

# Phytochemical Screening of Selected Indigenous Medicinal Plants of Tublay, Benguet Province, Cordillera Administrative Region, Philippines

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**Abstract-** Various indigenous medicinal plants of Tublay, Benguet Province, Cordillera Administrative Region in the Philippines were subjected to phytochemical screening to determine the presence of natural products (secondary metabolites) i.e., alkaloids, steroids, anthraquinones, flavonoids, saponins, tannins and polyphenols, and cyanogenic glycosides which may be responsible for their therapeutic effects as claimed by the indigenous people. Extracts of fourteen (14) medicinal plants were utilized employing the standard screening method (Guevarra, et al, 2005) for the detection of secondary metabolites. This study was conceived in order to help in the advocacy of medical practitioners and the DOH Tublay in their health enhancement program. The preliminary phytochemical analysis of the 14 ethnomedicinal plants from Tublay, Benguet was done.

Qualitative phytochemical analysis of these plants confirms the presence of various phytochemicals like alkaloids, flavonoids, tannins, terpenoids, saponins, steroid, and glycosides in their methanolic leaf extracts. The present study dealt with highlighting of the phytochemicals with respect to the role of these plants in traditional medicinal system.

**Index Terms-** medicinal plants; phytochemicals; ethnobotany

## I. INTRODUCTION

Tropical countries, like the Philippines, are abundant in natural and medicinal plants. Medicinal plants are now more focused than ever because they have the capability of producing many benefits to society indeed to mankind, especially in the line of medicine and pharmacology. The medicinal power of these plants lies in phytochemical constituents that cause definite pharmacological actions on the human body (Akinmoladun et al, 2007). Phytochemical, natural compound occur in plants such as medicinal plants, vegetables and fruits that work with nutrients and fibers to act against diseases or more specifically to protect against diseases. The phytochemicals are grouped into two main categories (Krishnaiah et al, 2009) namely primary constituents which includes amino acids, common sugars, proteins and chlorophyll etc., and secondary constituents consisting of alkaloids, essential oils, flavonoids, tannins, terpenoids, saponins, phenolic compounds and others. (Krishnaiah et al, 2007; Edeoga et al, 2005). Majority of phytochemicals have been known to bear valuable therapeutic activities such as insecticidals (Kambu et al, 1982), antibacterial, antifungal (Lemos et al, 1990), anticonstipative (Ferdous et al, 1992), spasmolytic (Sontos et al,

1998), antiplasmodic (Benoitvical et al, 2001) and antioxidant (Vardar-unlu et al, 2003) activities. The plants thus find their medicinal value due to respective phytochemical constituents they contain. Many important plants and use extensively in pharmaceutical formulations and are also use by local practitioners for variety of human diseases. Hence the aim of this study was to determine qualitatively the phytochemical constituents to ascertain their uses in traditional medicine and this will serve as baseline information for the ex- situ and in situ conservation of these plants if information on these plants are documented.

Recently the Department of Health (DOH) of the Philippines had increased their attention on the advocacy on the usage of medicinal herbs. The agency would like to heighten the knowledge and familiarity of the population on the plants, plant parts, and the medicinal uses of the plants. One of the advocacies of DOH in Tublay is to increase the familiarization of the use of medicinal plants available in the municipality.

With the constant upsurge of the cost of synthetic medicine, readers should be equipped with the knowledge on alternative medicines for various ailments. This alternative remedy is in the form of using plants which are readily available in our surroundings or simply in our backyards. Therefore, the researchers today are emphasizing on evaluation and characterization of various plants and plant constituents against a number of diseases based on their traditional claims of the plants given by local residents. Extraction of the bioactive plant constituents has always been a challenging task for the researchers. In this present research, an attempt has been made to qualitatively analyze the phytochemical components of the selected medicinal plants commonly used by old folks of Tublay.

The study was conducted to identify the secondary metabolites found in these medicinal plants using standard protocols for qualitative phytochemical screening.

Specifically, this study aims to find out the link between the secondary metabolites found in the plants vis-à-vis the ethnobotanical uses, increase public awareness of these medicinal plants so that residents will be encouraged to do in situ and ex situ conservation of these plants. Furthermore, this phytochemical screening, a sequel of the survey and listing of the medicinal plants of Tublay, Benguet, was conducted to find out if the plants being used as medicines have the secondary metabolite associated with their use based on the previous literature.

