
Ethnobiology and Alternative Medicine of the Ybanag Minority in Northern Isabela, Cagayan Valley, Philippines

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Abstract Research interest and activities in the areas of Ethnobiology and Ethnomedicine have increased tremendously in the last decade. The basic approach of this study combined both the elements of social and biological methodologies. Findings revealed that Ybanag minority has better acceptance on the utilization of plants and animals (ethnobiology) to support their basic needs in their socio-economic activities while their cultural heritage are kept protected and respected. Regardless of their differences in socio-economic status, age, cultural and experiential background, their individual attitude is consistently favorable to their practice. Considering this group to occupy the largest areas in Region 02, the utilization of about 673 different indigenous plants and animals for rituals, beliefs, medicine, food, burial customs and other miscellaneous uses was extensively practiced with the highest fidelity index of between 76-100 percent. The continuous utilization of these biological resources is the only way they can conserve and protect their whole entity of ancestral domain, from birth to death. Their accessibility to the wild made them survive and depend mostly for their subsistence and other major and miscellaneous activities, and even considered them the protector of the wild. Hence, the attention to participate in any project or measures that could help them in their sustenance, in a manner that they too could help in the restoration of the natural environment is necessary. With these results, an appropriate system of management for biological resources necessitates these accumulated data for long term management and sustainability, a better principle to reconnect the people to the natural world.

Keywords: Ethnobiology, ethnomedicine, miscellaneous uses, fidelity index

Introduction

The globalization of information and increased awareness of biological resources of all kinds has spurred tremendous demand for a wide variety of both plant and animal resources. Ethnobiology, an improving science, is one of the key to answer problems related to biodiversity conservation, utilization and climate change. From specialty coffees to aromatherapy to medicinal plant

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remedies; from simple meat preparation to tremendously well versed rituals of cure from faraway place. As people reconnect with the natural health-based principles and shy away from expensive and potentially hazardous synthetic drugs, Ethnomedicine comes in.

Today, 85 percent of the world's population, approximately 5.1 billion people according to the report of Kilham (2006) as cited by Tuazon (2009), turn to plants and animal substances as primary source of medicine. These tremendous demands for plants and animals may help preserve natural environments and indigenous cultures in situations in which value-based education efforts have failed. In a world that places more value on an individual's economic worth instead of intrinsic natural or humane merit. From indigenous traditional practice to modern technology, a screening of natural based medicines from the natural environment to consumer marketplace, and how the process can promote values and ideals which remain unfulfilled by other means was conducted. It might be time to reconsider our attitudes towards health and wholeness within a truly wholistic context that includes our environment as an extension to our selves (Shelton, 1991 and Kakati *et al.*, 2006). More links and documents on indigenous knowledge and healing systems, biological resources conservation could be a significant contribution of this research.

Research interest and activities in the areas of ethnobiology and ethnomedicine have increased tremendously in the last decade. Since the inception of the disciplines, scientific research in ethnobiology and ethnomedicine has made important contributions to understanding traditional subsistence. In addition to this, medical knowledge system is fast eroding due to urbanization (www.biomedcentral).

There is an urgent need for inventories and record all ethnobiological information among the different ethnic communities before the traditional cultures completely lost, hence this study.

Objectives of the Study

All the while the forests are still being cut down, the tribal communities are becoming displaced, acculturated and impoverished, and the indigenous knowledge are disappearing together with their cultures, while modern development and western drug are moving in; thus the study aimed to: determine their attitude towards the extensiveness of practice of Ethnobiology in terms medicine and miscellaneous activities; Come out an inventory of biological resources utilized by the Ybanag ethnic group in their cultural practices (medicine and miscellaneous activities) and its uses; determine the

significance of ethnobiological practices in the conservation and preservation of flora and fauna in the area.

Materials and methods

The basic approach of this study combined both the elements of social and biological methodologies. Social aspects were used to investigate attitudes (idea), usage and knowledge of biological resources. Biological aspect on the other hand, involved the proper documentation, taxonomy and uses of plant and animal resources as well as its conservation status.

