

DETERMINATION OF PHYTOCHEMICAL COMPOSITION OF *BAMBUSA VULGARIS*

**Okekunle, O.A; Aribisala, L.A Amuzat, A.I; Oyekunle, L.O., Okewole, S.O., Akande, O.O.,
Ojo, O.A, and Oladokun, P.O.,**

**Department of Science Laboratory Technology, Oyo State College of Agriculture and Technology,
Igboora**

Corresponding author: 08056077238.aribisalalukman1@gmail.com

ABSTRACT

The use of plants for the treatment of diseases has gained wider acceptability because people have seen it as better alternative to orthodox medicine. *Bambusa vulgaris* has been a utilities plant since times immemorial. The plant has been useful in medicinal purposes with little attention to its phytochemical composition. This research therefore sets to investigate phytochemical composition of *Bambusa vulgaris* leaves by using ethanol extract of the air-dried *Bambusa vulgaris* leaves. The leaves were collected from the Oyo State college of Agriculture and Technology premises, Igboora, air dried for two weeks and pulverized to powder. 50g of the powdered was weighed and 250ml of ethanol was added for crude extraction. The set up was left for 72hr. Qualitative and Quantitative analysis of selected Phytochemicals were carried out on the extract using Harborne, 1974 method. Saponins, tanins, alkaloids, terpenes, oxalates, flavonoids and steroids were identified. Flavonoids (28.00 ± 0.0) were found in higher concentration, followed by alkaloid (22.60 ± 0.00) and tanins (17.70 ± 0.0). Oxalates, terpenes and steroids were found in smaller concentration. This result confirm the possibilities of traditional uses of *Bambusa vulgaris* as a good antioxidant and antimicrobial agent.

Keywords: *Bambusa vulgaris*, ethanol, phytochemical, Qualitative and Quantitative

INTRODUCTION

Plants are used for many purposes by man. They are used as food, shelter, aesthetic and for medicine to cure different diseases (Talid, 2011; Fabriant and Farnsworth, 2001). In recent times, medicinal plants have become in disposable because of their values as an alternative to orthodox medicine that are very expensive. Herbs and other parts of the plant have been used for healing because of their therapeutic properties. They are also used in research to produce modern drugs in our various hospitals. These plant parts contained hidden substances, bioactive compounds that are used for the curing of different diseases (Obboh *et al.*, 2013). *Bambusa vulgaris* (L) known as bamboo in English, as Oparun (Yoruba), Iko (Bini) and Atosi (Igbo) belongs to the family *Poaceae*. Bamboo can be as tall as 46 meters (151 ft) in length and 14inch in thickness, weighing up to 450 kilograms. Bamboo is a large woody grasses found in tropical, Subtropical and mild temperature zones of the world. The plant can adjust to any climate (Elshamy *et al.*, 2018). This family contained about 90 genera and 1200 species. Bamboo has been used in traditional medicine since ages. The plant is used to cure

cough, fever, leprosy, hypertension, lung inflammation, cardiovascular diseases, arteriosclerosis, osteoarthritis and osteoporosis (Wróblewska *et al.*, 2019; Sangeetha *et al.*, 2015; Shukla *et al.*, 2012). Many researches have been carried out on *Bambusa vulgaris*, however, there are no reports on the *bambusa vulgaris* grown on the premises of Oyo State college of Agriculture and Technology, Igboora. The aim of this research is to determine the active ingredient (bioactive present in *Bambusa vulgaris* that made it useful for the mentioned ailments.



Material and Methods

Plant Sample Preparation

Fresh *Bambusa vulgaris* leaves were obtained from Oyo State College of Agriculture and Technology compound. The leaves were plucked from the bamboo plant by hand, spread in the laboratory for two weeks with Sunlight to prevent ultraviolet interaction.

Preparation of the extract

The air-dried leaves were ground using mortal until the leaves became powdery. 50g of the air-dried leaves of *Bambusa vulgaris* powder was weighed and wrapped in white handkerchief, put in 500mL beaker, 200mL of ethanol were added to the *Bambusa vulgaris* leaves powder inside the beaker, agitated for 1hour using mechanical shaker. The set up was later put in dark cupboard for 72hrs. The filtrate was then taken to the standard laboratory for selected phytochemical analysis

Qualitative Phytochemical Analysis

Selected phytochemical composition present in *Bambusa vulgaris* leaves was determined using standard procedures recommended by (Harborne, 1973).

