Phytochemical Analysis of Awoy Leaf Extract (Callicarpa erioclona)

Rey Micheal Joseph Lagura and Nico Michael D. Huelma

Abstract
Numerous plants depict various chemotherapeutics and can give significant sources of curative medications. These drugs are cheap alternative drugs to synthetic medicine. The present study involves the Callicarpa erioclona (Awoy) which is a medicinally scrub in family Callicarpa that is ethnobotanically used in Carmen, Surigao del Sur. The air-dried leaf extracts were used for the phytochemical analysis to find out the phytochemical constituents. The reason for the examination is to distinguish the presence and absence of various auxiliary metabolites of air-dried leaves of Callicarpa erioclona.

Results showed that tannins prevail most in the leaf solvent-extracts of Callicarpa erioclona (Awoy) among all secondary metabolites. This study provides the phytochemical basis of various pharmacological activities. This primer reports the analysis of the efficacy of Callicarpa erioclona (Awoy) as a supernatural occurrence medicates against different infirmities.

Keywords: Phytochemical, Callicarpa erioclona, distilled water, air-dried, methanol, leaf

Introduction
The plant is the premise of a large number of pharmaceuticals that we used today to combat ailments. Ancient people use different plant parts like the root, stem, flower, fruit, twigs to provide curative to certain diseases. Medicinal plants have been beneficial for curative as well as for the therapeutic of some anthropological illnesses due to the existence of some phytochemical components. (Wadood et al, 2013; Nostro et al, 2002). The use of herbal medicines in South East Asia especially in the Philippines represents a long decade of human interactions with the environment. The conventional medication includes the utilization of various plant concentrates to treat diseases.

Secondary metabolites are accountable for the therapeutic action of the plants. Secondary plant metabolites are numerous chemical compounds produced by the plant cell through metabolic pathways derived from the primary metabolic pathways. (Huessin and El-Ansary, 2018). Phytochemicals present in medicinal plants, such as alkaloids, tannins, saponins, flavonoids, phenols, steroids, carotenoids, etc., have several disease prevention activities (Barbosa et al., 2013).

Secondary metabolites have been shown to possess various biological effects, which provide the scientific base for the use of herbs in traditional medicine in many ancient communities. It was noticed that some herbs as forage grasses such as clover or alfalfa can express estrogenic properties and interact with the fertility of animals. (Bennets et al., 2016)

According to Jones and Kinghorn (2008), the conventional utilization of numerous members of the Callicarpa family comprises measures used as fish poison and therapeutics. Phytochemical and natural studies of extracts of Callicarpa family advance provision to these previous uses. The study also recommended that this genus may offer an abundant source of bioactive auxiliary metabolites. (Jones and Kinghorn, 2008)

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Abstract

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1 Introduction

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the leaves as one of the contents used as an ointment. The researchers noticed the treating ability of Awoy that gives them the interest to conduct this study.

Hence, the researchers’ study and determine the presence and absence of plant secondary metabolites.

Figure 1. Callicarpa erioclona

2 Research Methodology

2.1 Collection of Plant Sample

The researchers collected the plant test of Awoy from Brgy. San Vicente, Carmen, Surigao del Sur. The collected plant test was transported to SDSSU-Cantilan-Campus Science Research facility. The plant leaf was removed from the stem and washed with refined water. The clears out were cut into three centimeters with slight alterations and dried for 10 days. The air-dried clears out were ground with mortar and pestle to get a coarse powder which was put away in a sealed shut container.

2.2 Preparation and Extraction of Awoy Leaf

The researchers extracted the leaves of the Awoy plant portion. The 1000 grams of fresh leaves drenched with 1L of solvent for 24 hours. It was boiled for an hour. The leaf extricates of Awoy is sifted employing a Whatmann channel paper No. 1. (Peles, et al 2007)

The researchers collected concentrated extricates and contained in sterilized tubes and were at that point subjected to subjective phytochemical screening.
2.3 Phytochemical Analysis of the Plant Awoy Leaf Extract in different Solvents

The subjective test was received from the standard phytochemical methods of Chandrappa et al. (2012); Gapuz and Besagas (2018). The researchers' extracts of distinctive solvents were analyzed for the presence of tannins, saponins, flavonoids, steroids, glycosides, anthraquinones, and alkaloids respectively. The test will be repeated three times.

