Vol. 2 December 2011
CHED Accredited Research Journal, Category A
Print ISSN 2094-1519 • Electronic ISSN 2244-0461
doi: http://dx.doi.org/10.7828/ajob.v2i1.93

Asian Journal of Biodiversity
Art. #93, pp. 81-102

Ethnobotanical Inventory and Assessment of Medically-Important Plant Roots in Cebu Island, Philippines

ROMMEL S. MIANO
JAY P. PICARDAL
jaypicardal@yahoo.com

CHARLY ANN G. ALONSO
DERALGINE REUYAN
Cebu Normal University

Date Submitted: June 4, 2011
Final Revision Accepted: July 20, 2011

Abstract - An ethnobotanical study on medically-important plant roots was conducted in Argao, Naga, San Fernando, San Remigio of Cebu Island, Philippines. A total of 25 informants from each study sites were interviewed (village herbal folk healer). The study recorded 18, 22, 16, 21 different species of plants claimed to have medicinal uses. The most common ailment cited by the *traditional healers* is 'relapse', which has the highest number of cited plants used for treatment. The modes of preparation are either concoction or decoction. The common mode of administration is oral intake, by drinking the wine or the water from concocted or decocted root/s as needed and until the ailments get well. The effectiveness of the medicinal plants used by the traditional healers vary from each study site according to perceived effectiveness of each plant used. The medically-important plant roots cited by the traditional healers from the four municipalities reported to be very effective in treating ailments/diseases are the mandalusang puti [*Justicia sp*] in Argao, mangagaw [*Euphorbia hirta* Linn] in Naga, *kapayas nga laki* [male *Carica papaya*] in San Fernanado), and wachichao [*Orthosiphon aristatus*] in *San Remigio*.

Keywords - medicinal plants, Cebu Island, herbal medicine, ethnobotany, plant roots, plants

INTRODUCTION

The study of indigenous knowledge in ecology is relatively recent and researches into traditional knowledge are valued in a number of fields, for example, in agriculture, pharmacology, and more recently, in ethnobotany (Camacho *et al.* 2010). In the last few decades of the 19th century, a global trend of interest has been noticed in the traditional system of formulation and utilization of medicines. Plants remain the basis for the development of modern drugs and medical plants have been utilized for many decades to treat various forms of diseases all over the world (Ates and Erzdogrul 2003). Ethnobotanical studies, then, have become more increasingly significant in the development of modern health care and conservation programs in different parts of the globe (Black 1996).

Reyes-Garcia *et al*. (2007) showed that out of the 34 peer-reviewed ethnobotanical studies published between 1986 and 2005, 70% took place in Latin America, 21% in Africa, and 9% in Asia.Long before the introduction of Western practice of healing, it has been said that Filipinos of the olden times practiced the utilization of indigenous plants and herbal products as remedies to different ailments.For instance, indigenous knowledge has been recognized for sustainability of production systems, having been validated for their technical and scientific soundness by many investigators (Camacho *et al.* 2010). Some of the major fields to where ethnobotany is employed in the Philippines are: (1) for understanding agricultural evolution in the different regions like in Bontoc (Bodner 1988) and in Mt. Arayat (Bagunu 2006), and in (2) agroforestry where interviewed farmers maintain a comprehensive list of ethnobotanical knowledge (Langenberger 2008). In the paper of Madulid (1996), an ethnobotanical inventory was recommended (1) to identify plants with known economic cultural uses, and (2) to document the uses and *use-practices* of these plants that involve the collection of voucher specimens, interviews, and observations of actual use-practices by the people.

In an ethnobotanical survey conducted among farmers in the province of Leyte, local uses of wild plant species were recorded to (1) document the knowledge of farmers in identifying recorded species in the study area, and to (2) evaluate farmers' knowledge in comparison to that of the different Philippine indigenous group (Prigge 2005). In western Mindanao, Philippines, an ethnobotanical documentation was also conducted in the Subanen community in Lakewood, Zamboanga del Sur as an urgent response to the rapid loss of plant biodiversity and genetic resources and the associated loss of ethnobotanical knowledge while in the multi-ethnic highland town of La Trinidad in Benguet Province, many indigenous medical specialists successfully continue to practice traditional curing through an effective symbiosis with modern health care facilities and personnel.

