philippines published online and there really are some plants which were listed by the respondents and aren't found on the reliable list.

Table 3: List of Medicinal Herbs with their Common Name and Vernacular Name

| Medicinal Plants/ Local Name | Scientific Name | Common Name | Uses and Preparation |
|--|-----------------|--------------------------|---|
| Akapulko  | Cassia alata | <i>bayabas-bayabasan</i> | <ul style="list-style-type: none"> For external use, pound the leaves of the Akapulko plant, squeeze the juice and apply on affected areas. As the expectorant for bronchitis and dyspnoea, drink decoction (soak and boil for 10 to 15 minutes) of Akapulko leaves. The same preparation may be used as a mouthwash, stringent, and wash for eczema. As laxative, cut the plant parts (roots, flowers, and the leaves) into a manageable size then prepare a decoction. Note: The decoction loses its potency if not used for a long time. Dispose leftovers after one day. The pounded leaves of Akapulko have purgative functions, specifically against ringworms. |
| Ampalaya*  | | Bittergourd | <ul style="list-style-type: none"> For coughs, fever, worms, diarrhea, diabetes, juice Ampalaya leaves and drink a spoonful daily. For other ailments, the fruit and leaves can both be juiced and taken orally. For headaches wounds, burns and skin diseases, apply warmed leaves to afflicted area. Powdered leaves, and the root decoction, may be used as stringent and applied to treat hemorrhoids. Internal parasites are proven to be expelled when the ampalaya juice, made from its leaves, is extracted. The ampalaya juice, and grounded seeds is to be taken one |

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| | | | spoonful thrice a day, which also treats diarrhea, dysentery, and chronic colitis. |
| <p>Banana</p>  | | Banana | <p>Health Benefits from Banana fruit</p> <ul style="list-style-type: none"> • Banana being rich in fibers, has long been used as demulcent and laxative to improve bowel movement. • Banana is used to treat biliousness and heartburn • Banana is used to promote lymphatic flow and to stimulate the detoxifying functions of the liver. • Banana is used to prevent scurvy • Banana is included in diet to help restore health and strength. • The flour made from green bananas is used for dyspepsia and flatulence. • Ripe bananas combined with tamarind and salt are used to treat dysentery and diarrhea <p>Banana trunk and leaf juice health benefits</p> <ul style="list-style-type: none"> • Banana juice is used as an astringent • Banana juice is used a styptic to control bleeding. • Banana is used to treat fever • Banana is used as emmenagogue to help menstrual flow. • The mucilage of the trunk is used to promote hair growth. • The juice of the trunk is also used for dysentery and diarrhea |
| <p>Bawang*</p>  | Allium sativum | Garlic | <ul style="list-style-type: none"> • For disinfecting wound, crush and juice the garlic bulb and apply. You may cover the afflicted area with a gauze and bandage. • For sore throat, peel the skin and chew for several minutes. Swallow the juice. • For toothaches, crush then bite garlic. • For athlete's foot, soak feet in salty water then apply garlic juice. Do this 3X day for a week. • Cloves of garlic may be crushed and applied to affected areas to reduce the pain caused by arthritis, toothache, headache, and rheumatism. • Decoction of the bawang bulbs and leaves are used as treatment for fever. • For nasal congestion, steam and inhale: vinegar, chopped garlic, and water. |
| <p>Menta/ Agas-moro</p>  | Mentha spicata | Yerba Buena | <p>Coughs and Colds. The minty scent and flavour of Yerba Buena is used in vaporizers to unclog the nasal passage due to accumulation of phlegm and helps to relieve inflammation. It also acts as an expectorant.</p> <p>Antibacterial and Antifungal properties. Yerba Buena oil is used to treat various skin infections and conditions that include eczema, insect bites, scars and wounds, burns, scabies, ringworms and other skin infections.</p> <p>Pain reliever. The minty and relaxing effect of yerba Buena is used as a topical aid in alleviating the pain associated with arthritis, gout, headache and other body and joint pains.</p> <p>Tooth and mouth diseases. Yerba Buena is chewed to treat toothache and a decoction can be gargled to treat mouth sores and ulcers, gum disease and even swollen tonsils and sore throats.</p> <p>Preparation: Boil half cup of chopped fresh or dried leaves in 2 cups of water for 10 to 15 minutes. Drink half cup three times a day.</p> |

