PLANTS UTILIZED FOR FOLK MEDICINE IN PAMBUJAN, NORTHERN SAMAR, PHILIPPINES

ABSTRACT

This study, focused on the use of plants in folk healing practices and its economic uses, was conducted in isolated areas of Pambujan, Northern Samar, particularly Barangays Don Sixto Balanquit, Sr., Inanahawan, Senonogan, Igot, and Cagbigajo during the months of July to September, 2021. Environmental conditions such as habitat type, vegetation, air temperature, soil temperature, soil pH, and elevation were also gathered. Purposive sampling was done, together with the collection of specimens for herbarium preparation, and gathering data on the environmental factors. Interviews with respondents were done to know the local names and economic uses of each specimen. Sixty-seven (67) species of medicinal plants were found to be present and collected in the study area. In Barangay Don Sixto Balanquit, Sr., all 67 representative species were collected, while 48 species were collected in Barangay Inanahawan, 26 species in Barangay Igot, 59 species in Barangay Cagbigajo, and 32 representative species were collected in Barangay Senonogan. These results imply that there is a diversity of plant species utilized for folk medicine in the study area. Economically, plants in the study area were utilized mainly for human consumption as food, furniture, building and construction, livestock feed, forage, and for medicinal purposes. Observation and measurements made on the environmental conditions in the study area show that they are optimal for the growth of these economically important plants. The researchers recommend the conservation of these plant resources alongside the encouragement of indigenous folk healing practices for the benefit of the residents in isolated areas of Pambujan, Northern Samar. Similarly, further studies be done to document other plant species with potential medicinal applications.

KEYWORDS: *folk medicine, isolated areas, folk healing practices, plant resources, plant diversity*

I. INTRODUCTION

Herbal medicine refers to the use of herbs for their therapeutic or medicinal value. An herb is a plant or plant part valued for its medicinal, aromatic, or savory qualities. Herbal medicine is the oldest form of healthcare known to humankind. Herbs had been used by all cultures throughout history and it was an integral part of the development of modern civilizations. Plants provide food, clothing, shelter, and medicine. Much of the medicinal use of plants seem to have been developed through observation of wild animals and by trial and error. As time went on, each tribe added the medicinal power of herbs in their area to its knowledge (World Health Organization, 1997).

In the Philippines, herbal cure is very popular in many provinces, barrios, or urban communities where “albolaryos” are well known. Even natives, who inhabit the country’s mountains and far-flung villages, depend upon some common herbs for their medicinal needs (Bold, 1989).

The residents of geographically isolated areas in Pambujan, Northern Samar suffer from difficulties of transportation, thus, when suffering from sickness, they cannot travel quickly to urban areas to seek medical services. Most of the residents travel for hours before they can reach the municipal center where primary health care facilities are available. But because of travel restrictions in this time of the pandemic, residents in these areas care for their health by way of practicing proper personal hygiene, following mandated health protocols, and eating healthy foods or fresh vegetables, believing it can help them retain their health. In many instances, to cope with their health problems, they use medicinal plants as alternative medicines with the help from folk healers (the "albularyo" or "tambalan")

This study hopes to provide a detailed information of the different medicinal plants in selected barangays of Pambujan, Northern Samar used in traditional medicine and play significant roles in healing practices. The researchers chose the geographically isolated areas of Pambujan, Northern Samar as the sampling site since there is no study yet of this kind conducted in the area. The researchers also believe that there are many kinds of medicinal plants that can possibly be found in the study area. In addition, this study will inventory the medicinal plants in the area and identify what are species can cure common ailments.

II. METHODOLOGY

Locale of the Study

This study was conducted in the municipality of Pambujan, Northern Samar, a basically agricultural municipality with farming as the dominant source of income for its people. Pambujan is a coastal municipality in the province of Northern Samar, with a land area of 163.90 square kilometers (km^2) or 63.28 square miles (mi^2) which constitutes 4.44% of Northern Samar's total area. Its population, as determined by the 2020 census was 33,062, representing 5.23% of the total population of Northern Samar province, or 0.74% of the overall population of the Eastern Visayas region. Based on these figures, the population density is computed at 202 inhabitants per km^2 or 522 inhabitants per mi^2 (Eastern Visayas Region VIII, https://www.philatlas.com).

The Municipality of Pambujan has 26 barangays, and its municipal center is situated at approximately 12˚ 34' North, 124˚ 56' East, in the island of Samar. Elevation at these coordinates is estimated at 5.2 meters or 17.2 feet above mean sea level (Eastern Visayas Region VIII, https://www.philatlas.com).

This study was conducted in geographically isolated barangays of Pambujan, Northern Samar, five of which were barangays Don Sixto Balanquit, Cagbigajo, Inanahawan, Senonogan, and Igot.

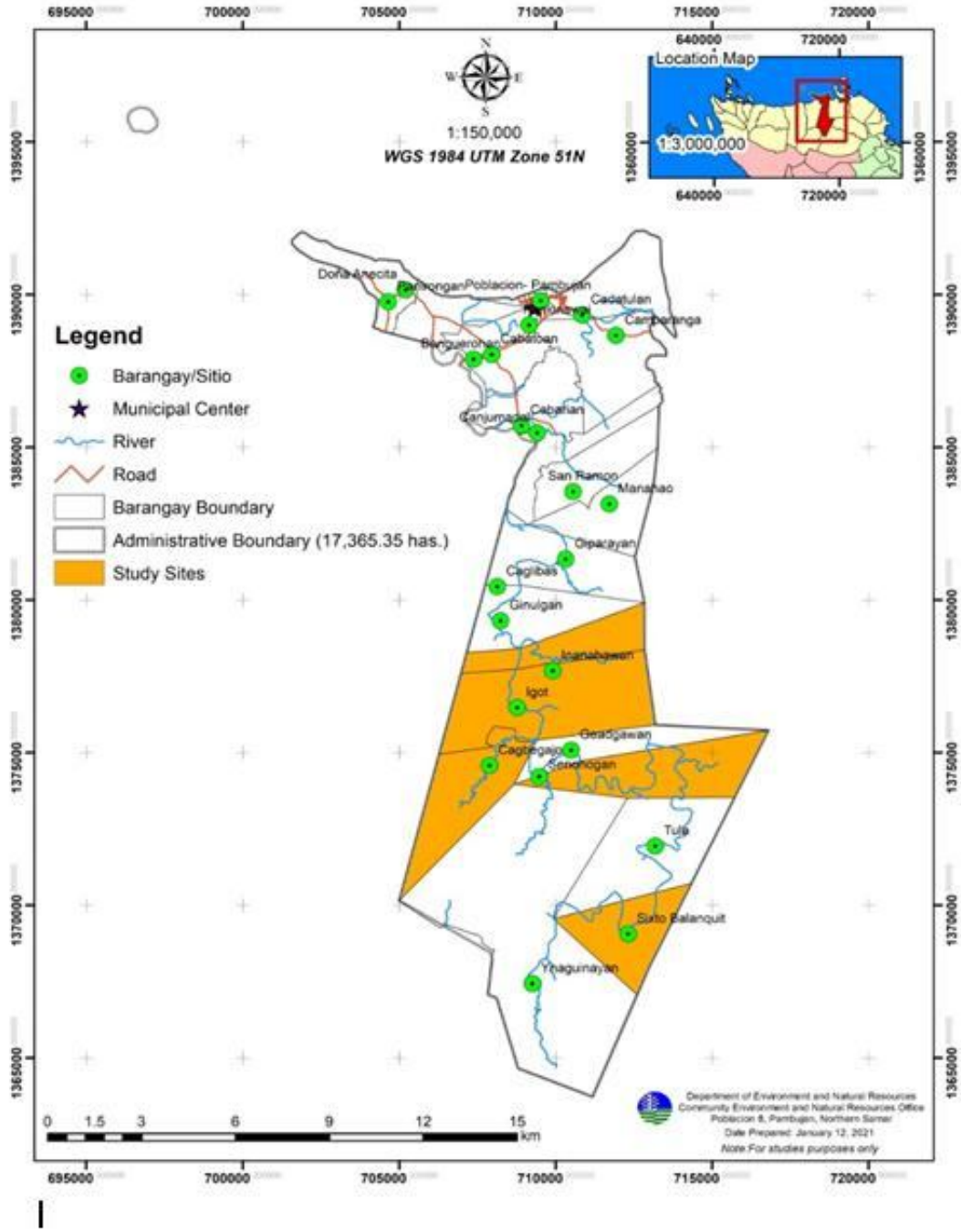

Figure 1. Map of Pambujan, Northern Samar, Highlighting the Study Sites

Barangay Don Sixto Balanquit is situated at approximately 12.3719˚N, 124.9535˚E, with an estimated elevation at 71.1 meters or 233.3 feet above mean sea

level. The barangay's population grew from 182 in 1990 to 341 in the 2020 census. The major source of livelihood is farming. Crops produced include abaca, copra, and rice (http://philatlas.com).