In Cebu Province, ethnomedicine has been practiced for many generations and there have been anecdotal records of several unpublished accounts which attempted to list this indigenous knowledge. Even in the recent days, where basic medical services is available to the rural communities through the various government initiatives like the Botikasa Village and Rural Health Units, many people still prefer to practice the traditional mode of healing using indigenous plants and specific plant parts as alternative medicine. Oral traditions claim, for instance, that rural folks in the island of Cebu are utilizing plant parts like leaves, roots, stems, as well as fruits and seeds, or the combinations of these plant part components as herbal remedies. Based on current available literature, relevant unpublished ethnobotanical data gathered in the province of Cebu delved mostly into listing of herbal plants and there is no attempt to document the specific plant parts such as plant roots that were utilized for treating specific illness.

OBJECTIVES OF THE STUDY

This study aimed to determine applications of the different medically-important plant roots used by the village herbal folk healer in Cebu Island in treating various ailments. Further, it aimed to: (1) determine the variations of knowledge between the two groups (age-based, gender-based) on traditional healing practices; (2) determine

the different medically-important plant roots and name the different ailments commonly treated by the village herbal folk healer ; (3) determine variations of knowledge in traditional healing practices among the four study sites; and (4) determine informants' perceptions on the effectiveness and reasons of using medicinal plants in the four study sites.

MATERIALS AND METHODS

The study used the descriptive design with surveys key informal interviews. Cebu is located in the centre of the Visayan group of islands in the Philippines. The native biodiversity of Cebu is amongst the most critically endangered in the world, due to its high endemism and seriously denuded landscape. Most of the remaining biodiversity is found in only a few small and isolated forest patches. It is composed of 6 districts, each comprises municipalities which constitutes a total of 51 municipalities of the province. The four municipalities where the study sites are located are the municipalities of San Fernando, Naga, Argao and San Remigio. From each municipality, two purposively-selected Villages were chosen as source of respondents based on frequency of practice of traditional healing methods.

Sampling techniques and ethnobotanical survey methods

The study employed snowball technique wherein the first few respondents were identified by the district captain. These respondents were asked to identify other herbal medicine practitioners who are potential respondents of the study. All respondents were then grouped into two groups: age-based (18-30, and 31-above), and gender-based (male and female). Each group is taken and these subsets of the groups are then pooled to form a random sample which is applicable in choosing the different towns/Villages where the traditional healing practitioners are greatly concentrated.

The initial and preliminary data collection trip was made in the four study sites during the month of October 2010, with the follow-up and final collection trip in December 2010. Prior to final data collection, guide questions used during the preliminary data collection were pretested for standardization (Cronbach's alpha = 0.80).

Ethnobotanical data were obtained from semi-structured interviews from traditional healers (village herbal folk healer) who were known to possess knowledge about medicinal plants, personal conversations with practitioners and personal observation on methods of plant root extract preparation as described by Etkin (1993). All interviews were performed in Cebuano, the native dialect of the respondents. Informed consent, including consent for publication of data was received from all informants before the actual interviews. A total of 25 village herbal folk healer(traditional healers) from each study site was chosen following the methods of Martin (2004). To obtain more information, a questionnaire was also used. All remedies used to treat a given ailment were also crosschecked and enumerated to identify the most popularly used medicinal plant species (Martin, 1995 ; Weller, 2010). Only individuals who are 18 years old and older were interviewed, according to the IRB (International Review Board) guidelines.

Field collections of plant root specimens

Upon completion of the interview, some informants invited the researchers to a guided tour to areas where plant roots were collected and point out the plants that had been mentioned during the interview (Martin 1995). This has evaluated the informants' knowledge if he can identify the plants in the field. While collecting specimens in the fields, interviews were also conducted at the same time, noting the information using a field notebook. Environmental parameters during the collection and the information on the nature of the plants identified and collected were also noted. For unidentified plants, further consultations were done after the collection. Collected plants were then identified and named according to its taxonomic classification, and dried specimens were kept and stored in secured places for future use.

Field collections of plant root specimens

The researchers went to the office of the Department of Environment and Natural Resources to obtain a gratuitous permit. A permit was obtained from the elder leader of the indigenous communities.