In this study, the locally identified medicinal plants based on the ethnobotanical study were analyzed for their phytochemical composition and their antibacterial property against common clinical pathogens was also evaluated. This baseline information will provide the basis for developing potential drugs from these plants.

**Table 1. Ethnobotanical survey of selected medicinal plants of Tublay, Benguet Province.**

HEALTH PROBLEM	MEDICINAL PLANT	PLANT PART/S USED	PREPARATION
Bladder inflammation	Banaba	Leaves	The leaves are boiled in water
Common colds	Sambong	Leaves	Decoction and infusion of the leaves
	Lantana	Leaves	Infusion of the leaves
Constipation	Akapulko	Leaves	The leaves are boiled in water for 15 minutes to make a decoction.
		Seeds	The seeds are boiled in water
	Banaba	Bark, flowers, Leaves	The bark, flowers, or leaves are boiled in water
	Hagonoi	Flowers	Decoction
	Peday	Bark /leaves	Bark/leaves are boiled in water
Cough	Dolonitas	Herb tops	The herb tops are soaked in water to make an infusion
	Sambong	Leaves	Decoction of leaves
Cystitis	Banaba	Leaves, flowers	The leaves or the flowers are boiled in water
Diabetes	Banaba	Leaves, dried fruit	The leaves or the dried fruit are boiled in water
Diarrhea	Banaba	Bark	The bark is boiled in water
	Makahiya	Roots	Decoction of leaves
		Dried plant	Decoction
			Boiled 30g of dried plant in a pint of water
	Peday	Fresh leaves	Boil the fresh leaves
		Bark	300mL of water is added to 15grams of dried bark Decoction of the young leaves
Difficulty of urination	Banaba	Leaves and flowers	Leaves are boiled in water

Dysentery	Peday	Bark	300mL of water is added to 15grams of dried bark
Fungal infection	Akapulko	Leaves	The leaves are crushed to extract the juice
Herpes	Akapulko	Leaves	Extract the juice from the leaves
Itchiness	Bengaw	Rhizome	Poultice from rhizome
Kidney trouble	Banaba	Leaves	Decoction of the leaves
	Sambong	Leaves	Decoction of leaves
Malaria	Peday	Bark	300mL of water is added to 15grams of dried bark
Mouth sores	Banaba	Flowers	Extract milky sap from the flowers
Mumps	Makahiya	Leaves	Prepare a from crushed leaves
Rheumatism	Hagonoi	Leaves	Decoction of the leaves
	Bengaw	Rhizome vine or rhizome	Pound and roast cook 50g of the vine with rhizome of 3oz of coconut oil
Ringworm	Akapulko	Leaves	The leaves are crushed to extract juice
Scabies	Hagonoi	Leaves	Decoction of the leaves
	Bengaw	Leaves/ rhizome	Pound any part of the plant
Sinusitis	Makahiya	Fresh leaves	Extract juice of the leaves
Stomach ailment	Banaba	Roots	The roots are boiled in water
	Agonoi	Roots and leaves	Decoction
	Bengaw	Leaves	The juice are extracted from leaves
	Sambong	Leaves	Boil 50 g of leaves in a pint of water
Stomatitis	Banaba	Fruit or roots	The fruit or the roots are boiled in water
Toothache	Lubigan/ dalaw	Leaves	Extract juice of the leaves

Urinary tract infection	Banaba Peday	Leaves trunk bark	Boil leaves in water Decoction of bark or trunk
Worm infestation	Akapulko  Banaba  Pinya	Dried seeds  leaves  Dried seeds  Leaves  Fruit	Dries seeds of are cooked in frying pan w/out oil they are pulverized and mixed w/ 1 cup of milk or water The leaves are boiled in water 1 cup pulverized dried seeds mixed with 1 cup of milk or water  Decoction of leaves is antihelminthic  ripe

## II. MATERIALS AND METHODS

### Collection and identification of plant materials

Healthy plant samples were collected from the mountain areas of Tublay, Benguet Province, Cordillera Administrative Region, Philippines between October to November 2011. The handbook on Medicinal Plants: A Guide to Alternative Medicines of Tublay, Benguet, a listing of medicinal plants found in the Municipality of Tublay was the basis of selecting the plants used in the phytochemical screening.