Barangay Cagbigajo is situated at approximately 12.4384˚N, 124.9448˚E, and elevation at these coordinates is estimated at 121.2 meters or 397.6 feet above mean sea level. The population of Cagbigajo is 508 in the 2020census. The major source of livelihood is farming. Crops produced include abaca, copra, and rice (http://philatlas.com).

Barangay Inanahawan has a population as determined by the 2020 census of 613. It is situated at approximately 12.4583˚N, 124.9487˚E, and elevation at these coordinates is estimated at 31.3 meters or 102.7 feet above mean sea level. The major source of livelihood is farming. Crops produced includes abaca, copra, and rice (http://philatlas.com).

Barangay Senonogan has a population as determined by the 2020 census is 269. It is situated at approximately 12.4149˚N, 124.9366˚E, in the island of Samar. Elevation at these coordinates is estimated at 18.0 meters or 59.1 above mean sea level. The major source of livelihood is farming. Crops produced include abaca, copra, and rice (http://philatlas.com).

Barangay Igot has a population of 766, representing 2.32% of the total population of the municipality. It is situated at approximately 12.4469˚N, 124.9451˚E, in the island of Samar. Elevation at these coordinates is estimated at 109.3 meters or 358.6 feet above sea level. The major source of
livelihood is farming. Major crops produced are abaca, copra, and rice (http://philatlas.com).

Research Design

This study utilized the descriptive type of research, involving the inventory of medicinal plants, its benefits and uses among the residents of geographically isolated areas of Pambujan, Northern Samar. The data were gathered through actual interviews with selected respondents in the study area. Plant samples were also collected for preservation and identification.

Sampling Technique

This study employed the purposive sampling technique, and focused on the inventory of medicinal plants in isolated areas of Pambujan, Northern Samar. Photographs of plant specimens were taken before samples were collected for herbarium preparation. Interviews with key informants – the folk healers or "albularyos" regardless of age, Barangay Health Workers (BHW), and the people who have resided in the area for most of their lives – was done using a researcher-made interview guide.

Data Gathering Procedure

This study utilized an interview guide to gather information from the respondents, asking them about plants, specifically those with medicinal value, that are used in their healing practices or in alternative medicine. Photographs of plant specimens in their natural habitat were taken for purposes of identification and documentation. Representative samples, preserved in a herbarium, were brought to the UEP College of Science Biology Laboratory for proper identification with the help of experts.

Respondents

The respondents were the folk healers, regardless of age or sex, Barangay Health Workers (BHW), residents 50 years old or older, and other people who have lived in these barangays for most of their lives. In each sampling site, at least 5 respondents were interviewed by the researcher.

Identification of Specimens

Specimens collected were pre-identified in the study area by the researchers with the assistance of the key informants, and were prepared for herbarium preservation. Specimen collection included photographs of medicinal plants in their natural habitats. Information tags, containing the plant's name, the place where it was collected, and other important information was attached to every specimen.

Preservation of Specimen

The plant specimens were subjected to drying, fixing with ethanol, and mounting of the specimen in the herbarium sheet, following the procedure of Potot (1995).

Drying of plant specimens. Apply denatured alcohol in a number of specimens and insert in folded newspaper, then piled between two plant presses with cardboard alternately placed between sets. The plant press was tightened with ropes and then dried under the sun, or in an improvised oven. The newspaper inside the plant press were regularly changed to prevent spoilage of the specimen and to hasten the drying process.

Fixing of dried specimens. When the specimens were thoroughly dried, these were fixed with 25% ethyl alcohol solution to protect the specimen from molds and other organisms. The specimens were then re-dried.

Mounting of specimens on herbarium sheets. Each dried specimen was glued to the center of a white mounting sheet and the excess glue was removed by a moist cotton ball. The mounted specimens were placed between folds of clean newspaper and a heavy object was placed over them for a day in order to produce a neat appearance.

Determination of Environmental Conditions

The environmental conditions that characterize the study area were determined during each collection trip. These include:

Habitat type

Visiting the sampling area or site with the help of the residents was deemed the best way to examine the habitat type where medicinal plants grow. Each type was categorized either as forest, grassland, residential, woodland, or other areas.

Vegetation

The vegetation in the area where medicinal plants were collected was observed, photographed, and listed for documentation purposes.

Air temperature

To determine the air temperature, a thermometer was hung about 1 meter above the ground where medicinal plants grow, in a place that was not too sunny or shady. Temperature readings were repeated thrice, with 5-minute intervals, and the average temperature was computed.

Soil Temperature

A soil thermometer was dipped in for at least 10 minutes, was repeated thrice at 5-minute intervals, and the average temperature was computed.

Soil pH

A digital pH meter was used to measure the pH level range, whether it is acidic or alkaline.

Elevation

In determining the elevation in each sampling site, the eGPS application of a smartphone was utilized. To validate the eGPS reading, a topographic map from Google Earth application was also consulted, referred to, in order to corroborate the data presented by https://www.philatlas.com.

RESULTS AND DISCUSSION

Medicinal Plants Found in the Study Area

Table 1 shows a total of 67 medicinal plants found in geographically isolated areas in Pambujan, Northern Samar, particularly in Barangays Don Sixto Balanquit Sr, Igot, Cagbigajo, Inanahawan, and Senonogan. Among these sampling sites, Barangay Don Sixto Balanquit, Sr. is the farthest and has yielded 67 representative species. In Barangay Inanahawan 49 representative species were found, and In Barangay Igot 25 representative species were found. In Barangay Cagbigajo, 59 representative species were also found, while in Barangay Senonogan, 35 representative species were found, with most of them living in woodland habitats where the vegetation were mostly shrubs and small trees.

Table 1 also presents the distribution of plants used in folk healing practices of the residents in the study area. It can be noticed that a majority of the plant species, particularly the food plants, could be found in all sampling sites, implying that the residents are aware of the medicinal applications as well as the economic significance of these plant species, hence, they propagate them in their areas.

Table 1. Medicinal Plants Found in the Sampling Areas

Common Medicinal Plants		**Sampling Sites**				
Scientific Name	**Local Name**	**1**	**2**	**3**	**4**	**5**
Carica papaya L.	Papaya	+	+	+	+	+
Solanum melongena L.	Taron	+	+	+	+	+
Abelmoschus esculentus L.	Okra	+	+	+	+	+
Colocasia esculenta L.	Gaway	+	+	+	+	+
Coleus blumei Benth**.**	Bidyara	+	+	+	+	+
Rosa centifolia L.	Rose	+	+	-	+	+
Kaempferia galanga L.	Kusol	+	+	-	+	+
Citrus limon L. Osbeck	Lemon	+	+	-	+	+

Artocarpus heterophyllus Lamk.	Langka	+	+	+	+	+
Vitex negundo L.	Lagundi	+	+	+	+	-
Moringa oleifera Lamk.	Kamalunggay	+	+	-	+	+
Spondias pinnata L.F. Kurz	Libas	+	+	-	+	+
Coleus aromaticus Benth.	Klabo	+	+	+	+	+
Moschosma tenuiflorum Burm. (Heynh.)	Poliyos	+	+	-	+	-
Zingiber officinale Rosc.	Luy-a	+	+	+	+	+
Artemisia vulgaris L.	Herba Maria	+	+	+	+	+
Mentha arvensis L.	Herba Buena	+	+	+	+	-
Euphorbia hirta L.	Tawa-tawa	+	+	-	+	+
Acorus calamus L. Merr	Lubigan	+	+	-	+	+
Annona muricata L.	Dyatilis	+	+	+	+	+
Manihot esculenta Crantz	Lagikway	+	+	+	+	+
Piper capense (*P. betle* L.) Opiz	Buyo	+	+	+	+	+
Eleusine indica L. Gaertn**.**	Bikang	+	+	-	+	-
Capsicum frutescens L**.**	Sili	+	+	-	+	-
Lycopersicon lycopersicum L. Karsten.	Kamatis	+	+	+	+	+
Ipomea batatas Lamk.	Ganas/Kamote	+	+	+	+	+
Gendarussa vulgaris Nees	Panhauli	+	+	-	+	-
Bryophyllum pinnatum Lamk. Oken	Angeliko	+	-	-	+	+
Andrographis paniculata (Burm. f) Nees.	Serpentina	+	+	-	+	-
Areca catechu L.	Bunga	+	+	-	+	+
Polyscias fruticosa L. Harms	Kamalunggay sa halas	+	-	-	+	+
Eupatorium triplinerve L.	Yapana	+	+	-	+	+
Theobroma cacao L.	Kakaw	+	+	-	-	-
Conchorus capsularis L.	Sumpa	+	-	-	-	+
Musa paradisiaca L.	Saging	+	+	-	-	-
Tagetes erecta L.	Rosas de kordon	+	+	-	-	-
Curcuma longa Linn.	Dulaw	+	+	-	-	-
Allium odoratum Linn.	Ganda	+	-	-	-	-
Psidium guajava Linn.	Bayabas	+	+	-	+	-
Ananas comosus L. Merr.	Pinya	+	+	-	+	-
Syzygium polycephaloides (C.B.R.d.) Merr**.**	Igot	+	+	+	+	+
Cocos nucifera Linn.	Lubi	+	+	+	+	+
Blumea balsamifera Linn.	Lakdan Bulan	+	+	+	+	-
Cymbopogon citratus (D.C) Stapf.	Tanglad	+	+	+	+	+
Hibiscus rosa sinensis Linn.	Gumamela	+	+	+	+	-
Bambusa vulgaris Schrad. ex J.C Wendl	Kawayan	+	+	+	-	-
Aloe vera Mill.	Aloe-Vera	+	+	-	+	-
Leucaena leucocephala Linn.	Ipil-Ipil	+	-	-	+	-