RESULTS AND DISCUSSION

Profile of informants

Some of the activities observed by the researchers include going to work and cultivating their lands for farming (done usually by males but in some cases done collaboratively by both males and females; males tilting the land while females plant the crops). The informants who are readily available are those who are not yet within the age range of 18-28 years old and are not older than (40-72 years old) committed for a stable job, while the ages 29-39 years old (with the least number of informants) wherein this age range covers the possible informants who are committed for a stable job to provide the needs of their family.

Table 1 lists both the local names and scientific names of plants whose roots are utilized in treating various ailments and diseases from the 4 municipalities. It can be noticed from the same table that the village herbal folk healer in the four municipalities utilize the abundance of the natural flora present in their vicinity. This is very evident by the plants cited by the practitioners as reflected from the variation of plants cited from the four study sites. The diverse distribution of plant species within each study site is one of the contributing factors of this variation. One possible reason is that there may be plants that are only present in Argao, but not in Naga, or there may plants both present in San Fernando and San Remigio but the knowledge has only been practiced in the former but not in San Remigio because it was not

known yet in the latter.

Table 1. List of commonly used plant roots (with local and scientific names) used in treating various ailments from 4 municipalities of Cebu Island, Philippines

ARGAO		**NAGA**		**SAN FERNANDO**		**SAN REMIGIO**	
Scientific Name	Local Name	Scientific Name	Local Name	Scientific Name	Local Name	Scientific Name	Local Name
Lavandula spica Linn.	Tulay	*Ficus hauili* Blanco	Lagnob	*Euphorbia hirta* Linn.	Mangagaw	*Euphorbia hirta* Linn.	Mangagaw
Heliotropium indicum Linn.	Elepante	*Annona muricata* Linn.	Sikurabaw	*Heliotropium indicum* Linn.	Elepante	*Heliotropium indicum* Linn.	Elepante
Justicia Gandarrusa Burm. F.	Alayupyup	*Virtex parviflora* Juss.	Tugas	*Lengua de vaca* Linn.	Dila-dilasairu	*Andropogon citrates* DC	Tanglad
Andropogon citrates DC	Tanglad	*Callicarpa cana* Linn.	Tigaw	*Desmodium pulchellum* Linn.	Gaan-gaan	*Cyperus paniculatus* Willd	Tuway-tuway
Cycas sp.	Piyogo	*Euphorbia hirta* Linn.	Mangagaw	*Cyperus paniculatus* Willd	Tuway-tuway	*Ficus hauili* Blanco	Lagnub
Panax quinquefolius Linn.	Ginseng	*Mimosa pudica* Linn.	Kipi-kipi	*Agathis alba* Foxworthy	Sawong	*Moringa oleifera* Lam.	Kamunggay
Kleinhovia hospita Linn.	Hemitan-ag	*Lagerstroemia speciosa* Linn.	Banaba	*Ceiba pentandra* Linn.	Gapas-gapas	*Psidium guajava* Linn.	Bayabas
Cannabis sativa Linn.	Marijuana	*Heliotropium indicum* Linn.	Elepante	*Catharanthus roseus* (L.) G.Don	Kumintang	*Mirabilis lindheimeri* (Standl.) Shinners	Maravilis
Moringa oleifera Lam.	Kalamunggay	*Cyperus paniculatus* Willd.	Tuway-tuway	*Corypha* Linn.	Buli	*Gliricidia sepium* (Jacq.) Kunth ex Walp.	Madre de Cacao