### Preparation of plant extracts

The leaves were air dried and crushed into small pieces using Mortar and Pestle and pulverized using an electric osterizer. Twenty grams of each of the pulverized plant materials were mixed with 100ml of solvent (methanol). The preparation of extracts was done as previously described by Guevara, et al (2005). The plant extracts were prepared and stored in a vial for further experimental procedures.

The plant roots were washed thoroughly with tap water and dried at room temperature for 20 days. The 40g of the powdered air-dried root sample was percolated in 100ml each of methanol for 7 days. The extract was filtered using a Whatman No. 1 filter paper. The organic solvent filtrates were concentrated in a water bath below 50°C.

### Qualitative analysis for phytochemical components

Collected plant samples that were identified to have medicinal properties were subjected to phytochemical screening. Five hundred milligrams of the dried methanolic extract was reconstituted in 10ml of methanol and it was subjected to preliminary phytochemical testing for the presence of different chemicals groups of compounds using standard methods.

All plant parts were extracted on the day of collection. The screening procedures were adapted from Guevara (2005). An extraction of each plant was prepared by macerating a known weight of the fresh plant material in an electric blender. Each extract was suction-filtered and the process repeated until all soluble compounds had been extracted, as judged by loss of colour of the filtrate. Extract from each plant part was evaporated to dryness in *vacuo* at about 45°C and further dried to a constant weight at the same temperature in a hot-air oven. A portion of the residue was used to test for plant constituents.

The test for alkaloids was carried out by subjecting 20g plant material in 5 ml 2M HCl, heated, filtered and 2 to 3 drops Dragendorff's reagent was added. In the test for steroids, Keller-Killiani (plant extract was added to acetic anhydrate plus H<sub>2</sub>SO<sub>4</sub>) and the Libermann-Burchard tests were employed by adding 3ml of FeCl<sub>3</sub> and 10 ml dichloromethane to portions of defatted plant material respectively. The presence of anthraquinones was also tested employing both the Borntrager's and Modified Borntrager's tests (5 grams of extract was added to 10 ml

benzene, filtered and ammonia solution added). The presence of flavonoids was determined employing Bate-Smith and Metcalf method and Wilstatter “cyanidin” test (1% aluminium chloride solution in methanol concentrated HCl, magnesium turnings, and potassium hydroxide solution).

The extract was subjected to Froth test for the identification of saponin. Liebermann-Burchard test for unsaturated sterols. The tests for tannins and polyphenols were carried out by subjecting the plant extracts in Gelatin test and Ferric chloride test. Cyanogenic glycosides were identified by subjecting 2g extract in 10 ml sterile water with few drops of chloroform, and were filtered. Sodium picrate paper (modified) was added to the filtrate and heated to boiling.

### III. RESULTS AND DISCUSSION

Table 2 presents the results of the phytochemical screening of the methanolic extracts of the six medicinal plants. In the preliminary test (test for primary metabolites), proteins, carbohydrates, glycosides and tannins were detected in all plant extracts. All the plant extracts were found to have alkaloids except for ..... Steroids were also detected in all plant samples. It was only in *Acorus and Ananas* extracts that anthraquinones were observed. Flavonoids were present in all extracts except in *Ananas* extracts which were absent in *C. cainito*, and *A. heterophyllus*. Saponins were also detected in all plant extracts. Notably, tannins were present in all extracts except in *Peday*. Cyanogenic glycosides were not detected in all plant extracts tested.

**Table 2: Phytochemical screening of secondary metabolites of plant extracts.**

Plant Species	Alkaloids Dragendorff's test and its confirmatory tests	Unsaturated Steroid (Liebermann- Burchard test)	2- deoxysugars Keller- (Killiani test)	Anthraquinone (Bontrager's test)	Flavonoids ( Bate-Smith &Metcalf test)	Wilstatter Cyaniding test	Tannins/ Polyphenols (Gelatin and FeCl <sub>3</sub> )
<i>Acorus gramineus</i> (Bengaw)	+	+	+	+	+	+	+
<i>Ananas comosus</i> (Pinya)	-	+	+	+	-	+	+
<i>Andropogon citratius</i> (Lemon grass)	++	+	+	-	+	+	+
<i>Annona muricata</i> (Guyabano)	++	+	+	-	+	+	+
<i>Blumea balsamifera</i> (Subusob)	+	+	+	-	+	+	+
<i>Cassia alata</i> (Akapulko)		+	+	+	+	+	
<i>Centella asiatica</i> (Takip-kuhol)	+	+	+	+	+	+	+
<i>Echites scholaris</i> (Peday)	+	+	+	-	+	+	-
<i>Equisetum ramosissimum</i> (Horse tail)	++	+	+	-	+	+	+
<i>Lagerstroemia speciosa</i> (Banaba)	+	+	+	-	++	+	+