Table 1. Medicinal Plants. . (continuation)

Paspalum conjugatum P.J. Bergirs	Carabao grass	+	-	-	+	-
Phyllanthus niruri	Gulf leaf flower	+	-	-	+	-
Hibiscus tiliaceus Linn.	Malobago	+	-	+	+	-
Citrus maxima Burm. Merr	Suha	+	-	-	+	-
Mangifera indica Linn.	Manga	+	-	-	+	-
Indigofera suffruticosa	Tagum	+	-	-	+	-
Alpinia purpurata	Hotdog-hotdog	+	-	-	+	-
Plumeria acutifolia Poir**.**	Kalachutchi	+	-	-	+	-
Annona squamosa L.	Atis	+	-	-	+	-

Cordyline fructicosa L.A. Chev.	Sulaw-sulaw	+	-	-	+	+
Ipomoea aquatica Forsk.	Kangkong	+	-	-	-	-
Momordica charantia L.	Ampalaya	+	-	+	+	-
Codiaeum variegatum L. Blume	Kalipayan	+	-	-	+	-
Vigna unguiculata L.	Sitaw	+	-	-	+	-
Sandoricum koetjape Burm.f. Merr	Santol	+	-	-	+	-
Mimosa pudica Linn.	Makahiya	+	+	+	-	-
Pandanus amaryllifolius Roxb.	Pandan	+	+	-	+	-
Citrus microcarpa Bunge	Kalamansi	+	+	+	+	+
Chrysophyllum cainito L.	Kaymito	+	+	-	+	-
Xanthosoma violaceum Schott	Gabi (Mika)	+	+	-	+	+
TOTAL		**67**	**48**	**26**	**59**	**32**

LEGEND:

1. Don Sixto Balanquit Sr
2. Inanahawan
3. Igot
4. Cagbigajo
5. Senonogan

(-) Absent
(+) Present

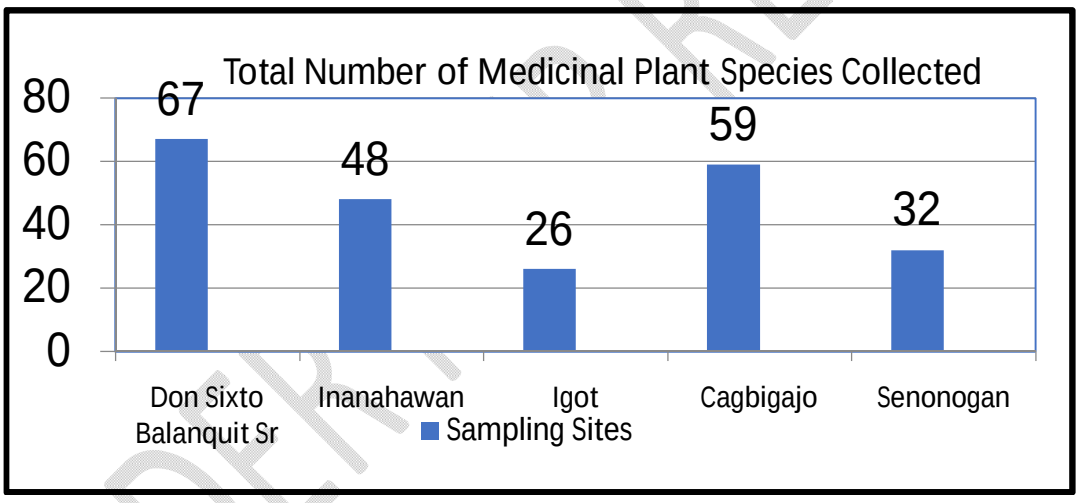

Figure 2. Number of Plant Species Collected in Each Sampling Site

The following pages show the images of the different plants utilized as medicines in the geographically isolated areas of Pambujan, Northern Samar. These were taken at the time samples for herbarium preparation and identification were collected.

Plate 1. *Carica papaya* Linn.
Family: *Caricaceae*
Local Name: Kapayas

Papaya is one of the most common plants that grow in tropical countries. It is an upright, usually branchless, fast-growing tree. The trunk is soft, greyish, and marked with fallen leaf scars. The leaves are deeply lobed, with long stalks, borne on the top of tree (Estrella, 1983). This species was found in all sampling sites.

Plate 2. *Solanum melongena* Linn.
Family: *Solanaceae*
Local Name: Taron

Eggplant is widely used in cooking; many varieties have been developed. It grows up to 1-2 meter high. It is a coarse, woody, and hairy plant. The fruit is fleshy, smooth, and usually pear-shaped, though the shape and color may vary depending on the variety (Estrella, 1983). This species was found in all sampling sites.

Plate 3. *Abelmoschus esculentus* Linn.
Family: *Malvaceae*
Local Name: Okra

Okra is an annual, erect, stout-stemmed, bristly herb growing up to 2 meters. The leaves are angular, long-stalked and coarsely toothed. The single flower located in the axils of the leaves is pale yellow in color. The fruit is an elongated pod (capsule). It is slimy when cut for cooking (Estrella 1983). This species was found in all sampling sites.

Plate 4. *Colocasia esculenta* Linn.
Family: *Araceae*
Local Name: Gaway

Taro is a long-stalked, huge leaved plant growing in a marshy region. The leaves, growing up to 50 cm long, resemble an elephant's ear. The leaves and the starchy corms are eaten as food as they are rich in vitamins and minerals (Estrella, 1983). This species was found in all sampling sites.

Plate 5. *Coleus blumei* Benth.
Family: *Lamiaceae*
Local Name: Bidyara

Erect, branched, fleshy annual herb, about 1m high, stems, purplish and 4 angled. Leaves are blotched or colored, ovate, 5-10cm long, with toothed margins. Flowers are purplish, numerous, in simple or branched inflorescences, 15-30 cm long (Estrella, 1983). This species was found in all sampling sites.

Plate 6. *Rosa philippinensis* Merr. cvs and hybrids
Family: *Rosaceae*
Local Name: Rose

The cabbage rose flower is usually pink, white, or red in color bearing a pleasant odor. It is believed that the best roses for medicinal purposes are the red ones. Rose hips are commonly used as source of vitamin C (Estrella, 1983). This species was found in Barangay Don Sixto Balanquit, Senonogan, Cagbigajo and Inanahawan.

Plate 7. *Kaempferia galanga* L.
Family: *Zingiberaceae*
Local Name: Kusol

The leaves of these plants are plain green and lay flat on the ground. It grows to about 8 inches. The blooms have two purple spots on the lip. The leaves are large and ground (Estrella, 1983). This species was found in Barangay Don Sixto Balanquit Sr, Senonogan, Inanahawan and Cagbigajo.

Plate 8. *Artocarpus heterophyllus* Lamk.
Family: *Moraceae*
Local Name: Langka

The jack tree is well-known for its very large fruit which sometimes weighs over 30 kilograms. The tree grows to a height of 10 meters or more with many heavy branches and foliage which provide a beautiful shady picnic or resting spot. The edible pulp inside the fruit is fleshy and yellow when ripe (Estrella, 1983). This species was found in all sampling sites.