Continuation of Table 1

Callicarpa cana Linn.	Tigaw	*Lengua de vaca*	Dila-dilasairu	*Mimosa pudica* Linn.	Kipi-kipi	*Persea americana* Mill	Avocado
Cassia occidentalis Linn.	Balatong-aso	*Desmodium pulchellum* Linn.	Gaan-gaan	*Musa acuminata* Colla	Sab-a	*Chrysophyllum cainito* Linn.	Caimito
Justicia sp.	Mandalusang puti	*Corypha* Linn.	Buli	*Zizyphus jujuba* Mill.	Mansanitas	*Vitex negundo* Linn.	Lagundi
Euphorbia hirta Linn.	Salingkapaw (mangagaw)	*Andropogon citrates* DC	Tangad	*Carica papaya* Linn.	Kapayasngalaki	*Blumea balsamifera* Linn.	Gabon
Wedelia biflora Linn.	Hagonoy	*Agathis alba* Foxworthy	Sawong	*Orthosiphon aristatus* (Blume) Miq.	Wachichao	*Leucaena sp.*	Kabahero
Jatropha mamhot Linn.	Bulonganon kahoy	*Ceiba pentandra* Linn.	Gapas-gapas	*Annona muricata* Linn.	Sikukarabaw	*Orthosiphon aristatus* (Blume) Miq.	Wachichao
Justicia sp.	Manadalusang pula	*Musa acuminate* Colla	Saging	*Ficus hauili* Blanco	Lagnub	*Callicarpa cana* Linn.	Tigaw
Carmona heterophylla Cav.	Alangit-ngit	*Capsicum frutescens* Linn.	Silikulikot			*Mimosa pudica* Linn.	Kipi-kipi
Imperata cylindrica (L.) P. Beauv.	Cogon	*Imperata cylindrica* (L.) P. Beauv.	Cogon			*Mimosa pudica* Linn.	Kipi-kipi
		Eleusine indica (L.) Gaertn.	Bila-bila				
		Melanolepis multiglandolusa (Reinw. ex Blume) Rchb.f. & Zoll	Tambuku				

Table 2. Number of medically-important plant roots used for various forms of ailment or diseases as cited by the informants from the 4 municipalities of Cebu Island, Philippines

Ailments	Total number of plants cited			
Diseases	Argao	Naga	San Fernando	San Remigio
All ailments	1			2
Arthritis				1
Baby with developing tooth	1	1		
Bun-i	1			
Cough		4	1	
Dengue	**1**	**1**	**1**	**1**
Diarrhea				7
Dizziness		1		
Fever		4	3	
Flatulence	**1**	**1**	**1**	**3**
Fracture	1			1
Headache		1		
High blood	1	2		
Leukemia				1
Relapse	**9**	**9**	**9**	**6**
Scabies				1
Stomachache	3	2	2	
Tonsillitis		1		
Toothache				2
Wounds				2
Kidney disorders			1	

Table 2 above shows the inter-municipal variations of the medically-important plants used in treating specific ailments/symptoms. The ailment with the most number of plants used for its treatment is 'relapse', which is prominently cited in the four study sites with total number of plant citations of 9, 9, 9, and 6 in the municipalities of Argao, Naga, San Fernando, and San Remigio, respectively. The relative numbers of plants used in treating relapse do not necessarily

reflect that these plants are used individually. The village herbal folk healer from the four study sites asserted that they also use a mixture of not only two but more of medicinal plant roots in addressing the ailment 'relapse'. As they have learned the individual potentials of these plants, they come to realize that the mixture could provide much more effective results, and hence, an immediate recovery from the ailment results. Furthermore, the plant mixtures are not the same and vary from one study site to the other as well as the number of plants subject to mixture. Also shown in the same table is the ailment 'dengue' with only one plant cited and is similar among the study sites which are treated locally by using the roots of *mangagaw, salingkapaw, or tawa-tawa*. This similarity of plant used (*mangagaw/salingkapaw/ tawa-tawa*) has already been practiced possibly within each study site but in small scale applications, it had only became widespread when commercialized in the market since herbal medicines are adapted in pharmaceutical companies. Another possible reason of this similarity is the sharing of knowledge between neighboring municipalities.

The next table (*see* Table 3) shows that some of the plant root species are used by the practitioners in the four municipalities in treating similar ailments, while other species are used differently in treating various ailments. The researchers found out that there were a number of plants used in treating both single and multiple types of ailments like the *kalamunggay* in Argao, *sikukarabaw* in Naga, *dila-dilasairu* in San Fernando and *kamunggay, konsensi, madre de cacao* and *bayabas* in San Remigio. It also shows the inter-municipal variations of plants used in treating various ailments. For instance, on the ailment "relapse", which was being cited in the four municipalities but the plants used in treating the ailments are not exactly the same. However, there are few of them, which are present in either two of the municipalities like *ga-an-ga-an*,*sawong*, and *tigaw*; in the three municipalities like *kipi-kipi*; and in all four municipalities like *elepante*(also knownlocally as*trumpante)* and *tulay*(also known locally as*tuway-tuway*. Another prominent plant used by the *bisaya'ngmananambal* which they used to treat the same ailment like "dengue fever" is *mangagaw* (also known locally as *salingkapaw* or *tawa-tawa*). Evident also from the four study sites are ailments which are unique or mentioned only within the area. For instance, the *Argaonons* mentioned ringworm; the *Nagahanons* mentioned headache, dizziness,

