

# Phytochemical Screening And Antifungal Test Of Kabling Parang (*Anisomeles Indica* Linn.)

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**Abstract:** Plants are our green leafy friends. They provide us foods as well as the most important gas we use in our respiration. It also gave us the raw materials for industry. They are important components of the substance we use today like drugs, cosmetics, pesticides and beverages. Industrialization and modernization makes our lives easy. The phytochemical screening and antifungal test of Kabling parang plant was conducted to developed new plants that obtain important biochemical components. The project aim to discover the phytochemical and antifungal properties of Kabling parang plant. Fresh Kabling-Parang leaves was gathered and washed for pounding. Extract was prepared to evaluate the phytochemistry of Kabling parang plant. Phytochemical screening revealed that it contains glycoside and condense tannin. However alkaloid, anthraquinones, flavonoids and saponin were absent. Antifungal test results that the plant yields triterpenoids, anisomelic acid, ovatodiolide, 4,7-oxycycloanisomelic acid, iso-ovatodiolide,  $\beta$ -sitosterol, stigmasterol, flavones, apigenin and an essential oil. This result show that Kabling parang plant has a potential component for insect repellent and significant properties for controlling fungi cause by *Tinea pedis* like ringworm of the feet and nails also known as "athlete's foot". This study was also conducted to determine the potential of Kabling-Parang extract as a natural insect repellent and to endorse the use of organics, instead of chemicals which are present in commercially available insect repellent. Therefore, results show that *Anisomeles indica* Linn. extract is a safe and an effective agent against insect specifically the *Aedes aegypti* the main vector of dengue in the Philippines.

## INTRODUCTION

Plants play a vital role in human being. They are multicellular organisms adapted for life on land. Plants do not move about as animals do, but they can be found almost everywhere on the earth. Study show that plant can be a source of important chemical necessary for medicines. Kabling parang plant obtained organic chemical which can prevent mosquitoes.

Mosquitoes are carriers of disease like dengue, malaria and filariasis, which if not given immediate attention might lead to death. In the Philippines, there is a rising disease cases caused by mosquitoes.

An insect repellent is a substance applied to skin, clothing or other surfaces which discourages insect from landing or climbing on that surface. There is also an insect repellent based on sound production, particularly ultrasound. These electronic devices have been shown to have no effect as a mosquito repellent according to the by studies done by EPA and many universities. Insect repellents help prevent and control the outbreak of insect-borne diseases such as malaria and dengue. Since commercial mosquito repellents very expensive control for the dengue problem, the uses of plant extract with 75% Kabling-Parang 25 % and ethyl alcohol has a high value in controlling the dengue problem of our country without harmful effects in target organisms.

Dengue is a highly communicable disease transmitted by the bite of *Aedes aegypti* mosquito affecting infants, children and adults. Insect repellent using the Kabling-Parang extract has an essential characteristic to control the spread out of mosquito causing diseases.

Kabling-Parang is a plant obtained at Akle San Idefonso Bulacan. Extraction was done at Calawitan High School Laboratory. This plant might have important role to the farmer who knows the capability of this plant not only for the insects but also for disinfecting to common skin diseases among humans. In our country study show that it can be used for treating gastric catarrh and intermittent fevers.

The potential of the Kabling-Parang extract as natural repellent products is applicable to humans since botanical repellent is safe to apply, unique in action and can be processed easily. They are also more environment friendly than synthetic and commercially available products.

## Objectives

Specifically the study aims to:

1. To determine the possible chemical components of Kabling - Parang extract
2. To determine the most effective concentration of *Anisomeles indica* Linn. compared to

commercial repellent

3. To determine possible uses of Kabling parang plant leaves in industrial processes based on the abundance of phytochemicals as revealed by the phytochemical screening.

Timeless, relevance, being eco –friendly ... these are the very reasons why the study was conducted by the researchers.

Health is wealth. It is our primary investment in living. If the society experiences sickness anytime, they used to think that gaining proper cure is by always expending our money for hospital fees, prescribed medicines and many more .The significance is just how one utilizes the cheap, natural abundance of nature, and its advantages as an alternative remedy. This study was conducted to test the significance of Kabling- Parang extract as a substitute to the best- selling insect repellents in the market. The study on testing the potential of Kabling -Parang extract as a natural insect repellent was conducted for the students as well as for the community.

Phytochemical screening was test by the Department of Science and Technology Region III at San Fernando Pampanga. The screening was done only to determine qualitatively the presence of each phytochemical component as absent, with traced amount, slightly detectable or strongly present.