Plate 9. *Vitex negundo* L.
Family: *Verbenaceae*
Local Name: Lagundi

The lagundi plant can grow up to five meters tall, and can be described as a cross between a shrub and a tree with a single woody stem. A decoction of the roots and leaves are applied to wounds, and used as aromatic baths for skin diseases. It is also used as treatment of cough (Estrella, 1983). This species was found in Barangays Don Sixto Balanquit Sr, Igot, Inanahawan and Cagbigajo.

Plate 10. *Moringa oleifera* Lam.
Family: *Moringaceae*
Local Name: Kamalunggay

M. oleifera is a fast-growing, deciduous tree, that can reach a height of 10-12 m and trunk diameter of 45 cm. The bark has a whitish-grey color and is surrounded by thick cork. Young shoots have purplish or greenish-white, hairy bark. The flowers are fragrant and asexual, surrounded by five unequal, thinly veined, yellowish-white petals, about 1.0-1.5 cm broad, growing on slender, hairy talks in spreading or drooping flower clusters. This species was found in Barangays Don Sixto Balanquit Sr, Senonogan, Inanahawan and Cagbigajo.

Family: *Anacardiaceae*
Local Name: Libas

Spondias pinnata is a deciduous tree, 10-15 m tall, with yellowish brown and glabrous branchlets. The leaves are large, with pairs of leaflets. Flowers are mostly sessile and small, white and glabrous; calyx lobes are triangular. Petals are ovate-oblong. The fruit is drupe ellipsoid to elliptic-ovoid, olive green becoming yellowish and orange at maturity. This species was found in Barangays Don Sixto Balanquit Sr, Senonogan, Inanahawan, and Cagbigajo.

Plate 12. *Coleus aromaticus* Benth.
(syn: *C. amboinicus* Lour.)
Family: *Lamiaceae*
Local Name: Klabo

Indian borage is an aromatic, perennial succulent which grows to about 1 meter in height. The leaves, which put forth a strong sweet-smelling odor, is heart shaped and fleshy in nature. The small flowers are white or pale purple in color (Estrella, 1983). This species was found in all sampling sites.

Plate 13. *Moschosma tenuiflora* (Burn.) Heynh

Family*: Lamiaceae*
Local Name: Poliyos

Mosochosma tenuiflora, is an herb or shrub, up to 1 meter high, often much branched; square stemmed; lower parts sub-serrate, higher parts slightly furrowed, and more densely pubescent or sub-glabrous (Estrella,1983). This species was found in Barangays Don Sixto Balanquit Sr, Inanahawan, and Cagbigajo.

Plate 14. *Zingiber officinale* Rosc.
Family: *Zingiberacea*

Local Name: Luy-a

Ginger is a perennial plant with green leaves and has light yellow flowers with a tinge of pink in the outer petals in a spike. The roots or rhizomes are the main crop of this plant (Estrella,1983). This species was found in all sampling sites.

Plate 15. *Artemesia vulgaris* L.
Family: *Asteraceae*
Local Name: Herba Maria

The leaves are smooth and have a dark green tint on the upper surface, but covered with dense cottony hairs down beneath; they are once or twice pinnately lobed, the segments being landscaped and pointed (Estrella,1983). This species was found in all sampling sites.

Plate 16. *Mentha arvensis* L.
Family Name: *Lamiaceae*
Local Name: Herba Buena

It has creeping rootstock from which grow erect or semi-sprawling squarish stems. The leaves are in opposite pairs, simple, 2-6.5 cm long and 1-2 cm broad, hairy, and with a coarsely serrated margin. The flowers are pale purple, in whorls on the stem at the bases of the leaves (Estrella,1983). This species was found in Barangays Don Sixto Balanquit Sr, Igot, Inanahawan, and Cagbigajo.

Plate 17. *Euphorbia hirta* L.
Family: *Euphorbiaceae*
Local Name: Tawa-tawa/gatas-gatas

Tawa-tawa contains active ingredients that may help dengue hemorrhagic fever (DHF) patients, according to a study. It is a hairy herb growing in open grasslands, roadsides, and pathways (Estrella,1983). This species was found in Barangays Don Sixto Balanquit Sr, Senonogan, Inanahawan, and Cagbigajo.

Plate 18. *Acorus calamus* (L.) Merr
Family: *Acoraceae*
Local Name: Lubigan

It is a perennial wetland monocot. In spite of its common name that includes the

words “rush” and “sedge”, it is neither a rush nor a sedge. The scented leaves and more strongly scented rhizomes have traditionally been used medically and to make fragrances, and dried powdered rhizomes (Estrella,1983). This species was found in Barangays Don Sixto Balanquit Sr, Senonogan, Inanahawan, and Cagbigajo.

Plate 19. *Annona muricata* Linn.
Family: *Annonaceae*
Local Name: Dyatilis

The soursop, sometimes called the prickly custard apple, is a small tree that grows to a height of about seven meters. The leaves are smooth, shiny, oblong, and pointed at both ends. The large fruit is generally ovoid and sometimes irregularly shaped and covered with spine-like structures (Estrella,1983). This species was found in all sampling sites.

Plate 20. *Manihot esculenta* Crantz
Family: *Euphorbiaceae*
Local Name: Lagikway

The plant is propagated easily by stem cutting. The edible tuberous roots of the plant are cooked and prepared in a variety of ways and relished by the local people. The tubers are also used for making starch and sago. The herbaceous plant grows to a height of 0.9-2.7 meters and the 3-7 deeply parted palmate leaves add to the beauty of the plant (Estrella, 1983). This species was found in all sampling sites.

Plate 21. *Piper capense* Opiz.
(syn: *P. betle* Linn.)
Family: Piperaceae
Local Name: Buyo

Piper capense is a dioecious vine, with smooth branches. The leaves are membranous to chartaceous, ovate in shape it is about 4-14cm long. Fruits are crowded, smooth and umbonate at the apex .This species was found in all sampling sites.

Plate 22. *Eleusine indica* L. Gaertn.
Family: Poaceae
Local Name: Bikang/Paragis

Paragis is an erect, tufted, and glabrous grass with long tapered leaves. It can grow between 10 cm and 1 meter in

height (Estrella,1983). Its stems are flat, whitish at the base and pale green toward the upper part; and smooth with long hairs on the edges. Leaves have sheaths that are flat and moderately hairy at the collar; leaf blades are flat, linear lanceolate and hairy at the upper surface; ligule membranous; long hairs at the junction of the blades and sheaths. This species was found in Barangays Don Sixto Balanquit Sr, Inanahawan, and Cagbigajo.

Plate 23. *Capsicum frutescens* Linn.
Family: *Solanaceae*
Local Name: Sili

Chili is a perennial plant of tropical countries, with many seeded pods. The more tropical the climate, the more pungent the fruit (Estrella,1983). This species was found in Barangays Don Sixto Balanquit Sr, Inanahawan, and Cagbigajo.

Plate 24. *Lycopersicon lycopersicum* L. Karsten
Family: *Solanaceae*
Local Name: Kamatis

Tomato plants typically grow 1 to 3 meters in height. They are vines that have a weak stem that sprawls and typically needs support. Intermediate tomato are perennials in their native habitat but are cultivated as annuals (Estrella,1983). This species was found in all sampling sites.

Plate 25. *Ipomea batatas* L. Lamk.
Family: *Convolvulaceae*
Local Name: Ganas

Sweet potato, is an herbaceous vine that has heart-shaped or palmately lobed leaves. It has a funnel-shaped white flower with a purple center. It has an edible root that has a skin color of white, red, or purple (Estrella,1983). This species was found in all sampling sites.

Plate 26. *Gendarussa vulgaris* Nees.
(syn: *Justicia gendarussa* Burm)
Family: *Acanthaceae*
Local Name: Panhauli

Gendarussa is a deciduous shrub growing to 1m, and the species is

hermaphrodite (has both male and female organs). It can be grown in either sandy, loamy, or clay soils. This species was found in Barangays Don Sixto Balanquit Sr, Inanahawan, and Cagbigajo.

Plate 27. *Rauwolfia serpentina* Linn.
(syn: *Andrographis paniculata* Burm. f Nees)
Family*: Acanthaceae*
Local Name: Serpentina

It is an erect, evergreen shrub growing up to 1 meter tall from a yellowish rootstock. The plant has been used medicinally in India for over 2,000 years, being valued especially for its sedative actions and ability to lower blood pressure. This species was found in Barangays Don Sixto Balanquit Sr, Inanahawan, and Cagbigajo.

Plate 28. *Areca catechu* L.
Family: *Arecaceae*
Local Name: Bunga

Areca catechu nut is not a true nut, but rather a fruit categorized as a berry. When the husk of the fresh fruit is green, the nut inside is soft enough to be cut with a typical knife. In the ripe fruit, the husk become yellow or orange, and as it dries, the fruit inside hardens to a wood-like consistency. This species was found in Barangays Don Sixto Balanquit Sr, Inanahawan, Senonogan, and Cagbigajo.