and tonsillitis; the *San Fernandohanons* mentioned kidney disorders; and the *San Remigiohanons* mentioned arthritis, diarrhea, leukemia, scabies, toothache and wounds. The similarities and differences of the plants used by the *bisaya'ngmananambal* from the four municipalities are due in part of the availability and abundance of plants within the locality.

The discovery of the potentials of these plants as medicines is possibly because of the fact that many indigenous people and local communities have developed a perception and use of their natural environment (Benz et al. 1996 and Gerritsen 1998), and as a result thereof of the scarcities of easy access to modern facilities in treating various ailments (Hossan et al. 2010; Heinrich et al. 1998).

Table 3. List of different plants used in the four municipalities in treating various forms of ailments / diseases.

Ailment/	Plants cited in the Municipality			
Diseases	Argao	Naga	San Fernando	San Remigio
All ailments	Ginseng			Hua-chi-chow
Arthritis				Gabon
Baby with developing tooth	Cogon[c]	Cogon[c]		
Bun-i	Kamunggay[d]			
Cough	Lagnub[c], kipi-kipi, guyabano, banaba		Lagnub[c]	
Dengue	Mangagaw[a]	Mangagaw[a]	Mangagaw[a]	Mangagaw[a]
Diarrhea				konsensi[d], guava[d], maravilis, madre de cacao[d], avocado, caimito, kadlang-kadlang
Dizziness		Tuway-tuway		
Fever		Gapas-gapas[c], marangug[c], bila-bila, tambaku	Gapas-gapas[c], marangug[c], lagnub	
Flatulence	Hagonoy	Buli	Dila-dilasairu[d]	Konsensi[d], tigaw, gabon

Continuation of Table 3

Fracture	Mandalusang pula			
Headache		Saging		
Hypertension	Tanglad[c]	Tanglad[c],sikurabaw[d]		
leukemia				Kumintang
Relapse	Tula[a]y, elepante[a], alayupyop, piyogo, hemitan-ag,tigaw[c], mandalusangputi, bulonganonkahoy, balatong-asu	Sikurabaw[d], tugas, tigaw[c], kipi-kipi[b],tulay[a], elepante[a], dila-dilasairu, gaan-gaan[c], sawong[c], sungga-ay	Elepante[a], dila-dilasairu, gaan-gaan[c], tulay[a], sawong[c], buli, kipi-kipi[b], sab-a, mansanitas	Elepante[a], tanglad, tulay[a], lagnub, kipi-kipi[b],majong
Scabies				Madre de cacao[d]
Stomachache	Marijuana, kamunggay[d], langit-ngit			Kipi-kipi, silikulikot
Tonsillitis		Elepante		
Toothache				Kabahero, kamunggay[d]
Wounds				Guava[d], kamunggay[d]

(Plants used to treat ailment or disorder in all four study sites are superscripted with [a]. Those that are present in only three of the four sites are superscripted with [b]. Those that are present in only two of the four sites are superscripted with [c]. And those plants superscripted with [d] show evidence that these plants are not only used to treat a single ailment/disease but a multiple types of ailment/disease.)

Table 4. a. Utilization, mode of administration and types of illness believed to be cured by different medically-important plant roots from Argao, Cebu