Lantana camara, (Bangbangsit)	+	+	+	+	+	+	++
<i>Solanum nigrum</i> (Amti)	++	+	-	-	+	+	+
<i>Sanseveria trifasciata</i> (Espada)	+	+	-	-	++	+	+
<i>Wedelia biflora</i> (Hagonoi)	+	+	-	-	+	+	+

“+” indicative of presence of the phytochemical; “-“ indicates absence of phytochemical; ++ means abundant; + denotes average.

**Table 3. Chemical basis**

Tests	Reagents	Positive result	Principle involved
Flavonoids 1. Bate-Smith and Metcalf method 2. Wilstatter “cyanidin test”	Conc. HCl Conc. HCl & Mg turnings	Strong red/ violet color Orange to red, crimson & magenta, green/blue	-Presence of leucoanthocyanin -Reduction of magnesium metal -also used to detect gamma-benzopyrone nucleus
Steroids 1. Keller-Killani test 2. Lieberman Burchard	FeCl <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> DCM, Na <sub>2</sub> SO <sub>4</sub> , acetic anhydride, H <sub>2</sub> SO <sub>4</sub>	Reddish brown Blue to green, red, pink, purple, violet	Presence of 2-deoxysugar Detect cholesterol/ unsaturated steroids -oxidation reaction of acetic anhydride on conc, sulfuric acid
Alkaloids 1. Dragendorff’s	Dragendorff’s rgt.	Orange ppt.	Halogenation followed by complex reaction
Saponin test 1. Froth test	H <sub>2</sub> O, gogo	Honeycomb froth	Yield soap-like foaming when agitated in aqueous sol’ns.
Anthraquinone test 1. Borntrager’s test 2. Modified Borntrager’s test	Benzene, ammonia sol’n. KCl, 5% hydrogen peroxide, acetic acid, benzene	Red coloration Pink color	Microsublimation of yellow crystals of anthraquinones react with KOH

Tannins			
1. Gelatin test	Gelatin, dist. H <sub>2</sub> O, NaCl	Formation of jelly ppt	Tannins have a property to precipitate gelatin & heavy metals Phenols form a complex with Fe (III), which is intensely colored.
2. FeCl <sub>3</sub> test	FeCl <sub>3</sub>	Blue –black (hydrolysable) Brownish-green (condensed/ nonhydrolysable)	

**Table 3. Secondary Metabolites present in each plant and medicinal properties vis-à-vis the ethnobotanical uses**

Plant Species	Phytochemical substances present and medicinal properties of the Bioactive compounds based on literature	Ethnobotanical uses
<p><i>Family Acoraceae</i> SN: <i>Acorus gramineus</i> CN: <i>Bengaw</i></p>	<ul style="list-style-type: none"> <li>•Steroids/ 2-deoxysugars are antimicrobial and antidiarrhoeal</li> <li>•Anthraquinones are antimicrobial</li> <li>•Flavonoids are antidiarrheal and antibacteria,</li> <li>•tannins and polyphenyls are antimicrobial antidiarrheal and antihelminthic</li> <li>•Alkaloids are antimicrobial , antidiarrheal and anthelmintic</li> </ul>	<p>The embrocation of the vine or rhizome is beneficial in for rheumatic arthritis, lumbago, and leg pains. The rhizome is chewed to relieve toothache. The crushed rhizome is employed as an insecticide and insectifuge.</p> <p>The poultice of the plant is applied locally for inflammation and scabies.</p> <p>The decoction of the dried plant is taken orally for the management of GIT disorders such as dyspepsia, gastritis, indigestion, diarrhea, and of asthma.</p>
<p>Family: Graminae SN: <i>Andropogon citratus</i> , linn DC CN: Lemon Grass</p>	<ul style="list-style-type: none"> <li>•Steroids/ 2-deoxysugars are antimicrobial and antidiarrhoeal</li> <li>•Anthraquinones are antimicrobial</li> <li>•Flavonoids are antidiarrheal and antibacteria,</li> <li>•tannins and polyphenyls are antimicrobial antidiarrheal and antihelminthic</li> <li>•Alkaloids are antimicrobial , antidiarrheal and anthelmintic</li> </ul>	<p>An herbal medicine for stomachache for children. The oil, mixed with equal amounts of coconut oil, is used as a liniment for back pains, rheumatic complains, neuralgia, sprains and other painful afflictions. Decoction of leaves used as stomachic, diuretic, and refrigerant. In folk medicine, used to lower blood pressure and as anti-inflammatory..</p> <p>It can used as sedative, for gastrointestinal maladies, and as febrifuge. It can be used as a potion after childbirth. In various folk medicinal use: oil used for cough, cold, rheumatism, back pain, bladder problems.</p>