Based on the table above, the following medicinal shrubs were identified, classified and elaborated by the respondents. The identified medicinal shrubs are bayabas-bayabasan, Bitter gourd, Banana, Garlic and Yerba Buena. The researcher counterchecked these names on the list of medicinal plants of the Philippines published online and there really are some plants which were listed by the respondents and aren't found on the reliable list.

This result could serve as a reference that would widen the perspective of the indigenous students in terms of the names of various medicinal plants by knowing not only the usual name within their context but more interestingly, the names given by the other indigenous groups to a similar plant as well as the more pronounced in the wider community. It will aid in easy access and would eventually give them the useful knowledge in determining what really the real ailment a particular plant could treat and even the other possibilities with which it could demonstrate salutary effects. Moreover, it could also be constructed how the indigenous people value medicinal plants so much that they assigned them names which they think could be better remembered by them.

The result discloses that are noteworthy similarities between traditional and recommended (proven) use/s of medicinal plants. Out of the 48 medicinal plants identified, 18 were discovered to have a comparable use with that of the recommended way of utilizing it as far as botanical and medicinal context is concern, which is marked bold in the table. Among the 18 plants are: *Abukado*, *Ampalaya*, *Bawang*, *Buwa*, *Caimito*, *Clamansi*, *Gumamela*, *Ipil-ipil*, *Lagundi*, etc.. Because of the fact that there are plants which are use similarly by other indigenous groups to cure similar disease, it could be inferred that these plants are really effective for the treatment of that ailment. Similar idea was presented by Bekalo et al. (2009) in their study about the medicinal plants used by local people in the lowlands of Konta Special Woreda, Southern nations, nationalities and people's regional state, Ethiopia.

Some of the plants that were reported by the informants in the study area (*Solanum incanum*, *Thunbergia ruspolii*, *Buddleja polystachya*, *Citrus aurantifolia*, *Erythrina abyssinica*, *Pittosporum viridiflorum*, *Piper capense*, *Rumex nwpalensis*, *Artemisia absinthium*, *Ocimum lamiifolium*, *Phytolacca dodecandra*, *Ruta chalepensis*, *Leuca deflexa* and *Carica papaya*) are also used for similar health problems in some parts of the country and elsewhere can be taken as indication of their pharmacological effectiveness having been tested in different areas by different cultures.

The present study reveals that the inhabitants of the research are rich in indigenous knowledge of plants and their uses to treat many diseases. During the study period, the researchers found that all information on the use of medicinal plants was gathered from elder resource persons who have real knowledge about the utilization of medicinal plants. Knowledge on the medicinal uses of resource plants now seems to be confines to elderly people while younger generation is little knowledge about the vast medicinal resources available in their surroundings. All the resource persons to whom most of the indigenous students have consulted were in the age group of 60 and above were familiar with the medicinal plants growing in their vicinity. Also, some of the younger generation (indigenous students) does not rely on traditional treatments due to modern cultural changes and the availability of commercial medicines. It is, therefore, felt worthwhile to record the traditional knowledge of medicinal plants in the area before the information is depleted.

The study of Bekalo et al. (2009) revealed that, most of the knowledge on herbal remedies is handled down to the younger members of the community by elders, who are 41-50 years old.

This hint at the fact the ethno medicinal knowledge is concentrated in the elderly members of the community and the relative difficulty in the transfer from the elders to the young generation. This might be related to the waning of interest of the young generation on indigenous knowledge.

Different studies in different areas showed that medicinal plant knowledge and transfer of knowledge to the young generation have been affected by modernization (having access to modern education and health service) and environmental change as cited by Bekalo et al. (2009).