Plants	Ailments	Mode of preparation and dosage
Tulay	Relapse	Decoction, drink 3 times a day until well
Elepante	Relapse	Concoction, decoction, drink 1 glass a day until well
Alayupyup	Relapse	Decoction, drink 3 times a day until well
Tanglad	Hypertension	Decoction, drink 3 times a day until well
Piyogo	Relapse	Decoction, drink 3 times a day until well
Ginseng	All ailments	Bath in wine, drink everyday every after meal
Hemitan-ag	Relapse	Decoction, drink 3 times a day until well
Marijuana	Stomach upset	Concoction, drink until well
Kamunggay	Ringworm	Pound, then apply on affected area
Tigaw	Stomachache	Decoction, drink 3 times a day until well
	Relapse	Decoction, drink 3 times a day until well
Balatong-aso	Relapse	Decoction, drink 3 times a day until well
Mandalusangputi	Relapse	Scrape, then apply on affected area
Salingkapaw (mangagaw)	Dengue	Decoction, drink 3 times a day until well
Hagonoy	Flatulence	Decoction, drink 3 times a day until well
Bulonganonkahoy	Relapse	Decoction, drink 3 times a day until well
Manadalusang pula	Fracture	Decoction, drink 3 times a day until well
Langit-ngit	Stomach upset	Pound, then apply on affected area
Cogon	Baby with developing tooth	Pound , then apply on gums

Table 4. b. Utilization, mode of administration and types of illness believed to be cured by different medically-important plant roots from Naga, Cebu

Plants	Ailments	Mode of preparaton and dosage
Lagnob	Cough	Decoction, then drink 1 glass, 3 times a day
Sikurabaw	Cough	Decoction, then drink 1 glass, 3 times a day
	Relapse	
	Hypertension	
Tugas	Relapse	Decoction, then drink daily until well
Tigaw	Relapse	Decoction, then drink daily until well
Mangagaw	Dengue Fever	Decoction, then drink 1 glass, 3 times a day
	Dengue Fever	
Kipi-kipi	Cough	Concoction, decoction, then drink 1 glass, 3 Times a day
	Relapse	
	Stomachache	
Banaba	Cough	Decoction, then drink daily until well
Elepante	Tonsillitis	Concoction, then drink until well
	Relapse	
Tuway-tuway	Dizziness	Decoction, then drink daily until well
Dila-dilasairu	Relapse	Concoction, decoction, then drink 1 glass, 3 times a day
Gaan-gaan	Relapse	Concoction, decoction, then drink 1 glass, 3 times a day
Buli	Flatulence	Decoction, then drink daily until well
Tangad	Hypertension	Decoction, drink 3 times a day until well
Sawong	Relapse	Decoction, then drink daily until well
Gapas-gapas	Fever	Decoction, then drink daily until well
Saging	Headache	Decoction, then drink daily until well
Silikulikot	Stomachache	Decoction, then drink daily until well
Cogon	Baby with developing tooth	Pound , then apply on gums
Bila-bila	Fever	Decoction, then drink daily until well
Tambuku	Fever	Decoction, then drink daily until well

Table 4. c. Utilization, mode of administration and types of illness believed to be cured by different medically-important plant roots from San Fernado, Cebu

Plants	Ailments	Mode of preparation and dosage
Mangagaw	Dengue	Concoction, decoction and drink after meal
Elepante	Relapse	Concoction, and drink after meal
Dila-dilasairu	Relapse	Concoction, and drink after meal
	Flatulence	Put to fire then apply on affected area
Gaan-gaan	Relapse	Concoction, and drink after meal
Tuway-tuway	Relapse	Concoction, and drink until well
Sawong	Relapse	Concoction, and drink after meal
Gapas-gapas	Fever	Concoction, and drink after meal
Buli	Relapse	Concoction, and drink every morning and dusk
Kipi-kipi	Relapse	Concoction, and drink as needed
Sab-a	Relapse	Concoction, and drink until well
Mansanitas	Relapse	Concoction, and drink until well
Kapayasngalaki	Stomachache	Concoction, and drink as needed
Wachichao	Kidney failure	Concoction, and decoction then drink until well
Guyabano	Stomachache	Concoction in a 3 glasses of water then drink
Lagnub	Cough Fever	Concoction in a 3 glasses of water then drink

Table 4. d. Utilization, mode of administration and types of illness believed to be cured by different medically-important plant roots from San Remigio, Cebu