#### Definition of Terms

##### A. Kabling Parang



*Anisomeles indica* Linn. is an erect, branched, more or less hairy annual herb; 1 to 2 meters in height. Stems are 4-angled, pubescent. Leaves are thin, ovate 3 to 12 centimeters long; long-stalked and pointed at the tip with round-toothed margins. Leaves have a strong aromatic scent when crushed. Flowers are numerous, crowded and almost stalkless and occur in spikelike racemes 5 to 25 centimeters long and 2 to 3 centimeters in diameter. Calyx is about 6 millimeters long, hairy and pointed-toothed; the tube long and bell-shaped. Corolla purplish, 10 to 12 centimeters long, strongly zygomorphic, the upper lip being oblong-ovate and the lower lip have two middle lobes. It distribute in waste places and along borders of thickets, in settled areas at low and medium altitudes, in most or all islands and provinces throughout the Philippines. It contains a volatile oil and a bitter alkaloid. Plant yields triterpenoids, anisomelic acid, ovatodiolide, 4,7-oxycycloanisomelic acid, iso-ovatodiolide,  $\beta$ -sitosterol, stigmasterol, flavones, apigenin and an essential oil. Essential oils are  $\alpha$ -pinene,  $\beta$ -pinene, d-limonene, methyl chavicol, d-alpha thujene, citral, borneol, 1,8 cineole,  $\alpha$ -terpineol, eugenol, azulene, and caryophyllene. The properties of this plant is minty-bitter tasting, antirheumatic, anti-inflammatory, antipyretic, antiphlogistic, analgesic. Considered carminative, stomachic, diaphoretic, and astringent. Entire plants can be utilized. The uses of this plant in the Philippines; Decoction of leaves used as antirheumatic and stomachic. Decoction of dried or fresh material used as a wash for external afflictions, eczema, pruritus skin problems. Leaves chewed for toothache. It also used for snake bites.

- B. Repellent-** Capable of driving off or repelling is a substance used to drive off or keep away insects. It can also be a substance or treatment for making a fabric or surface impervious or resistant to something else.
- C. Dengue-** Transmitted by the mosquitoes *Aedes aegypti*, and *Ae. Albopictus*, dengue infections are caused by four serologically-related flaviviruses namely DEN- 1, 2, 3 and 4. It has been globally pandemic soon after the World War II and has been increasing dramatically its incidence together with its severe forms such as dengue haemorrhagic fever and dengue shock syndrome.
- D. *Aedes aegypti*** -the principal vector of dengue in the Philippines, is a small, black and White, highly domesticated mosquito with white scales on dorsal side of the thorax. It prefers to lay its eggs in artificial water containers commonly found in urban

areas. The adult mosquitoes are rarely noticed, preferring to rest indoors in baths and kitchen occasionally in the outside, in garden vegetation or around the house. They feed on humans during daylight hours in an outside and often undetected way.

**E. Ethyl alcohol-** also called **ethanol, grain alcohol, or alcohol**

a member of a class of organic compounds that are given the general name alcohols; its molecular formula is C<sub>2</sub>H<sub>5</sub>OH. Ethyl alcohol is an important industrial chemical; it is used as a solvent, in the synthesis of other organic chemicals, and as an additive to automotive gasoline (forming a mixture known as a gasohol). Ethyl alcohol is also the intoxicating ingredient of many alcoholic beverages such as beer, wine, and distilled spirits.

**F. Alkaloids** – highly reactive substances with biological activity in low doses and contains nitrogen. It is bitter tasting, generally white solids and give a precipitate with heavy metal iodides.

**G. Phytochemicals** – chemicals that are produced by plants. Currently, the term is being used only for those plant chemicals that may have health-related effects but are not considered essential nutrients.

**H. Phytochemical Screening** – process of tracing plant constituents. There is a standard procedure which is usually involving color changes as indicators.

**I. Glycoside** – any compound containing a carbohydrate molecule (sugar), particularly any such natural product in plants, convertible, by hydrolytic cleavage, into a sugar and a nonsugar component (aglycone), and named specifically for the sugar contained, as glucoside (glucose), pentoside (pentose), fructoside (fructose), etc. ○

**J. Tannin** – any of a group of pale-yellow to light-brown amorphous substances in the form of powder, flakes, or a spongy mass, widely distributed in plants and used chiefly in tanning leather dyeing fabric, making ink, and in various medical application

METHODOLOGY

A. MATERIALS

The materials used in the study are the following:

Materials	Apparatus
Kabling parang leaves	Blender
Ethyl alcohol	Strainer / piece of clean cloth
Tap water	Sprayer
	Empty Container
	Test tube

