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SHORT COMMUNICATION

Study of Bioactive Nutrients in *Annona muricata* L. Leaves.

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ABSTRACT
The native plant of Central America, Annona muricata, produces a fruit that is now cultivated widely for its delicious flavor, high pulp content, nutritional value, and antioxidant characteristics. The purpose of study was to establish a quantitative and qualitative evaluation of soursop. Several procedures, including extraction and analysis of phytochemicals, made up the research. The leaves were extracted using three different solvents: water, Ethanol, and chloroform. Proximate analysis of the leaves revealed the following macronutrient and micronutrient content percentages: dry matter (88.99%), moisture (11.01%), crude protein (25%), ash (14.96%), crude fiber (22.20%), fat (21.22%), and carbohydrates (16.62%). Flavonoids, alkaloids, cardiac glycoside, tannins, triterpenoid, saponin, and reducing sugar were found in ethanolic leaf extracts. The results suggest that leaves from Annona muricata could be used as a source of both high-quality feed and phytomedicine. Considering the wide range of ethnopharmacological applications of the plant, they have important dietary, clinical, and veterinary implications.
KEYWORDS: *Quantitative, Triterpenoids, Phytochemicals, Ethnopharmacological Phytomedicine etc.*

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INTRODUCTION

Annona muricata Linn. (Annonaceae) is commonly known as "Soursop" or "Graviola." It is a terrestrial deciduous tree and produces an edible fruit. This species of *Annona* has been grouped with the "cherimoya" plants of the Annonaceae family. Numerous illnesses and health issues have long been treated using plants. Which are vital to the health and healing of 70–80% of the world's population in low-income countries. The pharmaceutical industry relies heavily on the secondary metabolites produced by medicinal plants. Herbal plants are the primary focus of many of the world's oldest medical systems. Many of the industries we rely on today to treat a wide range of medical conditions have their origins in the study of plants and the development of medicines derived from plants. It is naturally deciduous, grows at a medium rate, and is quite resilient. Fresh fruit is the most common application, while custard powder and pulp from blended fruits are used to flavor frozen desserts. When eaten raw and cold, it can be enjoyed as a dessert or blended into a shake. Except for making jams or preserves, fruit is rarely cooked. When sliced, this fruit complements a fruit salad quite well. Annonaceae is one of the most significant plant families, and it is widely believed to include medicinal and pharmacological characteristics. Among these, *Annona muricata* stands out for its many beneficial effects as a medicinal herb. The range of *A. muricata* includes much of Central America. This is commonly referred to as guanabana or soursop. It is an evergreen tree that grows to a height of 5–6 meters and has huge, glossy, dark green leaves. Its enormous, edible heart-shaped fruit ranges in size from 5 to 20 centimeters in diameter and is a bright yellow green with white flesh on the interior. The Graviola contains the potent phytochemical annanaceous acetogeneins. Graviola's leaves, roots, and seeds have all been shown to be insecticidal, with the seeds showing particularly potent efficacy against insect pests [1]. Annona muricata contains a wide variety of phytochemicals, including alkaloids, flavonoids, carbohydrates, cardiac glycosides, saponins, tannins, phytosterol, terpenoids, and protein [2]. . Because it has both hypoglycemic and antioxidant characteristics without any side effects, Annona muricata is the ideal antidiabetic medication [3]. "Annona muricata has molluscicidal and anti-parasitic properties in its leaves [4].

Inflammatory disorders like the flu and cough were treated with *Annona muricata*. Extracts from the Annona muricata tree's roots, leaves, and stem were traditionally combined to treat a wide range of medical conditions using tea and other solutions. Rheumatism, arthritis, and other joint discomfort were all alleviated with topical application of an Annona muricata extract solution [5]. The leaves of the *Annona muricata* tree are used to make oil. Crushed leaves and uncooked fruit from the plant can be blended with olive oil for a tasty snack. Rashes, boils, and blisters are just some of the many skin conditions that this oil can alleviate [5]). Annona muricata's phytochemical components were analyzed here.

MATERIAL AND METHODS

Collection, identification and preparation of *Annona muricata*

Fresh leaves of *Annona muricata* were collected. The *Annona muricata* leaves were separated from the stalk, washed and air-dried at room temperature (24°C) and then pulverized, crushed into fine powder and weighed. Aliquot portions of the powdered leaves were weighed and used for proximate analysis.

Extraction of the plant leaves

After 12 hours of soaking 5gm of dry powder in 100ml of distilled water, the resulting aqueous extract was boiled for two hours to remove any remaining solids. In order to use the extract for research, it was filtered through Whatmann filter paper. 48 hours of room temperature soaking 5 grams of dry powdered plant leaves in 100 milliliters of 100% ethanol and chloroform yielded an ethanolic extract and a chloroform extract, respectively. Cotton wool and Whatmann filter paper No. 42 (125mm) were used to further purify the extract. A rotary evaporator with a water bath heated to 60 degrees Celsius was then used to reduce the volume of the extract to one tenth before it was freeze dried. The leftover powder (the crude extract) was then kept in a refrigerator. The leftover residue from the crude plant extract was measured out and subjected to a phytochemical screening.

Methods for phytochemical screening

Phytochemical screening was performed using standard procedures.