<p><i>Family Bromeliaceae</i>                  CN: <i>Ananas comosus</i>                  Linn.                  CN: pinya</p>	<ul style="list-style-type: none"> <li>•Steroids/ 2-deoxysugars are antimicrobial and antidiarrhoeal</li> <li>•Anthraquinones are antimicrobial</li> <li>•Flavonoids are antidiarrheal and antibacteria,</li> <li>•tannins and polyphenyls are antimicrobial antidiarrheal and antihelminthic</li> <li>•Alkaloids are antimicrobial , antidiarrheal and anthelmintic</li> </ul>	<p>The juice of the leaves and the ripe fruit possess antihelminthic properties. The juice of the ripe fruit is used as a diuretic and a mild laxative. It is also facilitates digestion. The decoction of the fresh young leaves is used to eradicate intestinal parasites.</p>
<p><i>Family Annonaceae</i>                  SN: <i>Annona muricata</i>                  Linn                  CN: <i>guyabano</i></p>	<p>Steroids, 2-deoxysugars, Flavonoids, tannins and polyphenyls Alkaloid</p> <ul style="list-style-type: none"> <li>•Steroids/ 2-deoxysugars are antimicrobial and antidiarrhoeal</li> <li>•Flavonoids are antidiarrheal and antibacteria,</li> <li>•tannins and polyphenyls are antimicrobial antidiarrheal and antihelminthic</li> <li>•Alkaloids are antimicrobial , antidiarrheal and anthelmintic</li> </ul>	<p>The decoction of the leaves is taken in as tea which is believed to prevent cancer</p>
<p><i>Family</i>                  SN: <i>Cassia alata</i> Linn                  CN: Akapulko</p>	<ul style="list-style-type: none"> <li>•Steroids/ 2-deoxysugars are antimicrobial and antidiarrhoeal</li> <li>•Anthraquinones are antimicrobial</li> <li>•Flavonoids are antidiarrheal and antibacteria,</li> <li>•tannins and polyphenyls are antimicrobial antidiarrheal and antihelminthic</li> <li>•Alkaloids are antimicrobial , antidiarrheal and anthelmintic</li> </ul>	<p>The plant possesses anti-herpetic and anti-fungal properties. The fresh leaves are crushed and the juice is applied locally on the affected area to treat infections.</p> <p>The decoction of the leaves is employed as a laxative. On the other hand, the leaves possess active principles with vermifuge properties.</p>
<p><i>Famuly</i>                  SN: <i>Centella asiatica</i>                  Linn                  CN: Takip- Kuhol.</p>	<ul style="list-style-type: none"> <li>•Steroids/ 2-deoxysugars are antimicrobial and antidiarrheal</li> <li>•Anthraquinones are antimicrobial</li> <li>•Flavonoids are antidiarrheal and antibacteria,</li> <li>•tannins and polyphenyls are antimicrobial antidiarrheal and antihelminthic</li> <li>•Alkaloids are antimicrobial ,</li> </ul>	<p>The plant can be useful in the treatment of skin diseases and chronic ulcers, elephantiasis of the scrotum or legs, and inflammation. The decoction of the leaves is used as a hot compress or as a foot bath in the treatment of eczema, Subsequently , the chopped leaves are applied locally as a poultice and are left overnight on the affected area.</p> <p>The decoction of the plant is used for the infection such as tonsillitis, pharyngitis , measles, dysentery, colds bronchitis and hepatitis. It is employed in the management of diarrhea,</p>

