



NUTRITIONAL AND PHYTOCHEMICAL SCREENING OF BAGO PLANT

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Abstract

This study aimed to determine the Nutritional and Phytochemical Screening of young and matured leaf of Bago plant extract in terms of boiling point, color, density, odor and pH. Then analyze its nutritional content which includes the ash, fats, fiber and moisture. Furthermore, phytochemical screening was done to test for the presence of alkaloids, anthraquinones, tannins, flavonoids and saponins.

The results of the study showed that the average boiling point of young and matured Bago plant leaf extract is 110:33 °C, the color of the extract is green, 0.9809 g/mL. average density, has a pleasant odor and with an average of 5.53 pH. Furthermore, it was found out that for its nutritional contents, it has an average ash content of 0.6584 g, crude fat of 0.238533 g, crude fiber , and moisture content of 7.751 g. Moreover in the phytochemical screening, it was found out that alkaloids, saponins, tannins and flavonoids contents are present in the Bago young and matured leaf extract and only anthraquinone was not present.

Therefore the results/findings gathered in this study would help the communities better understand the use of Bago plant not only as one source of nutrients and nutraceuticals but as healthy food and medicine. This will also be a source of phytochemicals which can be a window to newer discoveries in science and technology.

Introduction

Nutrition is the study of foods at work in our bodies, and source for energy. It is the building blocks of life and it is also the key to developing and maintaining good health.

In recent years, dietary recommendations have suggested an increase in the consumption of foods that contain phytochemicals that provide benefits to human health and play an important role in preventing chronic diseases.

Bago is a versatile plant. It has a high-quality of fiber from the inner bark of the trunk and old branches can be extracted and made into ropes. The young leaves are highly nutritious and are much useful as vegetable in Northern Samar, and in other places.

Nutritional awareness of every food has important role to our health. Furthermore, nutrition is the science that interprets the interaction of nutrients and other substances in food (e.g. alkaloids, saponins, tannins, etc.) in relation to maintenance, growth, reproduction, health and disease of organism. It includes food intake, absorption, assimilation, biosynthesis, catabolism and excretion. The diet of an organism is what it eats, which is largely determined by the availability, the processing and palatability of foods. A healthy diet includes preparation of food and storage methods that preserve nutrients from oxidation, heat or leaching, and what reduce risk of food-borne illness.

Hence, this study brings us knowledge about the nutritional content of partial food which will help the people make Bago as a good source of healthy food. It offers every household a source of food and with the process of phytochemical screening; the secondary metabolism could also be helpful to our economic industries to produce a new and unique products particularly in treating illnesses/diseases. It provides valuable information about the great value of this plant, which can be a window to newer discoveries in science and technology.

Methodology

This study was conducted at the Biophysical Laboratory Complex, College of Science, University of Eastern Philippines, University Town, Northern Samar.

All the reagents were of analytical grade purity.

A. Collection and Preparation of Samples

The matured and young Bago leaf was collected in Barangay Old Rizal, Catarman, Northern Samar.

The design of this research was experimental. This study focused mainly on determining the physical properties, nutritional content and phytochemical screening of matured, young Bago leaf extract.