Just like in some Aboriginal medicinal cultures the various processes of healing are connected with ceremonies and rites. Those who processes the secret cures sometimes think that if they disclose them too freely the herbs will lose their potency. In return of the collected plants, indigenous people usually give a small offering (tobacco, matches, wine, money, sugar or a prayer) in place of what is taken. This ritual shows respect for the plant will be attained. The reason of collection is deemed important too, for the effectiveness of remedies wherein plants gathered during holy week is considered to be more effective.

Moreover, according to the respondents especially the Ybanag, using these medicinal plants is usually their initial action in healing their ailments before seeking or proceeding to medical doctors due to increasing cost of conventional modern medicine. This is done through the help of what they call as *Albolaryo* or the person they usually consult when experiencing any disease in their place due to their tradition and because of chronic economic constraints especially in rural areas. The *Albolaryos* are general practitioners, the primary dispensers of health care. As shared by the indigenous students, an *Albolaryo* usually passed down his/her power to a member of his/her family usually to his descendant in order to observe the continuity of their tradition. Hence, it is said that there is a continuum of a “calling” which is bestowed by a supernatural being, often attributed to the Holy Spirit. They actually regard this person so much that they ought to respect and believe in him (usually a man) undoubtedly to effectively restore their health. When told to prepare something (*alay*) in order to heal a person’s condition swiftly. Usually, the family of the ill is ask to look for the medicinal plant which the *Albolaryo* had prescribed and together with his “*dasal*” and their “*alay*”, after sometime, the person will already be soothed.

Informants of the study further confirmed that the medicinal plants are actually collected from different habitats or remote forests which they must search when asked to although, there some who are still cultivating their own in their home gardens which is parallel to the result of the study conducted in Ethiopia by Bekalo et al. (2009) wherein 25.4% of the total medicinal plants, (120 species) are collected from home gardens and the rest (74.6%) are collected from wild habitats (near farmland, forest, road side, around grazing land, close to streams/river, grassland and fallow land). It was noted that, only 25 species (20.8%) of the total 120 medical plants are under cultivation in home gardens.

Conversely, *Amchis* (traditional Tibetan doctors) always collect local medicinal plants themselves. They stress that this is very important because they have extensive experience in the identification of Himalayan medicinal plants. They worry that a misnamed or falsely collected sample may be dangerous and cause the death of a patient. This is particularly true in the case of *Aconitum orchryseum* and *A.spicutum* (Ranunculaceae). *A. spicutam* is highly poisonous and is difficult to differentiate from *Aconitum orachryeeum*. Using the wrong species by mistake can result in death. The medicine from this plant can only be prepared by highly experienced *Amchi*. Medicine must be made *Amchi* with other medicinal plants of the Himalaya, so that the poison of the plant is inactive without inactivating the other medicinal properties as referred by Bhattarai et al (2010).

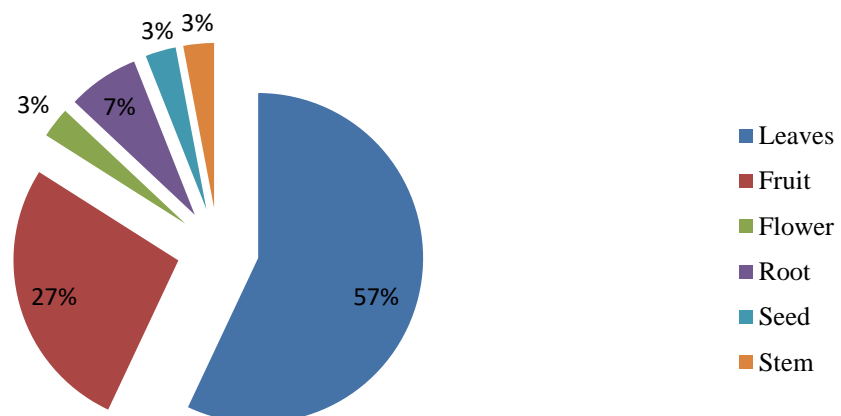


Figure 1: Most Frequently Used Part of Plant

Moreover, as revealed in figure 3, among the various parts of plants being utilized, leaves acquire the highest percentage (57%). Similar result was recorded by the study of Bekalo et al. (2009). Leaf is highly used for medical purpose (34.2%) than the other plant parts in the study area. Many studies conducted in different parts of Ethiopia and in many parts of the world also showed that leaves are used more than the other plants. This practice helps to reduce the rate of threat on plants species or helps for sustainable harvesting of plants since removal of an appreciable amount of leaf is tolerated by the plant.