The selection of a particular technique for inclusion on the data was based on the effectiveness of the technique for sound interpretation of the results and identification of the inter-relationships that exist among the variables studied (Fig. 1). Thus, the study involved both qualitative and quantitative Ethnobiology.

The respondents of the study were from the northern part of the Northern Cagayan Valley namely; the municipalities of Cabagan and Tumauni of the province of Isabela. Respondents come from the inner sitios of Tumauni, Isabela and Cabagan, Isabela, found near and along the buffer zones of the Sierra Madre Mountain Ranges and are pure breed Ybanags.

Ethnobiological Research Guidelines

Standard Methodology was based on the UNESCO Working paper for Quantitative Ethnobotany (1996), Pacific Asia Biodiversity Transect (PABITRA, 2003) and Participatory Rural Appraisal (PRA, 2003), Thaman *et al.* (2004) and Hoft *et al.* (1999).

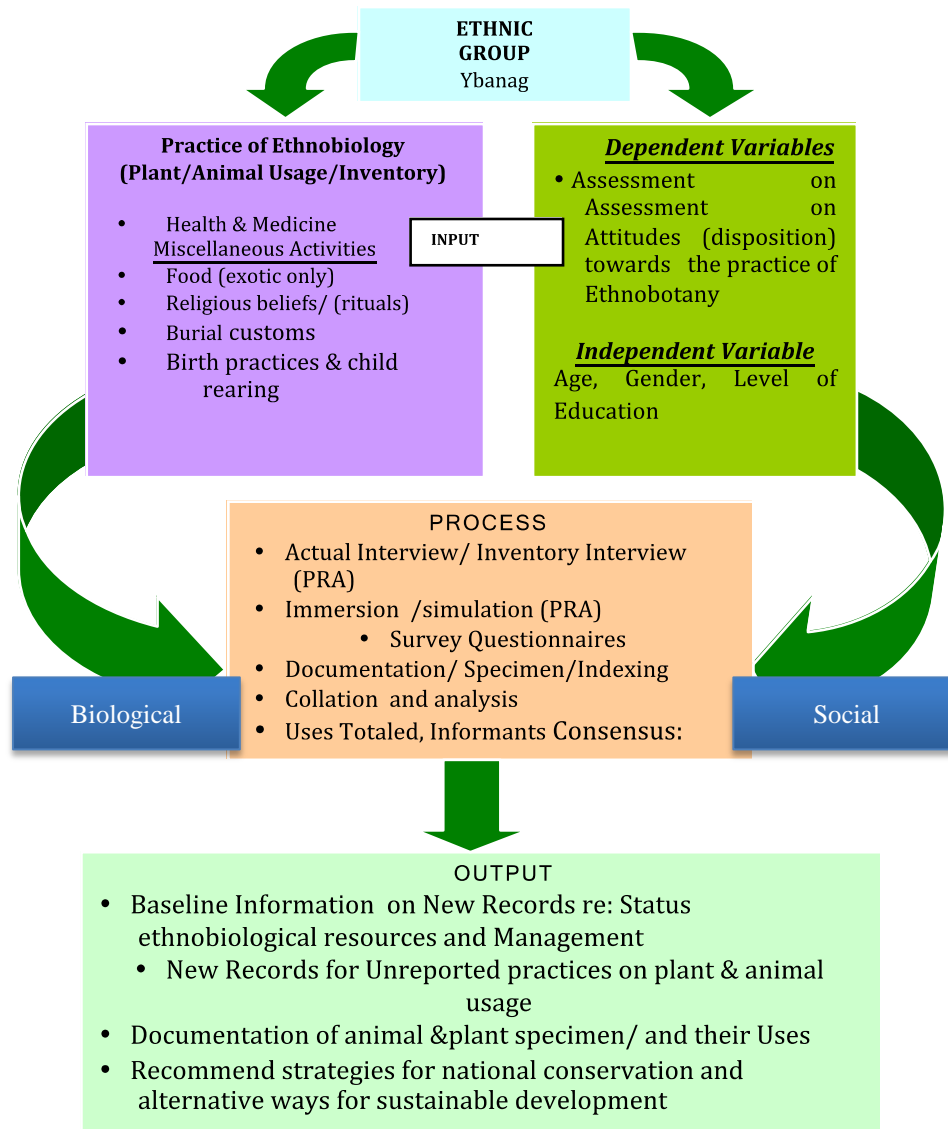


Fig. 1. Working Strategy

Results and discussion

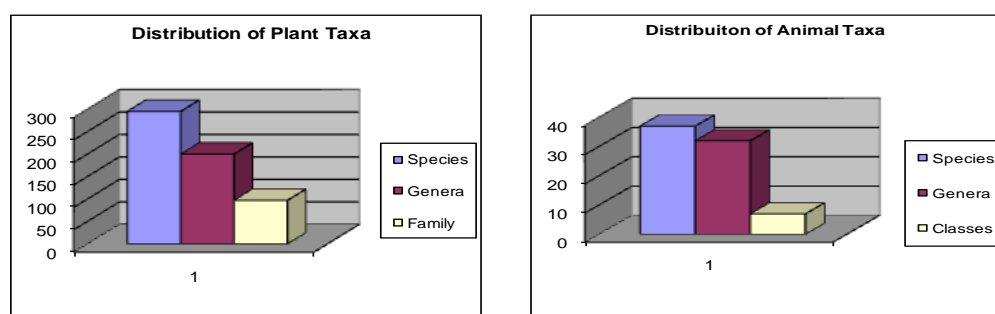
Attitudes towards the Practice of Ethnobiology and Ethnomedicine in Relation to Socio-demographic Profile

Findings revealed that the Ybanag ethnic group had a favorable attitude towards the positive practice of ethnobiology with the highest average weighted mean of 4.179. This suggest that this ethnic group had greatly accept that their