Plants	Ailments	Mode of preparation and dosage
Mangagaw	Dengue fever	Decoction, then drink as needed
Elepante	Relapse	Concoction, decoction, then drink as needed
Tanglad	Relapse	Decoction, then drink as needed
Tuway-tuway	Relapse	Concoction, decoction, then drink as needed
Lagnub	Relapse	Concoction, decoction, then drink as needed
Konsensi	Flatulence	Decoction, then drink as needed
	Diarrhea	Concoction, decoction, then drink as needed
Kamunggay	Toothache	Scrape and pound, then apply on affected area
	Wounds	
Kumintang	Leukemia	Decoction, then drink as needed
Bayabas	Diarrhea	Concoction, decoction, then drink as needed
	Wounds	Scrape and pound, then drink as needed
Maravilis	Diarrhea	Concoction, decoction, then drink as needed
Madre de Cacao	Scabies	Scrape and pound, then apply on affected area
	Diarrhea	Bath, decoction, then drink as needed
Avocado	Diarrhea	Decoction, then drink as needed
Caimito	Diarrhea	Decoction, then drink as needed
Lagundi	Relapse	Decoction, then drink as needed
Gabon	Flatulence	Decoction then drink as needed
	Arthritis	Scrape and pound, then apply on affected area
Kabahero	Toothache	Scrape and pound, then apply on affected area
Wachichao	All ailments	Decoction, then drink as needed
Tigaw	Fracture	Scrape and pound, then apply on affected area
	Flatulence	Decoction, then drink as needed
Kipi-kipi	Relapse	Decoction, then drink as needed
Majong	Relapse	Decoction, drink as needed

Tables 4.a-4. d listed the different plant species, the ailment that they are believed to cure and the mode of preparation and dosage of these root extracts across the four municipalities. In the municipality of Argao for instance, the *Argaonons* mentioned two of the most commonly treated ailments in the municipality (ranking was based on the number of plants cited for a particular disease) namely, relapse and stomach upset, with reported number of plants used as 9 and 3, respectively. The *Nagahanons* mentioned relapse and fever (including dengue) with reported number of plants used as 9 and 6, respectively. The *San Fernandohanons* mentioned relapse and fever (including dengue) with reported number of plants used as 9 and 4 respectively. Finally, the *San Remigiohanons* mentioned relapse and diarrhea, with reported number of plants used as 7 and 7, respectively.

'Relapse' is the most common ailment suffered by women directly following delivery due to over fatigue, normally experienced before full recovery from giving birth. The commonalities of the top ailments mentioned among the four municipalities regarding the ailment 'relapse' is due to the following reasons, namely: **(1)** because rural areas lack easy access to modern facilities in treating various ailments or in this case attending to pregnant women due to give birth, **(2)** people resort to traditional healing practices and **(3)** distrust to allopathic medical doctors (Hossan *et al.* 2010; Heinrich *et al.* 1998). The health care that each pregnant woman should receive right after giving birth is not practiced via contemporary medical practice but rather in traditional way which give vulnerability to both the mother and the newborn baby.

Generally, concoction (to soak in either wine or water) and decoction (bring into boil) of the medically-important plant roots used by the village herbal folk healer among the four study sites are commonly practiced. These are administered orally by drinking either one glass a day until well or three times a day as needed. Other modes of preparation are by scraping the roots and pounding them prior to extraction, after which the extracts are applied on the affected area. Either ways have been considered effective in treating various ailments.

The *Argaonons*, *Nagahanons*, and *San Remigiohanons* perceived the medicinal plants in their vicinities to have no changes and are almost

similar with weighted mean of 1.81, 1.7, and 2.08, respectively. *San Fernandohanons* on the other hand perceived their medicinal plants to have changed through time as people gain knowledge and thus found their medicinal plants to be increasing with a weighted mean of 2.44. These responses of the practitioners are based thereof on their observations to their surroundings and their initiatives in making home gardens of these known medicinal plants. As the knowledge on traditional healing practices becomes widespread in the locality, people become aware of these medicinal plants and eventually, cultivating these plants for future use.

Underlying Reasons of the village herbal folk healer on Healing Practices

For the village herbal folk healer , the reasons why they resort to traditional healing practices are constrained in the following reasons from the least to the most cited based on the informants' level of preferences: (a) it is readily available, (b) it is much cheaper than the modern drugs, (c) it is easier to prepare and administer, (d) of its effectiveness in controlling and treating diseases, (e) there is no known side effects, (f) and most prominently, it is being handed down from generation to the next, thus preserving and developing the knowledge even more for the next generation to follow. Most village herbal folk healer could no longer exactly tell since when have they been practicing the traditional way of healing. They only asserted,"*I can't really tell when was these knowledge started, all I can remember is that since I gain consciousness, I am already a patient and once healed by my ailments using the traditional healing practices by a* village herbal folk healer*"*.