In most of the preparation, leaves (27%) were used for the preparation of medicines predominantly followed by roots (23%), fruits (10%), seeds (10%), stem barks (9%), whole plant (7%), latex (6%), root bark (4%), flower (3%), and gum (1%). The common use of leaf in the preparation of remedies could partly be due to the relative ease of findings in this plant part. Leaves remain green and available in plenty for the most months of the years. The use of leaves in the preparation of remedies is also common elsewhere. The common use of leaf is also due to easily availability of this plant parts in the area (Panghal et al. 2010)

In addition, leaf is the most frequently used part in the preparation of medicinal remedies too in the study of Murad et al. (2011). The common use of leaf (24%) followed by the whole plants (20%) and fruit (18%) reveals that these parts might have strong medicinal properties but it requires chemical screening. The common use of leaves in the preparation of remedies is also reported by Muthu et al. (2006) and Kala et al. (2005) as cited by them.

However, in the study of Bhattarai et al. (2010), different result transpired that is, the most commonly used medicinal plant part was the root (30 species), followed by flowers (23), fruits and leaves (19 each), stem (17), seed (11) bark and cone (2 each) and bulb (1). In addition to the above common parts used, whole (49 species, 29%), were commonly uprooted. The most commonly selected plants part may be preferential because such parts contain more active principles in comparison to the least used parts. Leaves, roots, stems, and flowers are physically more vulnerable to attack by herbivores of pathogens than the hardier bark of cones and may contain more chemical defense compounds in the form of biologically active secondary metabolites.

IV. FINDINGS

Using a descriptive approach, forty-one common medicinal plants namely: *Abukado, Agod, Akapulko, Allengua, Ampalaya, Balete, Saba, Batbatunit, Bawang, Bignay, Buwa, Caimito, Dahon ng Sibuyas, Damong-ahas, Lagundi, Bayabas, Getag'wa, Gumamela, Guyabano, Hapid, Illuro, Ipil-ipil, Langka, Lingguh, Luya, Makahiya, Mala-NPA, Malunggay, Mangga, Melda, Niyog, Oregano, Pan-aw, Polontro, Rungo-rungo, Sintones, Subusob, Tabbe, Talong, Papaya, Tuba and Uldadanum* were identified, and recorded.

In the absence of modern health care facility and more significantly, their distance from the public and private hospitals and the increasing cost of commercial modern medicine, people in the tribal localities mainly depend on plants for the treatment of common ailments,

Based on the initial exploration survey and group discussions where emphasis was on identification of knowledgeable resource person, the following finding were disclosed too;

Elders are repository of traditional knowledge which they transmit to younger generation merely by verbal communication.

Due to the increasing cost of commercial modern medicine, difficult geography of the district as well as a strong cultural belief in the power of folk medicines, the *albolaryo* system serves as a popular provider of primary healthcare among the indigenous group.

Beliefs, ceremonies and rituals done by an *Albolaryo* together perform a crucial role in the healing process.

One's high regard and belief to an *Albolaryo* accounts for a better and immediate revitalization.

Some of the younger generation (indigenous students) does not rely on traditional treatments due to modern cultural changes and the availability of commercial medicines.

Based on the accumulated data, among the various part of a plant being used, leaf is the most widely consumed.

Cough and colds get a hold of the highest percentage among eighteen used identified illnesses encountered by the indigenous groups.