dependence to plants and animals (ethnobiology) to support their basic needs in their socio-economic activities through which their cultural heritage is kept protected and respected. Regardless of their differences in socio-economic status, age, gender, level of education, cultural and experiential background, their individual attitude is in a consistency favorable to the practice. Considering this group being the majority group in Region 02, their strong adherence to their ancestral beliefs is not at all a hindrance to being part of the civilized community, as revealed by their assessment. Such statement was supported by an explanation of Muller (1979), a botanists, that plants as well as animals are very valuable to man, thus its importance in providing great help to human has been emphasized as cited by Shemdoe (2003). Yet, introduction of new technologies is indispensable, Reid *et al.* (2002) and Balick *et al.* (1996) explained that the association of TEK and IK was the diversity of knowledge that indigenous communities hold about in all walks of life. At other levels, the knowledge system that may invoke cultural values and relationships, that long-term learning is significant in the sustainability of a local environment, poverty eradication, and community-based resource management. Thus, these are in some manner attributable to the output of the new world.

Inventory of Biological Resources

This part presents the different biological resources utilized by the Ybanag's in the practice of alternative medicine –ethnomedicine- and other miscellaneous activities (Tables 1-3). Fig 2. Shows the graphical distribution biological resources per category of use and animal resources (taxa) utilized by the Ybanags in the eight categories of their socio-economic activities.