B. Determination of Physical Properties

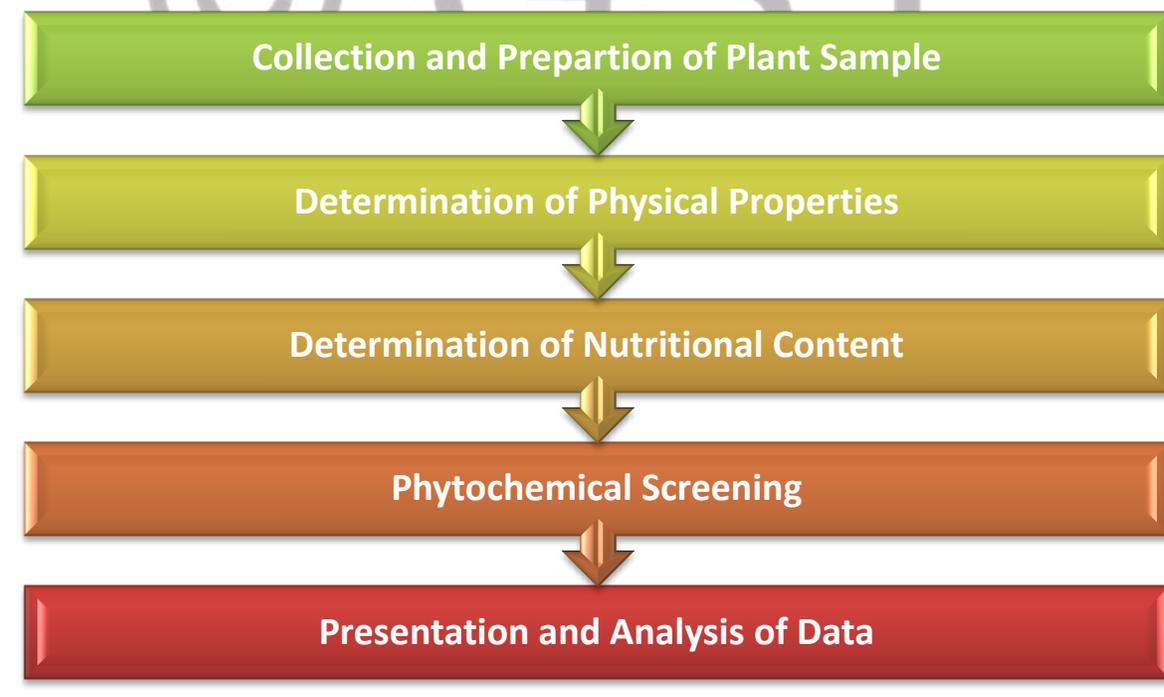
The different physical properties of matured, young Bago leaf extract was determined using the standard procedures.

C. Determination of Nutritional Content

The nutritional value of Bago plant was analyzed for chemical composition (ash, crude fat, crude fiber, moisture content) using the standard procedures/official method of analysis.

D. Phytochemical Screening

The presence of secondary metabolites [alkaloids, flavonoids, saponins and anthraquinone (negative)] were analyzed thru phytochemical screening by following the procedure of Guevarra, et al. (2000).



Flow Chart of the Study

Results and Discussions

The findings revealed, that the physical properties of matured, young Bago Leaf extract in terms of boiling point has an average of 110.33°C higher than the boiling point of water, green in color, average density of 0.9809 g/mL, almost equal to the density of water, has a pleasant odor and with an average of 5.53 pH, which is slightly acidic.

For its nutritional contents, the average ash content is 0.6584 g, crude fat of 0.238533 g, 1.136 g of crude fiber and moisture content of 7.751 g.

Furthermore in the phytochemical screening, it was found out that alkaloids, flavonoids, saponins and tannins are present in the matured, young Bago leaf extract and only anthraquinone was not present.

These secondary metabolites have been shown to have potent pharmacological activities. Such as alkaloids can be a source of analgesic/pain reliever. Then flavonoids maybe one of the safest non-immunogenic drugs because they are small organic compounds which have been normally absorbed by the human body for long time and are regularly consumed in the human diet and have various biological activities including anti-inflammatory, anti-cancer, anti-viral properties, (Lee ER, et al 2007),

Recent studies have found benefits for saponins which is responsible in controlling blood cholesterol levels, bone health and building up the immune system.

Tannins according to the previous studies because of its styptic and astringent properties has been used to treat tonsillitis, pharyngitis, hemorrhoids and skin eruptions.

Conclusion and Implications

In the light of the findings derived from this study, physical properties, nutritional and phytochemical screening of matured and young Bago leaf extract present idea about the nutritional content, different uses of the secondary metabolites present of the matured and young Bago leaf extract. The result of this study might be the basis that Bago can be used directly in the diet and promote health advantage not only one source of nutrients and nutraceuticals but as healthy food and medicine. Likewise, this can be the source of phytochemicals which can be the window to newer discoveries in science and technology.

Recommendations

It is recommended that further researches be conducted about Bago plant with regards to its different parts and some other secondary metabolites be tested/experimented.

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