Plate 29. *Polyscias fruticosa* L. Harms
Family: *Araliaceae*
Local Name: Kamalunggay sa halas

Polyscias fruticosa is a perennial dicot evergreen shrub or dwarf tree. The plant grows in many parts of tropical Asia, can reach up to 1-2 meters in height. The leaves are of a dark green pigment, glossy in texture, and are tripinnate and appear divided. Individual leaves vary from narrowly ovate lanceolate and are about 10 cm long. This species was found in Barangays Don Sixto Balanquit Sr, Senonogan, and Cagbigajo.

Plate 30. *Eupatorium triplinerve* Linn.

Family: *Asteraceae*
Local Name: Yapana

E. triplinerve is much branched, erect shrub growing from 70-150 cm tall. The plant is harvested from the wild for local use as medicine and insect repellent. It is grown as an ornamental. This species was found in Barangays Don Sixto Balanquit Sr, Igot, Senonogan, and Cagbigajo.

Plate 31. *Theobroma cacao* Linn.
Family: *Sterculiaceae*
Local Name: Kakaw

The cacao is cultivated generally in the shade of other trees. It develops pods continually. The fruit has five cavities, each having two rows of seeds. The seeds are used for chocolate and for cacao butter (Estrella,1983). This species was found in Barangays Don Sixto Balanquit Sr, and Inanahawan.

Plate 32. *Conchorus capsularis* Linn.

Family: *Malvaceae*
Local Name: Sumpa

Malta jute is a species of shrub which is the primary source of jute fiber. The leaves and young fruits are used as a vegetable, the dried leaves are used for tea and as a soup thickener, and the seeds are edible (Estrella,1983). This species was found in Barangays Don Sixto Balanquit Sr, and Cagbigajo.

Plate 33. *Musa x paradisiaca* Linn.
Family: *Musaceae*
Local Name: Saging

Banana is one of the most well-known fruits and the most cultivated in tropical and semi-tropical countries. It is so well-known everywhere that description is dispensable, but its importance is truly worth noting (Estrella, 1983). This species was found in all sampling sites.

Plate 34. *Tagetes erecta* Linn.
(syn: *T. patula* Linn.)
Family: *Compositae*

Local Name: Rosas De Empacho

It is a common garden plant which is rather coarse, erect, branched, and grows to about 1 meter high. The leaves are very deeply incised and sharply toothed. The flowers are bright yellow, brownish-yellow or orange (Estrella,1983). This species was found in Barangays Don Sixto Balanquit and Inanahawan.

Plate 35. *Allium odorum* Linn.
(syn: *A. porrum* Linn.)
Family: Amaryllidaceae
Local Name: Ganda/Kutsai

This plant grows in tropical and subtropical wet forest regions. The fragrant plant bears yellow flowers with red and green bracts and the underground stem section, a rhizome is large and tuberous. The leaf shoots are large and can reach 1m height. The plant is used traditionally to treat inflammation, pain, and a variety of skin ailments including wounds, as well as menstrual irregularities and ulcers. This species was found in Barangay Don Sixto Balanquit Sr.

Plate 36. *Psidium guajava* Linn.
Family: *Myrtaceae*
Local Name: Bayabas

Psidium guajava is a shrub or small tree usually growing 1-6m tall, but occasionally reaching 10m in height. The simple leaves are oppositely arranged along the stems. The flowers are about 25 mm across and are borne on a hairy stalk. Each flower has four or five green sepals. The fruit is rounded, egg shaped or pear-shaped and turns from green to yellowish in color as it matures. This species was found in all sampling sites.

Plate 37. *Ananas comosus* L. Merr
Family: *Bromeliaceae*
Local Name: Pinya

The pineapple is a herbaceous perennial, which grows to 1-2m tall, although sometimes it can be taller. In appearance, the plant has a short, stocky stem with tough, waxy leaves. When creating its fruit, it usually produces up to 200 flowers, although some large-fruited cultivars can exceed this. It has 30 or more long, narrow, fleshy, trough shaped leaves with sharp spines along the margins, surrounding a thick stem. The fruit of the pineapple is arranged in two interlocking helices, and eight in one direction (Estrella,1983). This species was found in all sampling sites.

Plate 38. *Syzygium polycephaloides* (C.B. Rob) Merr
Family: *Myrtaceae*
Local Name: Igot

Syzygium is an evergreen tree, usually 15-25 meters tall. The bole can be up to 90 cm in diameter. The edible fruit is gathered from the wild for local use and the plant is increasingly cultivated for its fruit. This species was found in all sampling sites.

Plate 39. *Cocos nucifera* Linn.
Family: *Arecaceae*
Local Name: Lubi

The coconut palm is a tall, unarmed, unbranched beautiful tree, sometimes reaching over 20 meters in height. The leaves, at the upper end of tree, form an apical crown. The fruit is three angled and one sided (Estrella,1983). This species was found in all sampling sites.

Plate 40. *Blumea balsamifera* L.
Family: *Asteraceae*
Local Name: Lakdan Bulan

It is an amazing medicinal plant, a strongly aromatic herb that grows tall and erect. The height ranges from 1.5-3 meters, with stem that grow for up to 2.5 cm (Estrella 1983). This species was found in Barangays Don Sixto Balanquit Sr, Inanahawan, Igot, and Senonogan.

Plate 41. *Cymbopogon citratus* Stapf.
Family: *Poaceae*
Local Name: Tanglad

Lemongrass owes its name to the lemon-like fragrance it puts out from its leaves when crushed or boiled. It is a popular perennial grass, the leaves of which grow up to one meter long (Estrella,1983). This species was found in all sampling sites.

Plate 42. *Hibiscus rosa-sinensis* Linn.
Family: *Malvaceae*
Local Name: Gumamela

Hibiscus is one of the most common garden shrubs used for hedges. It grows in any soil with little care. The flower is solitary, half opened in the morning, but as the weather warms up, it opens fully. The foliage of this shrub is deep green in color or variegated (Estrella,1983). This species was found in Barangays Don Sixto Balanquit Sr, Inanahawan, Igot, and Senonogan.

Plate 43. *Bambusa vulgaris* Schrad. Ex. J. C. Wendl.
(syn: *B. bambos* [Linn.] Voss
Family: *Poaceae*
Local Name: Kawayan

Bamboos are a group of woody, perennial, evergreen plants in the true grass family *Poaceae* (Estrella,1983). This species was found in all sampling sites.

Plate 44. *Aloe vera* (Linn.) Burmit
(syn: *A. barbadensis* Linn)
Family: Liliaceae
Local Name: Aloe vera/Sabila

Aloe vera is a stemless or very short stemmed plant growing up to 60-100 cm (24-39 in) tall, spreading by offset. The leaves are thick and fleshy, green to grey green, with some varieties showing white flecks on their upper and lower surfaces (Estrella,1983). This species was found in Barangays Don Sixto Balanquit Sr, Inanahawan, and Igot.

Plate 45. *Leucaena leucocephala*
Family: *Fabaceae (Mimosaceae)*
Local Name: Ipil-Ipil

Ipil-ipil is a small tree growing up 8 meters high. Leaves are compound, 15 to 25 centimeters long, with hairy rachis. Pinnae are 8 to 16, and 5 to 8 centimeters long. Leaflets are 20 to 30, linear oblong, and 7 to 12 millimeters long. This species was found in Barangays Don Sixto Balanquit Sr, and Senonogan.

Plate 46. *Paspalum conjugatum* P.J Bergius
Family: Poacea/Graminaceae
Local Name: Carabao Grass

Paspalum conjugatum, commonly known as carabao grass or hilo grass, is a tropical to subtropical perennial grass. It is also known as sour paspalum, T-grass (after the shape of their panicle) or more confusingly, as buffalo grass or sour grass. This species was found in Barangays Don Sixto Balanquit Sr, and Senonogan.

Plate 47. *Phyllanthus fraternusus* Web.
Family: *Euphorbiaceae*
Local Name: Gulf leaf flower

Phyllanthus, sometimes called "seed-under-leaf" or "egg woman", is a common plant found growing among weeds in gardens, in wastelands and along the roadside. The plant grows to a height of 50 cm and bears very tiny pale green or white flowers. This species was found in Barangays Don Sixto Balanquit Sr, and Senonogan.

Plate 48. *Hibiscus tiliaceus* Linn.
Family*: Malvaceae*
Local Name: Malobago

Hibiscus tiliaceus reaches a height of 4-10 m with a trunk up to 15 cm in diameter. The flowers are bright yellow with a deep red center upon opening. Over the course of the day, the flowers deepen to orange, finally red before they fall. The branches of the tree often curve over time. The leaves are heart shaped. This species was found in Barangays Don Sixto Balanquit Sr, Senonogan, and Igot.