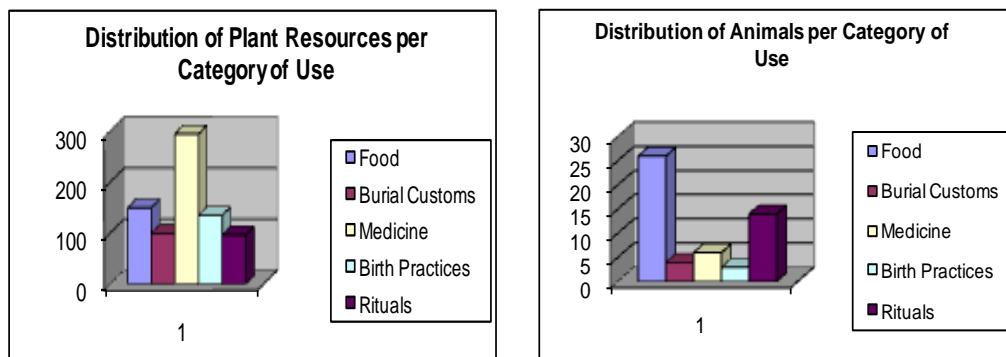


Fig. 2. Distribution of Taxa

Table 1. Summary of plant

Category of Activities		# of Plants		# of Animals
FOOD	Families	71	Class	7
	Genera	129	Genera	26
	Species	188	Species	33
MEDICINE	Families	84	Class	3
	Genera	208	Genera	5
	Species	293	Species	6
RITUALS /BELIEFS	Families	48	Class	5
	Genera	96	Genera	13
BIRTH PRACTICES	Species	121	Species	14
	Families	51	Class	2
	Genera	113	Genera	3
BURIAL CUSTOMS	Species	148	Species	3
	Families	35	Class	3
	Genera	57	Genera	4
Uses Totals	Species	95	Species	4
		673		59

Table 2. Summary of plant/animal resources with the Highest Fidelity (most used) by the Ybanags

Category of Activities (Plants)	Family	Genera	Species	FI
Food	41	70	98	76-100
Medicine	13	22	23	75-100
Ritual/Beliefs/Ceremonies	7	6	7	86-100
Birth Practices & Child rearing	6	6	8	89-100
Burial Customs	4	7	7	86-89
Over- all Total				75 – 100
Category of Activities (Animals)	Class	Genera	Species	FI
Food	7	26	33	76-100
Medicine	3	6	6	100
Ritual/Beliefs/Ceremonies	5	13	14	87-100
Birth Practices & Child rearing	2	3	3	89 -100
Burial Customs	3	4	4	78- 100
Over- all Total				78– 100

Conservation Status

Table 3. Summary of Conservation Status of Plant Resources Identified.

Conservation Status	No. of Plant species	No. of Animal species
Common / least concern	363	32
Fairly common /least concern	50	2
Rare /least concern	2	1
Fairly common/ vulnerable	3	-
Rare/ vulnerable	2	1
Common/ data deficient	13	2
Fairly common/data deficient	5	-
Total	438	38

(Based on IUCN Redlist 2012)

Varied unreported practices

A few but unique utilization of biological resources in their medicinal and miscellaneous activities were also identified. Majority of the plant and animal resources were utilized for medicine and food. They said that continuous

utilization of these biological resources is the only way they can conserve and protect their whole entity of ancestral domain, from birth to death. By upholding a solid adherence to their traditional practices, like a pearl cultured in an oyster of traditions and practices which are kept intact.

The accessibility of the resources in the wild helped them survive and depend mostly for their subsistence and other major and miscellaneous activities, and even considered them the protector of the wild. (Figs.4, 5, 6, and 7).

Wild Food Plants and Animals

The proximity of this group to the wild made their indigenous strategies of plant and animal use an alternative dependence for subsistence. The group to some extent, still consumed some exotic or wild plants/fruits and animals that were commonly available in the environment, Fig. 2 and 3a & b, represents some of the common examples, and Table 4, showing some common uses of these resources.

While, it is unfortunate to mention that despite the vast areas of native and indigenous resources in this part of the region, 70.40% of them and even non-Ybanag are not aware of any conservation measures implemented.

Findings also revealed that the Ybanag group wanted to get the attention of conservation implementers to consider their area and if possible to invite everyone in the area to participate in any project or measures that could help them in their sustenance, in a manner that they too could help in the restoration of the natural environment.

With these results, an appropriate system of management for biological resources necessitates these accumulated data.

From the list of available plants and animal resources, their experiences on indigenous knowledge, their positive attitudes towards the practice of Ethnobiology; these are important bases for providing better management practices and conservation of local biological resources, for long term management and sustainability, a better principle to reconnect the people to the natural world.