	antidiarrheal and anthelmintic	hypertension and purulent inflammations. Likewise, the decoction is used as a diuretic and for urinary tract infection.
<p><i>Family</i>  <i>SN: Equisetum ramosissimum</i>  <i>CN: Puted-puted</i></p>	<ul style="list-style-type: none"> <li>•Steroids/ 2-deoxysugars are antimicrobial and antidiarrhoeal</li> <li>•Anthraquinones are antimicrobial</li> <li>•Flavonoids are antidiarrheal and antibacterial,</li> <li>•tannins and polyphenyls are antimicrobial antidiarrheal and antihelminthic</li> <li>•Alkaloids are antimicrobial , antidiarrheal and anthelmintic</li> </ul>	<p>Locals use the decoction of the fresh leaves is taken orally to manage difficulty in urination and other manifestations of kidney trouble. The decoction of the leaves and roots is employed to relieve “ pasma”</p>
<p><i>Family</i>  <i>SN: Blumea balsamifera (Linn.)</i>  <i>CN: Subusob</i></p>	<ul style="list-style-type: none"> <li>•Steroids/ 2-deoxysugars are antimicrobial and antidiarrhoeal</li> <li>•Flavonoids are antidiarrheal and antibacteria,</li> <li>•tannins and polyphenyls are antimicrobial antidiarrheal and antihelminthic</li> <li>•Alkaloids are antimicrobial , antidiarrheal and anthelmintic</li> </ul>	<p>The decoction of the leaves is employed as an aromatic bath for those recuperating from sickness, those who just gave birth, and those who are suffering from rheumatism. The poultice of the leaves is used for abscesses.</p> <p>The decoction of the roots and leaves are employed for fever and cystitis. The infusion or decoction of the leaves is administered to relieve colds and to facilitate expectoration of phlegm. Similarly, it is beneficial for spasms and diarrhea.</p> <p>The infusion of the leaves is administered orally to induce perspiration which is significant in the management of catarrhal bronchitis. The plant is used in the preparation of an antiseptic lotion which is beneficial for varicose ulcers. The decoction of the leaves is used for kidney trouble as manifested by painful and scanty urination. Also, it is employed for relieving cough.</p>
<p><i>Family</i>  <i>SN: Echites scholaris</i>  <i>Linn.</i>  <i>CN: Peday, Taday</i></p>	<ul style="list-style-type: none"> <li>•Steroids/ 2-deoxysugars are antimicrobial and antidiarrhoeal</li> <li>•Flavonoids are antidiarrheal and antibacteria,</li> <li>•tannins and polyphenyls are antimicrobial antidiarrheal and antihelminthic</li> <li>•Alkaloids are antimicrobial , antidiarrheal and anthelmintic</li> </ul>	<p>Trunk bark possesses astringent and anthelmintic properties. It has also been used in the treatment of diarrhea and dysentery and in several cases of malarial fever. It exhibits both tonic and restorative action.</p> <p>The decoction of the trunk bark is commonly employed as a urinary antiseptic in the treatment of UTI and as an antimalarial agent in the management of malaria. The locals also employ it in the management of diarrhea. Some locals also administer the decoction of the bark to newborns who cannot defecate.</p>