Plate 49. *Citrus maxima* (Burm.) Merr.
(syn.: *C. grandis* L. Osbeck)
Family: Rutaceae
Local Name: Suha

Suha is a small tree, 6 to 13 meters in height, with long, sharp, solitary spines. Leaflets are entire or nearly so, sparingly hairy beneath and on the margins, ovate oblong to elliptic, 8 to 12 centimeters long. Petioles are obovate and broadly winged. This species was found in Barangay Don Sixto Balanquit Sr, and Senonogan.

Plate 50. *Mangifera indica* Linn.
Family: *Anacardiaceae*
Local Name: Mangga

Mango is a large tree, with a dense and spreading crown. Leaves are oblong to oblong-lanceolate. The flower is yellow, small, borne on erect and hairy panicles, often as long as the leaves. The fruit is a drupe of varying shades of yellow, fleshy, oblong-ovoid, and slightly compressed; the skin is thin, and in the center is a large flattened, fibrous seed; when ripe, seed is surrounded by an edible yellow pulp. This species was found in Barangays Don Sixto Balanquit Sr, and Senonogan.

Plate 51. *Indigofera suffruticosa*
Family: *Fabaceae*
Local Name: Tagum

It is an erect branching shrub growing to 1m tall with pinnate leaves, and is commonly found growing in dry, highly disturbed areas such as roadside and fallow fields. It has a woody rootstock from which grows stems that are often woody and persist for more than a year but can also be herbaceous. This species was found in Barangays Don Sixto Balanquit Sr, and Senonogan.

Plate 52. *Alpinia purpurata*
Family: *Zingiberaceae*
Local Name: Hotdog-Hotdog

Alpinia purpurata is an aromatic herb, with leafy shoots 1-5 m tall. Leaves are oblong and have a greenish color with a red flower; it grows in an open area. This species was found in Barangays Don Sixto Balanquit Sr, and Senonogan.

Plate 53. *Plumeria acuminata* W. T. Ait.
(syn.: *P. acutifolia* Poir.)
Family: *Apocynaceae*
Local Name: Kalatchutchi

Plumeria accuminata is a small, deciduous tree, 3-7 meters high, with a crooked trunk, smooth and shining stem, succulent, with abundant sticky, milky latex. Leaves are crowded at the terminal end of the branch, commonly oblong in shape. Flowers are numerous, fragrant and large, the upper portion whitish, while the inner lower portion yellow. Fruits are linear-oblong or ellipsoid follicles, with a pointed tip. Seeds are numerous and winged. This

species was found in Barangays Don Sixto Balanquit Sr, and Senonogan.

Plate 54. *Annona squamosa* Linn
Family: *Annonaceae*
Local Name: Atis/ Sugar apple

Annona squamosa is a native to the tropical Americas and West Indies, but the exact origin is unknown. It is now the most widely cultivated of all the species of *Annona*, being grown for its fruit throughout the tropics and warmer subtropics. The leaves are alternate, about 5-6cm long; the habitat is mostly in sandy areas. This species was found in Barangays Don Sixto Balanquit Sr, and Senonogan.

Plate 55. *Cordyline fructicosa* (L.) A. Chev.
Family: Asparagaceae
Local Name: Sulaw-Sulaw

It is a palm-like plant growing up to 3 to 4m tall with an attractive fan-like and spirally arranged cluster of broadly elongated leaves at the tip of the slender trunk. It has numerous color variations, ranging from plants with red leaves to green and variegated forms, stem often woody. This species was found in Barangays Don Sixto Balanquit Sr, and Senonogan, and Cagbigajo.

Plate 56. *Ipomoea aquatica* Forsk.
Family: *Convolvulaceae*
Local Name: Kangkong

Ipomoea is a light green vegetable that is a travelling vine. The stems are hollow and thin, growing up to 3 meters, and leaves can grow to 30 cm, which are oblong-lanceolate in shape. The roots grow out of the nodes (Estrella,1983). This species was found in all sampling sites.

Plate 57. *Momordica charanti*a Linn.
Family: *Cucurbitaceae*
Local Name: Ampalaya

Bitter gourd is a monoecious vine bearing tendrils. The alternate leaves are suborbicular and deeply lobed. The flowers, 5-10 cm long, are yellow or white, and are solitarily scattered all over the vine. The bitter fruit has an oblong shape and rough outer surface. The young leaves, shoots, and fruit are eaten as vegetable (Estrella, 1983). This species was found in all sampling sites

Plate 58. *Codiaeum variegatum* (L.) Blume.
Family: *Euphorbiaceae*
Local Name: Kalipayan

Codiaeum variegatum it is a tropical, evergreen, monoecious shrub growing to 3m tall and has large, thick, leathery, shiny evergreen leaves, alternately arranged. The fruit is a capsule containing three seeds. The stems contain a milky sap that bleeds from cut stems. This species was found in Barangays Don Sixto Balanquit Sr, and Senonogan.

Plate 59. *Sandoricum koetjape* (Burm.f.) Merr.
Family: *Meliaceae*
Local Name: Santol

S. koejape is a tree growing up to 20m high, with softly hairy young branches and leaves, which are groups of 3-leaflets with pointed tips and rounded base. Flowers are numerous, somewhat fascicled, in greenish or yellowish clusters. Fruits are rounded and somewhat flattened, yellowish orange when ripe with a thick pericarp. Its seeds are large, surrounded by a translucent or pale, sweet tasting edible pulp. This species was found in Barangays Don Sixto Balanquit Sr, and Senonogan.

Plate 60. *Pandanus odoratissimus* L.
(syn: *P. amaryllyfolius* Roxb.*)*
Family: *Pandanaceae*
Local Name: Pandan mabango

Erect, branched small tree, growing 3-5 meters, the trunk bearing many prop roots. Leaves are spirally crowded toward the ends of the branches, linear lanceolate, 3-5 cm wide, the margins and midrib armed with sharp spiny teeth pointing toward the apex of the leaf (Estrella,1983). This species was found in Barangays Don Sixto Balanquit Sr, Senonogan, and Inanahawan.

Plate 61. *Citrus microcarpa* Bunge
Family: *Rutaceae*
Local Name: Kalamansi

The calamansi tree, ranging from 2-7.5 m high, is erect, slender, often quite cylindrical, densely branched beginning close to the ground, slightly thorny, and develop extraordinarily deep taproot. The evergreen leaves are alternate, aromatic, broad oval, dark green, and glossy in the upper surface (Estrella,1983). The species was found in all sampling sites.

Plate 62. *Chrysophyllum cainito* L.
Family: *Sapotaceae*
Local Name: Kaymito/ Star apple

Chrysophyllum caimito is a tropical tree with a spreading crown; grows to a height of 15m with numerous slender branches. Young tips are copper-colored and covered with hairs. Leaves are leathery, pointed at the tip, blunt or rounded at the base and covered with silky, golden brown soft hairs. This species was found in Barangays Don Sixto Balanquit Sr, Senonogan, and Inanahawan.

Plate 63. *Bryophyllum pinnatum* (Lam) Oken
(syn: *Kalanchoe pinnata* [Lamk] Pers.)
Family: *Crassulacea*
Local Name: Angeliko/Miracle plant

Bryophyllum pinnatum is an erect, more or less branched, smooth and succulent herb. Leaves are simple or pinnately compound, with the leaflets elliptic. The flowers are cylindric, and pendulous in a large panicle and the fruit is a follicle with many seeds. This species was found in Barangays Don Sixto Balanquit Sr, Cagbigajo, and Senonogan.

Plate 64. *Mimosa pudica* Linn.
Family: *Mimosaceae*
Local Name: Makahiya/Kirom-kirom

Sensitive plant grows in the lowland tropics. It is a common diffused, spreading, prickly herb which grows everywhere. The stems are branched, with bristly hairs. The leaves are small leaflets on stalk, and when touched they fold together. They are sensitive to touch. The flowers are numerous, long stalked, pink. Solitary, globose heads (Estrella,1983). This species was found in Barangays Don Sixto Balanquit Sr, Igot, and Inanahawan.

Plate 65. *Citrus limon* L. Osbeck
Family: *Rutaceae*
Local Name: Bayasong

Citrus limon is found in several countries lying in the tropics. Specialists have developed a number of strains by using genetic methods, grafting, and others, resulting in reduction in the size of the tree from 5 meters to as short as 1.5 meters. It is considered as the champion of medicinal plants (Estrella, 1983). This species was found in Barangays Don Sixto Balanquit Sr, Senonogan, Inanahawan, and Cagbigajo.