Fig. 3a. Exotic Wild Food

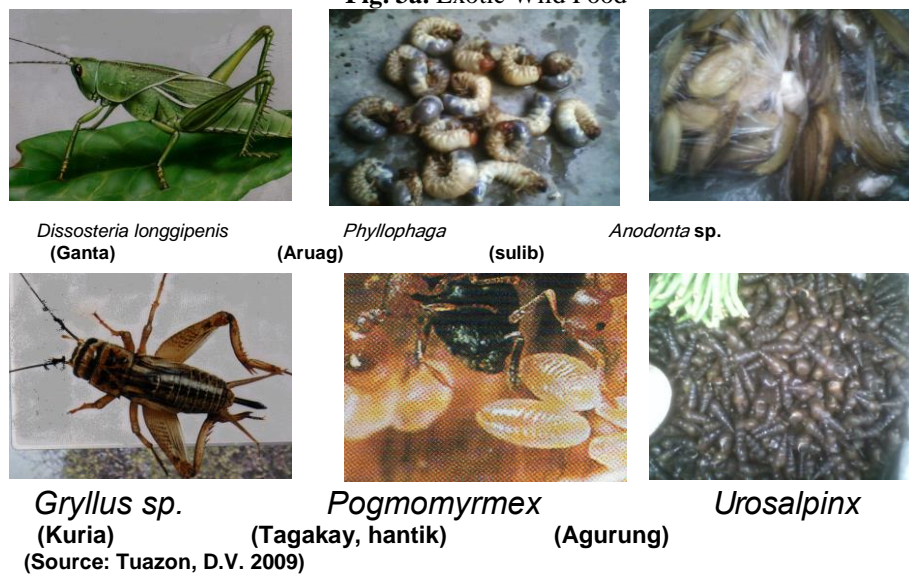


Fig. 3b. Exotic Food Animals in the Wild



Fig. 4. Samples of Common Medicinal Plants

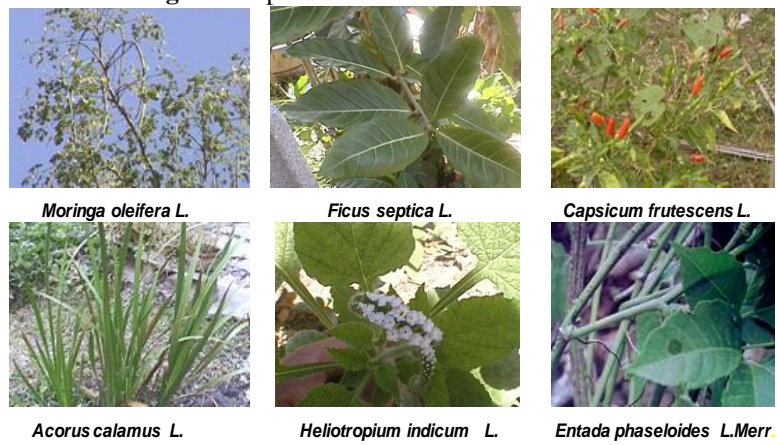


Fig. 5. Samples of Common Plants for Birth Practices and Child Rearing



Hirudo medicinalis (Eng. Leech , Ybng: linta) - the animal sucks blood on the affected area such as on scabies, believed to remove of infection and eases healing process.



Ptenochirus jagori (Eng. musky fruit bat, Ybng: kalambag; paniki) – meat is cooked and consumed by a woman who is suffering from relapse, has curative effect for asthma and anemia.*



Coura amboinensis (Eng. freshwater turtle; Ybng: dagga)- meat is cooked and served as viand, for asthma.*



Apis mellifera (Eng.honeybees,Ybng: pisokan) – it is believed that when someone is stinged, the body becomes more stronger and healthier.*

Fig. 6. Samples Common Medicinal Animals

*Practiced for folk medicine and unreported practices, has to undergo scientific tests.



Tyto alba (Ybng: Lappang) - believed to bring bad luck to anyone who catches it, or it brings bad omen if it cries or enters into somebody's house. When somebody consumes the meat, it will bring bad luck all through his life.