<p>Family                  CN:Lagerstroemia speciosa Linn.                  CN: Banaba</p>	<ul style="list-style-type: none"> <li>•Steroids/ 2-deoxysugars are antimicrobial and antidiarrhoeal</li> <li>•tannins and polyphenyls are antimicrobial antidiarrheal and antihelminthic</li> <li>•Alkaloids are antimicrobial , antidiarrheal and anthelmintic</li> </ul>	<p>The roots are beneficial remedy for several stomach ailments. The decoction of the leaves is employed for diabetes. Likewise, it is administered orally for its diuretic and purgative effects. The decoction of the old leaves and dried fruit is useful for diabetes. The old leaves and the ripe fruit are preferred due to its greater glucose-lowering effect. The same effect is seen in the young leaves and flowers. On the other hand, no glucose-lowering effect is observed from the wood although a very minute effect is seen on the bark. A decoction made from 20 g of the dried old leaves or dried fruit in 100 mL of water is established to exert an effect equivalent to that of 6 to 7.7 units of insulin. The decoction of the bark is taken orally to treat diarrhea. The decoction of the fruits or roots is used as a mouthwash for stomatitis. The decoction of the leaves and flowers is used to induce urination. The decoction or infusion of the leaves is employed for bladder and kidney inflammation, dysuria, and other urinary dysfunctions. The bark, flowers, and leaves are employed to promote bowel movements. The locals apply the milky sap of the flower on the affected area to relieve mouth sores. The decoction of the leaves is employed to treat urinary tract infection.</p>
<p>Family                  SN:Lantana camara Linn                  CN: Bangbangsit/lantana</p>	<ul style="list-style-type: none"> <li>•Steroids/ 2-deoxysugars are antimicrobial and antidiarrhoeal</li> <li>•Anthraquinones are antimicrobial</li> <li>•Flavonoids are antidiarrheal and antibacteria,</li> <li>•tannins and polyphenyls are antimicrobial antidiarrheal and antihelminthic</li> <li>•Alkaloids are antimicrobial , antidiarrheal and anthelmintic</li> </ul>	<p>The aromatic infusion of the leaves and flowering tops are commonly employed to reduce fever and induce perspiration or sweating. The tincture of bark is utilized as a tonic. The decoction of the fresh roots is administered as a mouthwash to relieve toothache. Also, the decoction of the leaves and the fruits is employed to bathe wounds, cuts, ulcers, eczema, and other skin diseases. The concentrated decoction of the leaves is orally administered for the treatment of snakebites as the poultice of the leaves is directly applied to the wound. The pounded leaves are employed to relieve swellings while the liniment or oil extract is used for rheumatism.</p>

<p>Family SN: Solanum nigrum Linn. CN: Amti</p>	<ul style="list-style-type: none"> <li>• Steroids/ 2-deoxysugars are antimicrobial and antidiarrhoeal</li> <li>• Anthraquinones are antimicrobial</li> <li>• Flavonoids are antidiarrheal and antibacteria,</li> <li>• tannins and polyphenyls are antimicrobial antidiarrheal and anthelmintic</li> <li>• Alkaloids are antimicrobial , antidiarrhoeal and anthelmintic</li> </ul>	<p>The decoction of the dried or fresh plant is employed in the treatment of difficulty in urination, lymphatic obstruction, leucorrhea, eczema and furuncle infections, skin eczema, cold and fever, throat pain, and cough.</p> <p>The decoction of the leaves or the poultice of the plant is administered locally for the relief of skin ulcers, wounds, and irritations. The decoction of the fresh leaves is employed as an antibiotic in the management of various infections.</p>
<p>Family Dracaeneae SN: Sanseveria trifasciata CN: Espada, Mother's in law tongue</p>	<ul style="list-style-type: none"> <li>• Steroids/ 2-deoxysugars are antimicrobial and antidiarrhoeal</li> <li>• Flavonoids are antidiarrheal and antibacteria,</li> <li>• tannins and polyphenyls are antimicrobial antidiarrheal and anthelmintic</li> <li>• Alkaloids are antimicrobial , antidiarrheal and anthelmintic</li> </ul>	<p>Poultice can be employed in wounds</p>
<p>Family Asteraceae SN: Wedelia biflora Linn. CN: hagonoi</p>	<ul style="list-style-type: none"> <li>• Steroids/ 2-deoxysugars are antimicrobial and antidiarrhoeal</li> <li>• Anthraquinones are antimicrobial</li> <li>• Flavonoids are antidiarrheal and antibacteria,</li> <li>• tannins and polyphenyls are antimicrobial antidiarrheal and anthelmintic</li> <li>• Alkaloids are antimicrobial , antidiarrheal and anthelmintic</li> </ul>	<p>Poultice is applied to wounds</p> <p>Decoction is used is also used to bathe dogs with skin diseases</p>

#### IV. CONCLUSION

In this study, although there are variations in the chemical constituents, the six medicinal plants tested are potential antimicrobial agents. Characterization and isolation of the active chemical components possessed by these traditional plants for further study may lead to the development of a potential drug that may treat various kinds of infections and may lead to full utilization by the local community. The results of this study may

also be of commercial interest to research institutes and pharmaceutical industries in the development of new drugs.

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