Plate 66. *Curcuma longa* L.
Family: *Zingiberaceae*
Local Name: Dulaw

It is a perennial herb that reaches a maximum height of about 1 meter. The leaves are large, from 20-45 cm long, with the petiole elongated. The root is a big rhizome, cylindrical, branched, yellow or orange, highly aromatic, and which constitute the part of the plant with the most commercial interest (Estrella,1983). This species was found in Barangays Don Sixto Balanquit and Inanahawan.

Plate 67. *Xanthosoma violaceum* Schott.
Family: *Araceae*
Local Name: Gabi (Mika)

This species is a perennial, tropical plant primarily grown as a root vegetable for its edible, starchy corm. The plant has rhizomes of different shapes and sizes. Leaves sprout from the rhizome. They are triangular-ovate, sub-rounded and mucronate at the apex, with the tip of the basal lobes rounded or sub-rounded. This species was found in Barangays Don Sixto Balanquit, Inanahawan, Senonogan, and Cagbigajo.

Ailments in Which Medicinal Plants are Used

Table 2 presents the different ailments allegedly cured by the medicinal plants, their local name and scientific names, the plant part used, and the method of preparation of such medicinal plants.

In most cases, the leaves of the medicinal plants are used to cure several illnesses, to include abdominal/stomach pains, burns, fungal infections, wounds, small chicken pox, coughs, cold, dengue, fever, diabetes, earache, foot ache, hypertension, indigestion, intestinal worms/parasite, arthritis/rheumatism, muscle pains, and urinary tract infections.

The result implies that the residents of geographically isolated areas of Pambujan, Northern Samar have a high regard for medicinal plants, utilizing them for common diseases as first aid remedies, because their areas are quite far from government or private health care or hospital facilities.

Economic Uses of Plants

Economically, plants in the study area are important as food items, like fruit or vegetable, for medicinal purposes, for industry and landscaping, and for the construction of houses and foot bridges. It can be noted that almost all plants with medicinal value are also important as food items or as vegetables, which when processed further, could be made into value added products like jams, jellies, preserves or candies which would further enhance the economic significance of these plants. However, due to the inadequacy of technology and equipment, the full economic potentials of the plants are not yet known, thus, the need for further investigation into these plant species. These results imply that the plants in its diversity of forms and functions have various uses which are of economic importance aside from its use for medicinal purposes in the study area.

Environmental Conditions Prevailing in the Study Areas

The researchers mostly found that the habitat type is generally a woodland, with shrubs as the main vegetation type.

Measurements of the air temperature in the study area show that it was generally hot at approximately 31^{o}C. Soil temperatures also averaged approximately 28^{o}C. These results imply that plants with medicinal value generally grow in warm areas of the province.

In as far as the soil pH is concerned, measurements done in the study area show an average of 7.34, which implies that plants of medicinal value grow in slightly alkaline soils.

Although most of the study area is located in the rugged interior of the province, the average elevation tended to be generally "moderately highly elevated" at an average of 484.532 feet above sea level, with the highest point estimated at 737 feet above sea level, while the lowest elevation was at approximately 274.67 feet above sea level. The area's elevation tends to show a relationship between the plant species observed and where they grow.

Table 2. Ailments in which Medicinal Plants are Used in the Study Area

LOCAL NAME	AILMENTS	PLANT PART USED	METHODS OF PREPARATION
1.Papaya	Indigestion	Ripe fruit	Eat fruit after meal as a dessert
	Intestinal worms/parasite	Latex of green papaya	Mix the latex from unripe fruit, add sugar and hot water to be given in the morning with an empty stomach.

2.Taron	Intestinal worms and parasite	Roots	The decoction of the roots is taken to expel worms. 1 glass is enough, and drink it every morning.
3.Okra	Fever	Seeds	Fry the seeds and grind it into small pieces. Get ½ cup and boil it for 15minutes with 2 glasses of water, and drink the decoction twice a day
4. Gaway	Earache	Leaves	Extract juice from the leaves and apply it to the affected area.
5.Bidyara	High blood pressure or Hypertension	Leaves	Boil 3-5 pieces of leaves of bidyara in 10 minutes and serve as a tea, and drink it 2-3 a day
6.Rose	Tuberculosis	The flower and rose hips	Boil the flower and rose hips and drink it 2-3 a day
7.Kusol	Cold	Leaves	Squeeze the leaves until its aroma is purely smelled and place near the nostrils to declog the nose
8.Langka	Sprain	Leaves	Add coconut oil to the leaves and apply it to the affected area.
9. Lagundi	Bulutong tubig Colds and Cough	Leaves Leaves	Boil for 15minutes the 4-tbsp. chopped dry leaves with 2 glasses of water and drink the decoction to relieve fever Boil a few leaves; serve as a drink, take 2 glasses 2 times a day.
10.Kamalunggay	Tuberculosis	Leaves	Drink 1 cup of boiled leaves of kamalunggay leaves during meal
11.Libas	Ringworm	Leaves	Pound and slightly heat 3-4 pieces of leaves and rub it to the affected area
12.Klabo	Cough	Leaves	Boil for 15mins. 1 cup chopped fresh leaves with 2 cups of water and drink as a tea, 2 times a day
13.Luy-a	Head ache	Root stock	Heat or roast a piece of ginger, add coconut oil and rub it over the aching part
14.Herba Maria	Colds	Leaves	Macerate leaves of herba maria until it is minty aroma or odor is expelled, smell to relieve clogged nose.
15.Herba Buena	Colds	Leaves	Squeeze leaves of Herba Buena until its minty aroma or odor is expelled, smell to relieve clogged nose
16.Tawa-tawa	Dengue	All parts	Wash 90 pieces of all parts of tawa-tawa, boil for 15 minutes and serve as a tea, two times a day.
17.Lubigan	Indigestion	Leaves	Squeeze the sap by pounding the fresh leaves and 2 to 3tbsp. of warm water. Add sugar and kalamansi to taste.

18.Dyatilis	Hypertension	Leaves	Boil fresh leaves then serve as a tea, drink it 2 to 3 times a day
19.Lagikway	Urinary Tract Infection	Leaves	Slightly heat the leaves and squeeze it, and apply the extract into lower abdomen.
20.Buyo	Fever	Leaves	Pounded or crushed and applied directly on the body especially in forehead
21.Bikang	Diarrhea	Whole plants	Boil a sufficient number of leaves 3-4 glasses of water and serve as a drink at least 1-2 glass a day
22.Sili	Head ache	Leaves	Crushed then applied on the forehead with a piece of cloth. Pound, then apply the extract directly on the forehead.
23.Kamatis	Flatulence in children	Leaves	Boil 12 pieces of leaves and serve it as a drink twice a day.
24.Ganas	Diabetes	Leaves	Boil a sufficient number of leaves in water and serve as drink, thrice a day
25.Panhauli	Cough	Leaves	Heated and applied on the chest and back of the body thrice a day
26.Angeliko	Headache Chest pain or asthma	Leaves Leaves	Pounded or crushed directly on forehead, twice a day Pounded and applied directly on the chest during chest pain or asthmatic attack
27.Serpentina	Irregular Menstruation	Leaves	Boil a 20 pcs. Of leaves and put it in a mug, and drink the decoction twice a day.
28.Bunga	Intestinal worms and parasite	Fruit	Crushed or pound unripe of young fruit and boil it in 2 glasses of water until it is reduced to half of it is volume and drink the decoction twice a day
29.Kamalunggay sa halas	Post-delivery bath	Leaves	Boil sufficient number of leaves in water mix it in water for bath and use it everyday
30.Yapana	Hal-on sa sudang (carbuncles)	Whole plant	Soak the fresh leaves in basin with sufficient amount of lukewarm water and use as bath
31.Kakaw/Cacao	Hal-on sa sudang (Carbuncles)	Young leaves	Boil the leaves and allow water to turn lukewarm before using as a bath and use it every day until the carbuncles
32.Sumpa	Headache	Leaves	Squeeze the leaves and put directly into the head
33.Poliyos	Stomachache	Leaves	Boil a sufficient number of leaves in a water and serve as drink by patient