TABLE 1: Qualitative analysis of selected phytochemicals in *Bambusa vulgaris* leaves.

Parameters.	Abundance
Saponins	+
Tannins	++
Alkaloids	++
Terpenes	+
Oxalates	+
Flavonoids	+++
Steroids	+

NB: + = slight presence of phytochemical
++ = moderate presence of phytochemical
+++ = strong presence of phytochemical

TABLE 2: Quantitative analysis of selected phytochemicals in *Bambusa vulgaris* leaves.

Parameter.	% Composition
Saponins	6.60 ± 0.00
Tannins	17.70 ± 0.02
Alkaloids	22.60 ± 0.00
Terpenes	3.60 ± 0.00
Oxalates	2.00 ± 0.01
Flavonoids	28.0 ± 0.00
Steroids	2.00 ± 0.02

Discussion

the phytochemicals content of *Bambusa vulgaris* leaves that makes it important in traditional medicine have been investigated. Table 1, shows the presence of saponins, tannins, alkaloids, terpenes, oxalates, flavonoids and steroids. Flavonoids were found to be present in large concentration. Tannins, alkaloids are present in moderate concentration

while saponins, terpenes and steroids present in smaller concentration. Table 2, shows the quantitative analysis of each parameter in *Bambusa vulgaris*, saponins 6.60 ± 00, tannins 17.70 ± 00, alkaloids 22.60 ± 00, terpenes 3.60 ± 00, oxalates 2.00 ± 00, flavonoids 28.00 ± 00 and steroids 2.00 ± 0.02. The result of the analysis showed that flavonoids has the highest concentration (28.00 ± 00), followed by alkaloids (22.60 ± 00) and tannins (17.70 ± 00) respectively. Higher concentration of flavonoids, alkaloids and tannins explained the reason why *Bambusa vulgaris* is a good anti-oxidant, anti-inflammatory and a good anti-microbial plants. This corroborated the work of Moses and Labunmi, (2015) that the phytochemical screening contained flavonoids, terpenes, alkaloids and tannins. Hence, the plant has continuously been exploited as raw materials for drug production.

Reference

- Elshma, B.V., Adedeji, J.O., Ajaiyeoba, E.O and A deyemi, L.A. (2018). Analgesic and anti-inflammatory effects of the aqueous extract of Bamboo Linn (Poaceae) in mice. *African Journal of Pharmacy and Pharmacology*, 7 (16), 272-280.
- Fabricant, D., Farnsworth, N. (2001). The value of plants used in traditional medicine for drug discovery. *Environmental Health Perspectives*. Pp 109(1):69-75.
- Oboh, O.S., Akanji, M.A., and Yakubu, M.T. (2013). Effect of ethanolic extract of Bamboo L. on Oxidative stress and some vital organs in streptozotocin-induced diabetic rats. *Journal of Medicinal Food*, 15(5), 447-452.
- Sangeetha, R., Diea, Y.K.T, Chaitra C, Malvi P.G., Shinomol, G.K. (2015). The amazing bamboo: a review on its medicinal and pharmacological potential. *Indian J Nutri*. ;2(1):1-
- . Shukla, R, Sumit G, Sajal S, Dwivedi PK, Mishra A. Medicinal importance of bamboo. *Int J Biopharm Phytochem Res*. 2012; 1(1):9-15.
- Wróblewska, K.B., de Oliveira, D.C.S., Grombone-Guaratini, MT., Moreno P.R.H. (2019). Medicinal properties of bamboos. In: Perveen S, Al-Taweel A, editors. *Pharmacognosy: medicinal plants*. London: IntechOpen; p. 159-76.

Talib, W.H. (2011). Anticancer and antimicrobial potential of plant-derived natural products. Phytochemicals—Bioactivities and Impact on Health; Rasooli, I., Ed. 2011:141-58.