The village herbal folk healer also asserted that the LGUs don't have direct participations in the cultivation and preservation of the plants primarily used for medicinal purposes. "*Because we know that we might be using these plants on the coming days, we purposively plant and cultivate the known medically-important plants at our own backyard. With that we can make sure that we can immediately attend to our needs in case of acquiring ailments"*.

CONCLUSIONS

From the results obtained, the specific conclusions are drawn:

Traditional healing practices are observed in the four study sites. The researchers were able to identify around 18, 22, 16, and 21 species of different medically-important plant roots used by the village herbal folk healer in the municipalities of Argao, Naga, San Fernando, and San Remigio, respectively. The researchers identified two of the most commonly treated ailments in each study site. *Argaonons* mentioned relapse and stomach upset, *Nagahanons* and *San Fernandohanons* similarly mentioned relapse and fever (including dengue), and *San Remigiohanons* mentioned also relapse and diarrhea;

There is varying knowledge of plant usage in treating various types of ailments among the four study sites. This is because of the adaptations and availability of these medically-important plants in each geographically isolated study sites;

The most common mode of preparation is by concocting the roots with either water or wine and decocting the roots with water. Administration is generally through oral intake by drinking the wine or the water from the concocted and decocted roots generally in quantities or amounts as needed or until the ailments get well. Another mode of preparation is by scraping the root and pounding it, until extracts result, and then apply directly the extracts to the affected area; and

The fact that traditional healing practices have been observed by the *village herbal fol*k healer , whose knowledge was acquired from their ancestors, the effectiveness of these plants has never been questioned by the residents. The accumulation of knowledge through times has made the present people accustomed of the handed traditional knowledge.

LITERATURE CITED

Bagunu
2006 Ethnobotany of Mt. Arayat and its environs. The Graduate School Pampanga Agriculture College. 47 p.;28cm.

Camacho, L.D., M. Combalicer,Y. Yeo-Chang, E. Combalicer,
2010 A.Carandang, S. Camacho,C. de Luna, and L. Rebugio Traditional forest conservation knowledge/technologies in the Cordillera, Northern Philippines, *Forest Policy and Economics*.

Langenberger, M.
2008 Ethnobotanical knowledge of Philippine lowland farmers and its application in agroforestry. Agroforestry Systems 76 (1): 173-194.

Madulid, D.A.
1996 Guidelines and policies on collection of biological specimensin the Philippines. Journal of Ethnopharmacology 51 (1996) 205-208.

Martin, G.J.,
2004 Ethnobotany: A methods manual. WWF, UK and USA.

Martin, G. J.
1995 Ethnobotany. A 'people and plants' conservation manual 1st ed.Great Britain at the University Press, Cambridge.

Microsof Encarta Premium. 2009.

Reyes-Garcia, V. A, N. Marti,T. McDade, S. Tanner, and V. Vadez
2007 Concepts and methods in studies measuring individual ethnobotanical knowledge. *Journal of Ethnobiology*. 27(2): 182–203. Available from http://dspace.icrisat.ac.in/dspace/bitstream/123456789/1020/1/JouOfEthno27_2_182-203_2007.pdf

Maps of Cebu, Argao, Naga, San Fernando, San Remigio. Retrieved from www.cebu.gov.ph: available from http://www.cebu.gov.ph/?getid=2&getsubid=25&infolinkids=17&GetBodyName=Map%20of%20Cebu&rightpdisable=0

UNESCO,
2007 Knowledge and practices concerning nature and the universe. http://www.unesco.org/culture/ich/index.php?pg=00056. 2007. Date accessed: June 06,2008. L.D. Camacho et al. / Forest Policy and Economics xxx (2010) xxx–xxx.

Weller, S. C.
Cultural consensus theory: applications and frequently asked questions. [Internet]. [cited 2010 Sep 5]. Available from http://intersci.ss.uci.edu/wiki/SCRM/Weller2007q.pdf