Some of the medicinal plants use by the indigenous students were already recognized and proven to be effective by the Philippine Department of Health such as *Ampalaya, Bawang, Dangla, Bayabas, Subusob, Buwa, Caimito, Gumamela, Guyabano, Ipil-ipil, Kalamansi, Kataka taka, Kawkawati, Kutsay, Luya, Malunggay and Oregano* were also proven effective based on botanical books and referred websites.

V. CONCLUSIONS

1. Medicinal plants represent a significant contribution to human health and one of the most significant ways in which humans directly reap the benefits provided by biodiversity, (Asselin, Hugo et al.). Indeed, plants play an imperative role on the lives of these indigenous groups.
2. Tribal peoples inherit a rich traditional knowledge and documentation of this knowledge has provided novel information from the area and documentation of traditional knowledge will help in its conservation.
3. Male *Albolaryo* generally exhibit great healing prowess. They do possess beliefs which are to be respected for it is part of the therapeutic process.
4. Occasionally, knowledge of the IP about the traditional use of a plant conforms with the recommended use of it hence, it is proven effective.
5. The fact that some of the reported plants are having similar uses with the other indigenous group, it can be taken as indication of their pharmacological effectiveness having been tested indifferent areas by different cultures.
6. Medicinal plants are collected or gathered during Holy Week bears a more salutary effect.
7. Using more leaves than other plant parts signifies that traditional medicinal culture in the area does not threaten biological diversity and thus, contributes on its conservation.
8. The amount of plants to be collected should only be enough to work for its very purpose.
9. The decline in the use of plants by younger generation may gradually lead to the fading away of the indigenous knowledge associated with the plants since knowledge on remedies is mostly held by the elders. It is worthwhile to the record the traditional knowledge of medicinal plants in the area before the information is depleted.
10. There is a dire need of awareness, to educate and train the local inhabitants regarding the proper use and cultivation method can be involved to cultivate sustainable species and to apply conservation strategies.
11. An integrated, collaborative approach for sustainable use, conservation and management of medicinal plants should be put into place and involve all stakeholders.
12. Indigenous people should maintain the resource of treating the disease (stomach upset) in the locality..
13. Public awareness and community based management need to be encouraged at all levels to maintain the biodiversity and the ethno curative knowledge of the indigenous people.

VI. RECOMMENDATIONS

Researchers should explore more on the taxonomical aspect of medicinal plants which were not discerned by the researchers to conduct further exploration on the unidentified medicinal plants.

Clinical studies on plants which were not previously recognized and some uses of the plants that are not yet proven scientifically but are found effective by the indigenous people maybe further studied in the laboratory including some of the other possible uses and way of utilizing these plants should be enhance.

The documentation of traditional knowledge on medicinal plants among the indigenous people still needs more efforts, to inhibit this valuable knowledge from being lost after the death of its old secret keepers.

Promotion on the use of natural remedies derived from various locally based resources such as medicinal plant species should be encourage among the younger generation.

REFERENCES

- [1] Bosze, S. (2000) Medicinal plants in the rainforest: Effects on biodiversity and indigenous peoples. Journal of Ethnobiology and Ethnomedicine Full Traditional medicinal plants in the boreal forest Canada review and perspectives Date Retrieved: March 2, 2018
- [2] An ethnobotanical study of medicinal plants and traditional therapies on Batan Island, the Philippines, <http://www.sciencedirect.com/science/article/pii/S0378874112008069> Date Retrieved: March 2, 2018