Qualitative Analysis

The technique for testing for alkaloids, flavonoids, carbohydrates, glycosides, saponins, tannins, Terpenoids, proteins, and anthraquinone was analysed by using standerd methods. Alkaloids were tested with the Mayers method, flavonoids with the Shinodas method, carbohydrates with the Benedict and Molisch methods, cardiac glycosides with the Keller-Killani method, saponins with the Froth method, tannins with the Lead acetate method, terpenoids with the Salkowski method, proteins with the Ninhydrin and Biuret methods, and anthraquinone with the ammonia method [6].

Quantitative analysis

The Anthrone technique was used for a quantitative analysis of the starch content [7].

Lowry's technique was used for a quantitative analysis of protein estimation [3].

Singleton's approach was used for a quantitativeanalysis of the phenol content[8].

RESULTS AND DISCUSSION

The extraction results of *A. Muricata* leaf phytochemical contents in several solvents (H2O, ethanol, and chloroform) are shown in Table 1. Alkaloids, coumarin, tannin, cardiac glycosides, flavonoids, carbohydrates, and phenols were found in A. squamosa leaves after a chemical analysis.

Alkaloids, oils, tannins, phenols, and flavonoids were more successfully extracted from leaf using ethanol and chloroform.

Table.1Qualitative Phytochemical screening of Aqueous, Ethanol and Chloroform extract of *Annona muricata.*

S.No	Test /Leaf Extract	Water	Ethanol	Chloroform
1	**Test for Alkaloids**			
	a) Mayers test	-	+	+
	b) Wagner s test	-	+	+
	c)Dragendorffs test	-	-	-
2	**Test for flavonoids**			
	a) Shinoda test	**+**	**+**	**+**
	b) Alkaline reagent test	-	-	-
3	**Test for carbohydrates**			
	a) Benedicts test	**+**	**+**	**+**
	b) Molischs test	**+**	**+**	**+**
4	**Test for glycosides**			
	a)Borntrager s test	-	-	-
	b)Keller Killani test	**+**	**+**	**+**

5	**Test for Proteins**			
	a)Ninhydrin test	+	+	+
	b)Biuret test	+	+	+
6	**Test for saponins**			
	a) Froth test	+	+	+
	b) Lead acetate test	+	+	+
7	**Test forTannins**			
	a) Ferric chloride test	-	-	-
	b) Lead acetate test	+	+	+
8	**Test for Terpenoids**			
	a)Salkowski test	+	-	-
9	**Test for Anthraquinones**			
	a)Ammonia test	+	-	-

Table.2 Quantitative analysis of aqueous extract of *Annona muricata*

S.No	Parameters	Aqueous extract	
		Leaf (mg%)	Seed (mg%)
1	Protein	8.6	36.66
2	Phenol	134.28	45.6
3	Carbohydrates	19.8	13.1

Alkaloids, flavonoids, carbohydrates, glycosides, proteins, saponins, tannins, terpenoids, and anthraquinones are just some of the phytochemical constituents found in different solvent extracts of the Annona muricata plant, as shown in Table 2 below. Annona muricata leaves have a larger protein and phenol content than previously thought, according to quantitative study of an aqueous extract of the plants' leaves.

CONCLUSION

Alkaloids, flavonoids, sugars, glycosides, saponins, tannins, Terpenoids, Proteins, and Anthraquinone are just some of the phytochemicals found in abundance in Annona muricata, as shown by this study. Both enzymatic and non-enzymatic antioxidant activity was observed, suggesting potential application in cancer prevention. This study provided conclusive evidence of the antibacterial activity of Annona muricata against a panel of test pathogens including Staphylococcus aureus, Pseudomonas, Bacillus, Klebsiella, and Escherichia coli". The abundance of promising anecdotes suggests further investigation into *Annona muricata*'s potential as a wonder medicine for a wide range of conditions.

REFERENCES

1. Tattersfield, F.(1940). The insecticidal properties of certain species of *Annona* and an Indian strain of *Munduleasericea*(Supli). Ann.Appl. Biol.; 27:262-73.
2. Edeoga, HO., and Gomina, A. (2000).Nutritional values of some non-comventional leafy vegetables of Nigeria. J.Econ.Taxon.Bot.24:7-13.
3. Lowry, O.H., N.J. Rosebrough, A.L. Farr, and Randall, R.J. (1951). J.Biol.Chem.193:265.
4. Bieber, L.W. J. de S. Luna, A.F. dos Santos, M.R.F. de Lima, M.C. de Omena, F.A.C. de Mendonca, A.E.G.4
5. Padma, P.(2001).Effect of *Annona muricata* and Polyalthia cerasoides on brain neurotransmitters and enzyme monoamine oxidase following cold immobilization stress. J.Natural Remedies; 1(2):144-46.
6. Harborne,J.B.(1973). Phytochemical methods. London Chapmanand Hall, Ltd, pp.49-88.
7. Hedge, J.E., and Hofreiter, B.T. (1962). In: *Carbohydrate Chemistry,* 17 (*Eds.* Whistler R.L. and BeMiller, J.N.),Academic Press, NewYork.
8. Singleton, V.L. and Rossi, J.A.(1965).Colorimetry of total phenolics with phosphomolybdic-phosphotungstic acid reagents.Am.J.Enol.Vitic.16:144-158.