B. METHODS

1. Preparation of extract

Fresh kabling parang leaves were gathered and a bottle of ethyl alcohol was also prepared. Then the leaves were chopped into tiny bits so that the blender could easily grate it. When the leaves were already in small pieces 10 ml of water was added and blended again. The grated pieces were squeezed using a clean piece of cloth or strainer and extract was mixed with ethyl alcohol (based on prepared proportion ) then the mixture was ready for insect repellent by using a sprayer

2. Producing the mixture

The obtained essential solution from the extracted kabling parang were mixed with Ethyl alcohol with different concentration A )75% Kabling Parang extract 25% ethyl alcohol, (B) 50% Kabling Parang extract 50% ethyl alcohol ,(C.)25% Kabling Parang extract 75%

ethyl alcohol

3. Storing and preserving the product

Kabling Parang oil and ethyl alcohol were stirred together .The mixture was placed in three plastic bottles, and then placed in a small cold storage for it to be preserved for three plastic bottles, and then place in a small cold storage for it to be preserved for about 24 hours.

4. Testing of the final product

The product Kabling Parang extract as natural insect repellent was tested. This was spray on place after 24 hours of preservation

5. Conducting of survey

Score	Criteria of the sample scale
1	Needs improvement
2	Fair
3	Good
4	Very Good
5	Excellent

The survey was conducted and answered by respondents students from

Calawitan High School using the table above.

RESULTS AND DISCUSSION

A. Qualitative assessment of the finished product from the mixture of kabling parang extract

and ethyl alcohol

Table .4.1 Quality of insect repellent produced by kabling parang extract.

Trials	Characteristics	Odor	Viscosity
Trial 1 (Set up A) 75 ml of Kabling Parang extract 25ml of ethyl alcohol	Glossy on appearance	Mixed odor of kabling parang and ethyl alcohol	Less
Trial 2( Set up B) 50 ml of Kabling Parang extract 50 ml of ethyl alcohol	Watery appearance	Mixed odor of kabling parang and ethyl alcohol	Less
Trial 3( Set up C) 25 ml of Kabling Parang extract 75ml of ethyl alcohol	Light color	Less odor of kabling parang and more odor of ethyl alcohol	Mild

Table 4.1 shows the different results of the test on using the Kabling parang extract as a Natural Insect repellent. It is shown that the three trials made have different characteristics, odor, and viscosity .

## Discussion

To test the potential of Kabling Parang different amounts were measured and placed in three different bottle. The three trials that have been done were compared to one another. It shows that the natural insect repellent containing 75 ml of Kabling – Parang extract and 25 ml ethyl alcohol of has the greatest potential as insect repellent.. It has a stable odor of mixed ethyl alcohol and kabling parang extract, and is the best to use on the place where mosquitoes are located among the two remaining trials. It shows the comparison of the three trials with its different ratios of mixed kabling parang extract and ethyl alcohol.

Phytochemical analysis of Kabling Parang *Anisomeles indica* Linn was conducted to determine the photochemical constituent of this plant. It also done to test if it is capable in controlling mosquitoes.

In this study the extract of *Anisomeles indica* Linn undergo in the process of phytochemical screening test. The fresh leaves were gathered at Akle, San Ildefonso, Bulacan. The gathered leaves was then cut into small pieces ,then washed it with distilled water ,next put it in the blender and then it was extracted using strainer (cheese cloth). The phytochemical screening test included the test of the presence of alkaloids.

## CONCLUSIONS

Phytochemical screening is the process of evaluating chemical constituent of the plant. *Anisomeles indica* Linn. Has undergone this process and the results show that Kabling parang contains condensed tannins and glycoside. This result was used by the researcher to make a solution using this plant extract. This chemical components of the plant was greatly use as insect repellent.

This study has shown that the *Anisomeles indica* Linn. Has good potential for the controlling of mosquitoes .Moreover , this plant is locally available and can be seen nearby the backyard of the community and less expensive compare to commercially available insect repellent.

## RECOMMENDATIONS

As the study was conducted, these were the following recommendations:

- The product, kabling parang extract as natural insect repellent, could be used as a substitute to those best selling repellents in the market. Aside from its less involvement of expensing money, this may also help minimize the ecological crisis in the society.
- This study was recommended to the people whom are prone of using chemicals. For them to be inspired of being organic and naturalistic in living.
- This study was recommended to the people who disregard the importance of planting of kabling parang (*Anisomeles indica* Linn) in the backyard. For them to seek that there is a significance of planting this grass species.

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