- [3] Medicinal Plants: Their role in Health & Biodiversity, https://books.google.com.ph/books?hl=en&lr=&id=cHoJCgAAQBAJ&oi=fnd&pg=PP1&dq=indigenous+medicinal+plants+in+the+philippines&ots=PKVo4rH83f&sig=b8x9K5-GTfQLf_pxyomrvri7QpM&redir_esc=y#v=onepage&q=indigenous%20medicinal%20plants%20in%20the%20philippines&f=false Date Retrieved: March 2, 2018
- [4] Antioxidant and cytotoxic activities and phytochemical screening of four Philippine medicinal plants, <http://www.academicjournals.org/journal/JMPR/article-abstract/6A2786415864> Date Retrieved: March 2, 2018
- [5] Antibacterial activity of extracts of twelve common medicinal plants from the Philippines, <http://www.academicjournals.org/journal/JMPR/article-abstract/7BBEFEE22854> Date Retrieved: March 2, 2018
- [6] Ethnomedical knowledge of plants and healthcare practices among the Kalanguya tribe in Tinoc, Ifugao, Luzon, Philippines, <http://nopr.niscair.res.in/handle/123456789/11497> Date Retrieved: March 2, 2018
- [7] Quantitative ethnobotanical study of the medicinal plants used by the Ati Negrito indigenous group in Guimaras island, Philippines, <http://www.sciencedirect.com/science/article/pii/S0378874114006692> Date Retrieved: March 2, 2018
- [8] Antibacterial activities of ethanol extracts of Philippine medicinal plants against multidrug-resistant bacteria, <http://www.sciencedirect.com/science/article/pii/S2221169115000854> Date Retrieved: March 2, 2018
- [9] Medicinal Plants of Sabah, East Malaysia <http://www.tandfonline.com/doi/abs/10.1076/phbi.41.5.340.15940> Date Retrieved: March 2, 2018
- [10] Ethnobotanical Approaches of Traditional Medicine Studies: Some Experiences From Asia, <http://www.tandfonline.com/doi/abs/10.1076/phbi.39.s1.74.0005> Date Retrieved: March 2, 2018
- [11] ANTIDIABETIC POTENTIAL OF MEDICINAL PLANTS, http://www.ptfarm.pl/pub/File/Acta_Poloniae/2010/2/113.pdf Date Retrieved: March 2, 2018
- [12] Studies on medicinal plants of Sri Lanka: Occurrence of pyrrolizidine alkaloids and hepatotoxic properties in some traditional medicinal herbs, <http://www.sciencedirect.com/science/article/pii/0378874181900337> Date Retrieved: March 2, 2018
- [13] Medicinal plants of East and Southeast Asia: attributed properties and uses, <https://www.cabdirect.org/cabdirect/abstract/19816737034> Date Retrieved: March 2, 2018
- [14] Medicinal plants of East Africa, <http://agris.fao.org/agris-search/search.do?recordID=KE2005100575> Date Retrieved: March 2, 2018
- [15] Research on Medicinal Plants and Traditional Medicine in Africa, <http://online.liebertpub.com/doi/abs/10.1089/acm.1996.2.365?journalCode=acm> Date Retrieved: March 2, 2018
- [16] Traditional Malay Medicinal Plants, https://books.google.com.ph/books?hl=en&lr=&id=UQIfGMUtCO4C&oi=fnd&pg=PP2&dq=indigenous+medicinal+plants+in+the+Asian+countries&ots=VpvRfEuEjS&sig=tzhA1E1gHdMPozWFIFZ7RvX5Hc4&redir_esc=y#v=onepage&q=indigenous%20medicinal%20plants%20in%20the%20Asian%20countries&f=false Date Retrieved: March 2, 2018
- [17] Medicinal Plants Rescuing a Global Heritage, https://books.google.com.ph/books?hl=en&lr=&id=zamJTL1NfDgC&oi=fnd&pg=PR5&dq=indigenous+medicinal+plants+in+the+Asian+countries&ots=zPFcSzs1xn&sig=ZJXY05d9uSgJrGC5Knhl6-QuCJM&redir_esc=y#v=onepage&q=indigenous%20medicinal%20plants%20in%20the%20Asian%20countries&f=false Date Retrieved: March 2, 2018
- [18] Traditional medicinal plant use in Northern Peru: tracking two thousand years of healing culture, <https://ethnobiomed.biomedcentral.com/articles/10.1186/1746-4269-2-47> Date Retrieved: March 2, 2018
- [19] Diversity and antimicrobial activities of the fungal endophyte community associated with the traditional Brazilian medicinal plant *Solanum cernuum* Vell. (Solanaceae), http://www.nrcresearchpress.com/doi/abs/10.1139/w11-105#.WVL_reuGPIU Date Retrieved: March 2, 2018

