

Phytochemical Analysis of Bangbangsit a Bilidan (*Labiatae* Sp)

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Abstract

Bangbangsit a bilidan (Labiatae sp) is a shrub found in selective areas of the Philippines where water is abundant. This plant is being utilized for medicinal purposes.

Fresh leaves and stems of Bangbangsit a bilidan were collected from Manabo, Abra and subjected to phytochemical analysis. The experimental research design 75% actual laboratory set up, was utilized in the study. The samples collected were air dried, finely cut and were soaked in ethanol for 48 hours. The juice was extracted using ethanol as solvent. The combined filtrates were concentrated in water bath at 50 C to obtain semi-solid extract.

Analysis revealed that bangbangsit a bilidan contains alkaloids, glycosides, flavonoids, leucoanthocyanins. However, it has a weak indication of saponins.

Introduction

Background of the Study

Herbal medicine is the use of herbal products containing active ingredients exclusively plant materials and other vegetable preparations used to treat various health conditions. It is also a major source of treatment for more than 70% of the world's population.

The Philippines has a rich tradition of medicine use. From traditional healing in the countryside, the use of plants for medical purposes remains an alternation to modern healing practices. This rich tradition which dates back centuries ago has been handed down from generation to generation. Although it was seemingly taken by the advent of modern

scientific techniques, the practice of herbal medicine in the Philippines continued to flourish. Because the cost of health care continues to escalate and the rise of drug prices remains uncontrolled, alternative modes of treatment have been sought out by the government.

The Philippines is rich in medicinal plants. The forest contains different plants species which are potential medicinal sources. Research in the Philippines is in burgeoning phase. Many institutions have become interested in the promotion of herbal medicine research. With the success of commercialized plant dosage forms, many other pharmaceutical companies have expressed interest and other NGO's have also took part in this effort.

Bangbangsit a Bilidan is known to have an antimotility effect and can cure other gastrointestinal disorders like diarrhea etc. Others claim that they used the flower as a fonn of cigarette in curing asthmatic disorders. It is then the objective of this study to determine the phytochemical analysis of *Bangbangsit a Bilidan*. Through the initial information on its essential components that will be derived from thi study, other set of further studies will be conducted to determine its therapeutic effect

Objective of the Study

This study primarily aimed to analyze the phytochemical found in the leaves and stems of *bangbangsit a bilidan* (*Labiatae* sp).

Review of Related Literature

"*Bangbangsit a Bilidan*" is a shrub found in selective areas of the Philippines where water is abundant. It stands erect with negligible branches. It is a rhizomous non-flowering plant It is a gregarious, erect or half-climbing, somewhat hairy aromatic shrub. When erect, it is usually 1.2 m high; and when scandent, it is twice as high. Its branches are four-sided with recurved prickles.

Its leaves are ovate, 5 to 9 cm long, pointed at the tip and rounded at the base and toothed in the margins.

Its flowers are pink, orange, yellow, white, lilac and other shades according to the variety and borne in stalked heads which are 2 to 3.5 cm in diameter. It has a small calyx and slender corolla tube. It has a spreading limb, 6 to 7 mm wide, and divided into unequal lobes. It has 4 stamens, in 2 pairs, and an ovary of 2 celled and 2 ovuled.

Bangbangsit a bilidan is a gregarious weed in the Philippines. Certain varieties are cultivated as a trimmed hedge either alone or with other shrubs.

The plant has a sweet tasting drupaceous fruit; purple or black, fleshy ovoid, and about 5 mm long.

Its bark constitutes 0.08% of lantanine. Dried flowers were found to contain 0.07% volatile oil specifically the caryophyllene-like bicyclic terpene, and 80% laphellandrene. The bark contains 0.08% lantanine.

Most of the parts of *bangbangsit a bilidan* are being utilized as medicine. These include the leaves, barks, roots and flowering tops. These maybe collected throughout the year. The roots which taste bitter and sweet are used as refrigerant or anti-febrile by lowering the body temperature. Thirty (30) to 60 grams of dried roots or 60 to 120 grams of fresh roots in decoction can be taken by individuals suffering from tuberculosis. The minty-tasting leaves are used as antiphlogistic and antidermatoses. The fresh leaves and stems are macerated and applied on the skin. For rheumatism, oil is spread on the leaves and warmed over low flame, and used as poultice. The dried flowers are used as decoction.

Methodology

The experimental research design or actual laboratory set up was utilized in the study. Fresh leaves **and stems** of *Bangbangsit a bilidan* were collected and air dried. They were finely cut and soaked in ethanol for 48 hours. It was extracted exhaustively with the same solvent. The combined filtrates were concentrated in water bath at 50°C to obtain semi-solid extract.

The sample was subjected to Phytochemical Analysis which determined the presence of Glycosides, Alkaloids, Flavanoids, Saponins, Triterpenes and Sterols.