2.4.1 Test for Tannins

Two ml of the above filtrate was included with 1 ml Ferric chloride FeCl₃. A blue-dark or greenish-dark hastens demonstrated the nearness of tannins.

2.4.2 Test for Saponins

A foaming test was utilized or the screening of saponins. This was finished by 10 ml refined water to one ml of the filtrate in the test tube and was shaken for 39 seconds. Persistent foaming affirmed the nearness of saponins.

2.4.3 Test for Flavonoids

Shinoda's test was utilized in deciding the flavonoids. The test was finished by separating 200 mg of the plant material with 10 ml chloroform. It was then separated and two ml of the filtrate was included with magnesium lace and thought hydrochloric corrosive. A pink-red was seen demonstrating the nearness of flavonoids.

2.4.4 Test for Steroids

The rough plant separates was taken in a test tube broke down with chloroform, at that point included equivalent volume of concentrated sulfuric acid to the test tubes by sides. The upper layer I the test tube transformed into a red and sulfuric acid layer indicated yellow with green fluorescence. It exhibited the proximity of steroids.

2.4.5 Test for Glycosides

Keller-Killiani test was used in screening for the glycosides. It was done by pipetting 2 ml of the crude concentrate extract and included 1 ml of Ferric chloride and 1 ml of concentrated sulfuric acid. A green-blue concealing color revealed the nearness of glycosides of the extract.

2.4.5 Test for Anthraquinones

Borstager's test was utilized in the anthraquinones. It was finished by removing 100 mg of the ground leaves in 5 ml chloroform and separated. At that point, 2 ml filtrate was included with 2 ml 10% Ammonium hydroxide. A brilliant pink shading affirmed the nearness of anthraquinones.

2.4.6 Test for Alkaloids

This was finished by removing 200 mg of plant material with 20 ml methanol. It was then be separated and 1 ml filtrate was included 2 or 3 drops of Wagner's reagent. An earthy colored or ruddy earthy colored hastens showed the nearness of alkaloids.

3 Results and Discussion

3.1 Phytochemical Analysis

Qualitative phytochemical screening demonstrates the presence and absence of secondary metabolites in a plant extract. The plant drugs are distinct because they contain compounds that are end-products of long biosynthetic path-ways like secondary metabolites such as alkaloids, saponins, steroids, glycosides, anthraquinones, and flavonoids. All plants contain these active compounds.
Secondary metabolites are constitutes and extant in healthy plants in their biological forms. They are precursors that would activate in response to damaged tissues and attacks of pathogens. The extracts had shown significant hepatoprotection and were discussed that it was due to the flavonoids, glycosides, and terpenoids that dominate the plant extracts (Raju, S. et al., 2011).

The table uncovered various kinds of optional metabolites in the leaf concentrate of Awoy on three distinct solvents-refined, methanol, and chloroform. It indicated that among the 7 auxiliary metabolites, both anthraquinones and flavonoids are missing in all three solvents while both plant optional metabolites, for example, tannins were found in every single dissolvable concentrate.

Methanol and chloroform extricate both contained steroids and glycosides. In the interim, chloroform removes were the main with alkaloids.
Alkaloids are gotten from amino acids. It contains nitrogen in a heterocyclic ring. Thus, iodoquinoline alkaloids showed extraordinary restraint against a few gram-negative microscopic organisms and yeast. Iwu (2013); Doughari (2006)

Both Methanol and Distilled H₂O contained tannins. Tannins have been related to hostile to infective activities against numerous human physiological and exercises just as reproductions of phagocytic cells and hust-intervened tumor action (Doughari, 2006). Similar to the study of Clark (1981) as cited by Ekpo and Etim in (2009) and cited by Perez et al. (2015) they said that these tannins have significant antibacterial property. This suggests that this plant demonstrates positive antimicrobial properties.

4 Conclusion

The present work shows that the plant secondary metabolites found in the solvent-extracts of Callicarpa erioclona commonly known as Awoy suggest’ strong anti-microbial activity to eliminate the pathogen. On the other hand, the phytochemical screening of this plant shows that there is a presence of phytochemical constituents that is liable for fascinating natural activities that will extensively treat ailments in the future.

5 Recommendations

In line with this study, the researchers would like to recommend for further phytochemical screening test using different solvents to the different parts of the plant, perform an anti-microbial test to the different leaf extracts; and the plant must be soaked for about 8 days before it will be analyzed to get the desired result.

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