- [20] Medicinal plants in the cultural landscape of a Mapuche-Tehuelche community in arid Argentine Patagonia: an eco-sensorial approach, <https://ethnobiomed.biomedcentral.com/articles/10.1186/1746-4269-10-61> Date Retrieved: March 2, 2018
- [21] Economic native plants of New Zealand, <https://link.springer.com/article/10.1007%2FBF02859329?LI=true> Date Retrieved: March 2, 2018
- [22] Indigenous use and bio-efficacy of medicinal plants in the Rasuwa District, Central Nepal, <https://ethnobiomed.biomedcentral.com/articles/10.1186/1746-4269-6-3> Date Retrieved: March 2, 2018
- [23] Valorizing the 'Irulas' traditional knowledge of medicinal plants in the Kodiakkarai Reserve Forest, India, <https://link.springer.com/content/pdf/10.1186%2F1746-4269-5-10.pdf> Date Retrieved: March 2, 2018
- [24] List of Medicinal Plants in the Philippines http://www.philippineherbalmedicine.org/medicinal_plants.htm Date Retrieved: March 2, 2018
- [25] Ancient-Modern Concordance in Ayurvedic Plants: Some Examples, https://link.springer.com/chapter/10.1007/978-94-015-9779-1_3#page-1 Date Retrieved: March 2, 2018
- [26] Impact of Cultivation and Gathering of Medicinal Plants on Biodiversity: Global Trends and Issues, https://www.researchgate.net/profile/Uwe_Schippmann2/publication/265157471_Impact_of_Cultivation_and_Gathering_of_Medicinal_Plants_on_Biodiversity_Global_Trends_and_Issues/links/553f24b60cf294deef7193d9.pdf Date Retrieved: March 2, 2018
- [27] Antioxidant activity, phenol and flavonoid contents of some selected Iranian medicinal plants, <https://www.ajol.info/index.php/ajb/article/view/42999> Date Retrieved: March 2, 2018
- [28] Traditional use of medicinal plants among the tribal communities of Chhota Bhangal, Western Himalaya, <https://ethnobiomed.biomedcentral.com/articles/10.1186/1746-4269-2-14> Date Retrieved: March 2, 2018
- [29] Ethnobotanical study of medicinal plants used by people in Zegie Peninsula, Northwestern Ethiopia, <https://ethnobiomed.biomedcentral.com/articles/10.1186/1746-4269-3-12> Date Retrieved: March 2, 2018
- [30] Valorizing the 'Irulas' traditional knowledge of medicinal plants in the Kodiakkarai Reserve Forest, India, <https://link.springer.com/content/pdf/10.1186%2F1746-4269-5-10.pdf> Date Retrieved: March 2, 2018
- [31] Use of indigenous plants as sources of fish toxicants for pond management in the Philippines, <https://www.cabdirect.org/cabdirect/abstract/19916775577> Date Retrieved: March 2, 2018
- [32] Plant Biodiversity and Ethnobotany of Borana Pastoralists in Southern Oromia, Ethiopia., [http://www.bioone.org/doi/abs/10.1663/0013-0001\(2005\)059%5B0043:PBABEOB%5D2.0.CO%3B2](http://www.bioone.org/doi/abs/10.1663/0013-0001(2005)059%5B0043:PBABEOB%5D2.0.CO%3B2) Date Retrieved: March 2, 2018
- [33] Utilization Of Weed Species As Sources Of Traditional Medicines In Central Kenya, http://www.lyonia.org/articles/rbusmann/article_313/pdf/article.pdf Date Retrieved: March 2, 2018
- [34] Ethnomedicinal plants used by the people of Manang district, central Nepal, <https://ethnobiomed.biomedcentral.com/articles/10.1186/1746-4269-2-41> Date Retrieved: March 2, 2018
- [35] Conversation and management efforts of medicinal and aromatic plants in Nepal, <http://www.nepjol.info/index.php/BANKO/article/viewFile/17044/13851> Date Retrieved: March 2, 2018