Cervus sp (Ybng: Utta).- antlers are used for construction of houses, it is believed that it could give strong foundation to the house. Mixed with other raw materials during ground breaking ceremony.

Fig. 7. Superstitious Beliefs

Table 4. Index of some most common plant and animal resources utilized in the practice of alternative medicine

Family and Scientific Name	Local Name	Preparation	Parts used	Common Ailment
Plants				
<i>Abrus pectorius</i> (Fabaceae)	vukayung (Y,G) bugayong (Itg)	decoction	L, st	Cough (babies)
<i>Acorus calamus</i> (Araceae)	sweet flag (E), lobigan (Y)	decoction	L, wp	for relapse after birth
<i>Cassia alata</i> (Fabaceae)	akapulko mayana,	sap/poultice	l	tinea flava, ringworm
<i>Coleus blumei</i> L. var. red (Lamiaceae)	maria daga(Y)	Decoction /poultice	1	Headache /menstrual cramps

Family and Scientific Name	Local Name	Preparation	Parts used	Common Ailment
	trompa de elepante,			
<i>Heliotropium indicum</i> L. (Boraginaceae)	mala-kagamay(Y)	decoction/ poultice	wp	for relapse mumps/ dysmenorrhea
<i>Mimosa pudica</i> L. (Mimosaceae)	kakadagang (Y)	decoction/ poultice	wp L	
<i>Morinda citrifolia</i> L. (Rubiaceae)	bankudo(Y), noni tree	decoction	,b, fr	Hypertension diarrhea/ scabies /wounds
<i>Psidium guajava</i> L. (Myrtaceae)	bayabas, bayabo(Y), guava	decoction/ poultice	L, fr	Anti-helminthic kidney stones
<i>Quisqualis indica</i> L. (Combretaceae)	niyog-niyogan	eat raw seeds	sd	
<i>Zea maize</i> L. (Poaceae)	mangi (Y), mais ginger,	decoction	h	
<i>Zingiber officinale</i> Roscoe. (Zingiberaceae)	luya, laya(Y)	pounded/ decoction	rh	sore throat/ rheumatism
Animals				
<i>Apis mellifera</i> (Insecta)	Bees, pisokan (Y)	get stinged	st	stronger immunity For wounds, scabies
<i>Charina bottae</i> (Reptilia)	Snake, iraw, vurilang (Y)	cooked	m	
<i>Coura amboinensis</i> (Reptilia)	Turtle, dagga (Y)	Cooked	m	asthma
<i>Felis domesticus</i> (Mammalia)	Cat, kitaw (Y)	cooked	m	anemia Scabies /infection
<i>Hirudo medicinalis</i> (Annelida)	Leech, linta (Y)		sk	
<i>Ptenichirus jagori</i> (Mammalia)	Musky fruit bat, paniki (Y)	Cooked Burned or toasted meat	m a	Asthma, relapse Asthma
<i>Varanus domesticus</i> (Reptilia)	House lizard, alapa (Y)			

LEGEND: Parts use: rh- rhizome, l- leaves, fr- fruits, fl-flowers wp-whole plant, st-stem, ys-young stem, sd-seeds/ p-pods, Y-Ybanag, www.ipni.org.

Conclusion

The strong adherence of Ybanag to their un-codified folk system of knowledge is at great risk if acculturation continuously comes in.

Closely related species of either an animal or plant were used in almost all walks of life among the members of this group.

Greater expectations from government and non-government project implementers for them to extend assistance, from - cultivation to harvesting; processing and marketing to provide safe, beneficial remedies to human needs, specifically in the field of Ethnomedicine.

Recommendations

More studies are suggested to validate the claims specifically on the: Nutriceutical capability/ efficacy of exotic wild food, Pharmacological efficacy of alternative medicinal resources, Equal benefits shared-indigenous or native people to preserve and promote environmental sustainability and stability of indigenous/native cultures, More Community- based projects could be implemented for everyone to participate. New proposals for conservation, management of biological resources and protection of IP's indigenous knowledge system can be employed.

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