34.Saging	Diarrhea	Fruit	Eaten raw
35.Rosas de kordon	Stomachache	Leaves	Slightly heated and poultice directly on the stomach
36.Ganda/Kutsai	Fever	Leaves	Slightly heated and placed directly on the forehead
37.Bayabas	Wound	Leaves	Crush 2-3 leaves and put it on the affected area
38.Pinya	Hypertension	Fruits	Extract the juice and serve as drink by the patient
39.Igot	Diabetes	Fruit	Extracted of juice and serve as drink
40.Lubi	Urinary Tract Infection	Fruit	Get the juice and serve as a drink, every morning
41.Lakdan Bulan	Cough Irregular Menstruation	Leaves	Boiled in water and serve as a drink, at least twice a day
42.Tanglad	High blood pressure	Leaves	Boil in water and serve as a drink by the patient, twice a day
43.Gumamela	Mumps	Flower	Pound until become soft and applied topically on the affected area
44.Kawayan	Nausea, fainting	Bark	Boil enough number of barks, and drink the decoction at least twice a day.
45.Aloe-Vera	Burn	Leaves	Crash the leaf to extract the sap and apply it to the affected area.
46.Ipil-ipil	Ascaris, trichina	Seed	Cook 1 cup of dried seed in frying pan without oil. Do not burn seeds. pulverize and mix water
47.Carabao grass	Wounds	Leaves	Wash properly, and boil a sufficient number of leaves with root in water and serve as a drink.
48.Gulf leaf flower	Diabetes	Leaf and seed	Boil leaves and seed. Drink the decoction twice a day.
49.Malobago	Spasm	Young leaf	Boiled in water and serve as a drink
50.Suha	Post-delivery baths	Leaves	Boil a sufficient number of leaves and mix it in a water for bath.
51.Manga	Diarrhea	Bark leaves	Boil a sufficient number of leaves in 3-4 cup of water and serve as a drink at least twice a day.
52.Tagum	Insect bite (Venomous	Leaves	Pounded or crushed the leaves squeeze and the sap are directly applied on the affected area
53.Hotdog-hotdog	Diabetes	Leaves	Boiled a sufficient number of leaves in water and serves as drink at least twice a day.

54.Kalachutchi	Flatulence	Bark	Scrape then pound, apply the extract to the stomach
55. Atis	High blood pressure	Leaves	Boiled a sufficient number of leaves and serves as a drink
56.Sulaw-sulaw	Stomachache	Leaves	Boil and serve as drink by the patient.
57.Kang-kong	Headache	Leaves	Slightly heat, then apply poultice on the forehead
58.Ampalaya	Cough	Leaves	Pounded or crushed and the juice extract mix with water and serve as a drink
59.Kalipayan	Chest pain/Asthma	Leaves	Heated and applied directly to the chest
60.Santol	Diarrhea	Fruits	Eaten raw
61.Makahiya	Toothache	Whole plant	Boil in water and use as gargle for 10 minutes at least twice a day
62.Pandan	Cold Fever Stomachache	Leaves	Boil a sufficient number of leaves in water and serve as drink by the patient, at least twice a day
63.Kalamansi	Post Delivery baths	Leaves	Boil a sufficient number of leaves in water as post-partum bath
64.Kaymito	Diarrhea	Roots	Chopped roots are the boiled into 2 glasses of water until the volume of extracted juice lower to 1 glass
65.Bayasong	Rheumatism/ Muscle pain	Fruit Juice	Drink 8 glasses of lemon juice per day
66.Dulaw	Stomachache	Leaves	Slightly heated and poultice directly on the stomach
67.Mika	Wounds	Leaves	Pound then squeezed to apply directly on the affected area

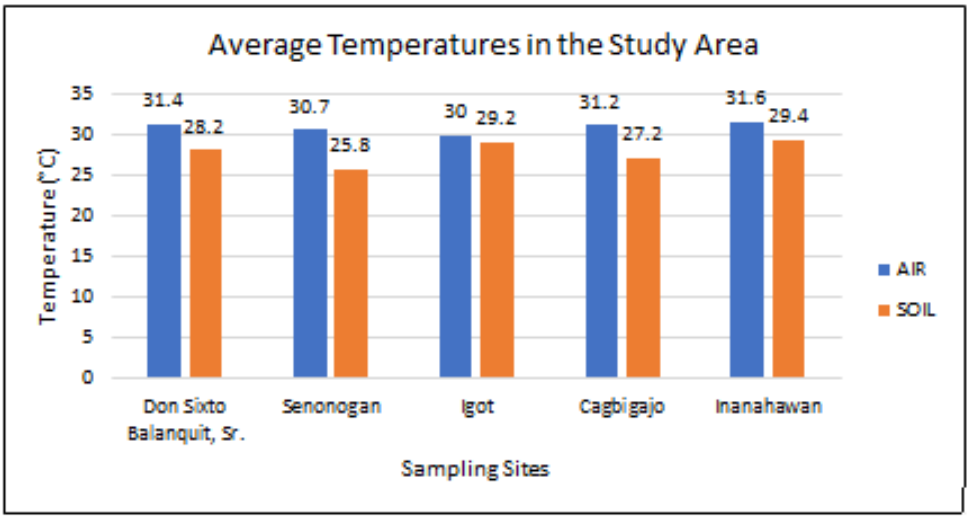

Figure 3. Average Temperatures in the Study Area

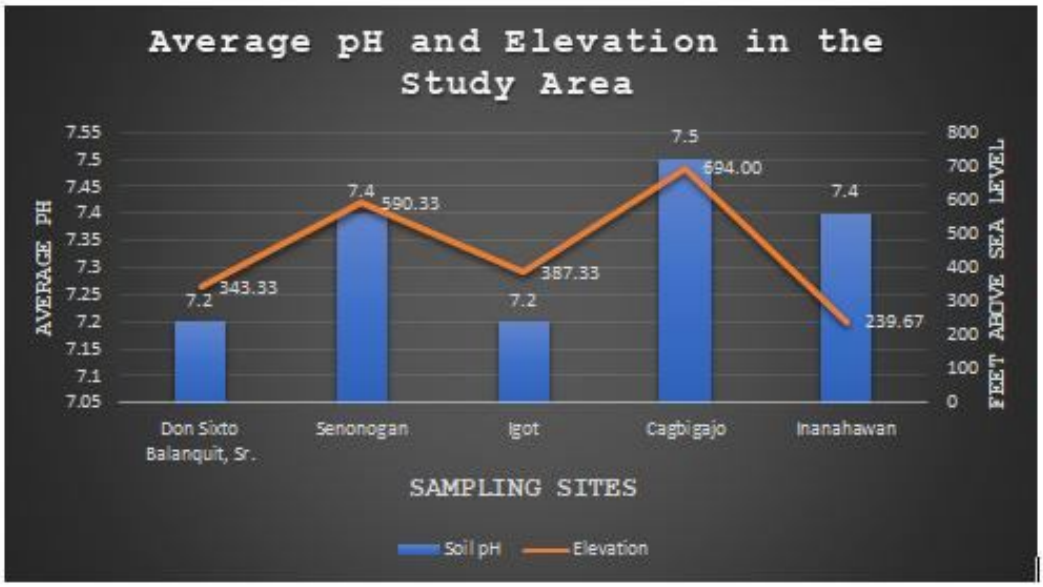

Figure 4. Average pH and Elevation in the Study Area

CONCLUSIONS

Based on the findings of the study, the following conclusions were drawn.

1. There are 67 species of medicinal plants found in the study areas that the resident can use as first aid to cure diseases in unexpected situation. Although this is only a small proportion of the plants with traditional medicinal applications it implies that there is a diversity of plant with medicinal and other economic significance in the study area.
2. The medicinal plants found in the study area are commonly used in folk healing practice to cure diseases such as abdominal pains, burns, fungal infections, wounds, small chicken pox, coughs, colds, dengue, fever, diabetes, earache, toothache, hypertension (High blood pressure), indigestion, intestinal worms/parasite, arthritis/ rheumatism, muscle pain and urinary tract infection. Even though these ailments may not be totally healed, but medicinal plants have a big help to remedies those ailments in different kind of methods preparation.
3. The medicinal plants found in the study area are used economically as food for human consumption, for medicinal purposes for industry and landscaping, which implies the

importance of medicinal plant in their daily lives.

4. Measurements of environmental parameters have shown that these were all important factors in the presence or absence of plants with medicinal applications in the study area. Optimal air and soil temperatures and soil pH were important conditions in plants producing secondary metabolites useful in medicinal applications.

RECOMMENDATIONS

1. The local community in the study area must promote and conserve the medicinal plant resources and their indigenous knowledge in the utilization of these plants.

2. The knowledge of traditional medicine practitioners must be encouraged and protected, and this could be the way through which people could exercise their skills.

3. A similar study should be conducted in other geographically isolated areas of Pambujan and of the province to establish a complete baseline information.

NOTE:

The study highlights the efficacy of "folk medicine" which is an ancient tradition, used in some parts of India. This ancient concept should be carefully evaluated in the light of modern medical science and can be utilized partially if found suitable.

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