I. Alkaloidal Test (Wagner's Test)

The 10ml alcoholic extract (corresponding to 2.5g of plant materials) was evaporated to syrupy and the residue was heated on a boiling water with 5 ml of 2 N HCl. After cooling, 0.5 g of NaCl was heated again for 2 mins. To wash, enough 2N Hcl was added. The mixture was filtered and the filtrate was divided into two equal portions. One portion was treated with a few drops of Wagner's Reagent (the formation of a brick red precipitate indicate a positive result); and the other equal amount of Dragendorffs's Reagent (the formation of orange precipitate indicate the presence of Alkaloids).

2. Glycosides (Fehling's Test)

Ten (10) ml of leaf extract was dissolved in 10 ml distilled hot water and filtered. The filtrate was used for the test. Two (2) ml of each sample was placed in two test tubes. In sample 1, 1 ml DIL. HCl was added. In sample 2, nothing was added. Then the 2 test tubes were placed in boiling water bath for 5 minutes. The test tubes were cooled. Both were neutralized with Anhydrous Sodium Carbonate until no more effervescence was produced. Fehling's A Solution was added to the two test tubes which were heated over a water bath for two minutes. An increase in the amount of brick red precipitate in hydrolyzed sample was an indication of the presence of glycosides.

About 10 ml of the alcoholic solution of the leaves was dried over a water bath and was picked up with Chloroform Solution. It was divided into 3 test tubes and was subjected to Liebenmann Burchard Test. One of the test tubes was added three drops of Acetic Anhydride and one drop of Sulfuric Acid to the second test tube. The third test tube was kept as the control. The same procedure was done using the pods extract. The presence of glycosides was determined by the change in color of the samples in the experimental test tubes.

3. Flayonoids (Bate-Smith and Metcalf Test)

Ten (10) ml of plant extract was evaporated to incipient dryness over a water bath and cooled to room temperature. The residue was defatted with 9 ml of Hexane and water (2:1). The defatted extract was diluted with 10 ml of 80% Ethyl. The mixture was filtered and the filtrate is divided into 4 test tubes: Test tube 1 = 0.5 ml of concentrated HCl; then, wanned into water bath for 15 mins. The gradual development of a strong red or violet color was an indication of the presence of Leucoanthocyanins.

The alcoholic extract (5 ml, corresponding to 10 g of plant materials) was treated with a few drops of concentrated HCl and Magnesium Turnings (0.5g). The presence of Flavonoids was indicated if pink or magenta-red color developed within 3 mins.

4. Saponins (Froth Test)

About 2.5g of plant materials was extracted with boiling water. After cooling, the extract was shaken vigorously to form froth. Then, it was allowed

to stand for 15-20 mins. and classified for saponin contents as follows: no forth 1.2 cm high = positive; and forth greater than 2cm high = strongly positive.

5. Triterpenes and Sterols (Liebermann-Burchard Test)

Two (2) ml of fruit extract was dissolved in Acetic Anhydride. The soluble portion was decanted and added with 1-2 drops of concentrated Sulfuric Acid. A pink to red color was an indication of triterpenes; and blue color is indicated if sterol is present.

Results and Discussion

Two hundred (200) grams of fresh *Bangbangsit a Bilidan* (leaf) extracted with 600 ml of 95% Ethanol produce 50 ml concentrated extract

Qualitative Test	Results	Bioactive Substances
Wagner's Test	Formation of brick red precipitate	+ Alkaloids
Fehling's Test	An increase in the amount of brick red precipitate in the hydrolyzed sample	+ Glycosides
Bate-Smith & Metcalf Test	Pink or magenta red color was developed	+ Flavanoids
Liebermann-Burchard Test	No pink to red color was formed	- Triterpenes
Liebermann-Burchard Test	No pink to red color was formed	- Sterols
Bate-Smith & Metcalf Test	Gradual development of a strong red or violet color	+ Leucoanthocyanins
Froth Test	Froth was developed but less than 1cm	Weak indication of saponins

Two hundred grams of fresh *Bangbangsit a bilidan* stem was extracted with 600 ml of 95% Ethanol produce 50 ml concentrated extract .

Qualitative Test	Results	Bioactive Substances
Wagner's Test	Formation of brick red precipitate	+ Alkaloids
Fhelings Test	An increase in the amount of brick red precipitate in the hydrolyzed sample	+ Glycosides
Bate-Smith & Metcalf Test	Pink or magenta red color was developed	+ Flavonoids
Liebermann-Burchard Test	No pink to red color was formed	- Triterpenes
Liebermann-Burchard Test	No pink to red color was formed	- Sterols
Bate-Smith & Metcalf Test	Gradual development of a strong red or violet color	+ Leucoanthocyanins
Froth Test	Froth was developed but less than 1cm	Weak indication of saponins

Conclusion

Bangbangsit a Bilidan contains alkaloids, glycosides, flavonoids, leucoanthocyanins and has a weak indication of saponins.

Recommendation

A further study should be made for its antimicrobial effect to determine if *Bangbangsit Bilidan* can really cure specific diseases.

References

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