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PHYTOCHEMICAL AND PROXIMATE COMPOSITIONS OF METHANOLIC EXTRACT OF *Bobgunnia fistuloides* LEAVES.

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ABSTRACT

The phytochemical and proximate compositions of Bobgunnia fistuloides was investigated.The sample was collected from Bida, Niger State, Nigeria. Maceration method of extraction was used for crude extraction, using methanol. Phytochemical and proximate compositions of crude extract was carried out using standard methods. Phytochemical composition revealed that the medicinal plants have appreciable amount of secondary metabolites. Glycosides (5.08%), Alkaloids:(43.33%), Saponins (42.75%), Steroids (293.52)% and Flavonoids (55.31%). Proximate analysis of the sample gave moisture content10.39 %, Ash: (3.86%), Carbohydrate: (54.73%), Crude lipid): (5.81%), Crude protein:(21.85%), Crude fibre:(3.36%) respectively. It could be concluded that Bobgunnia fistuloides has some amount of nutrients and bioactive secondary metabolites that could be exploited for use in modern system of healthcare.

Keywords: *Bobgunnia fistuloides*, Methanolic extracts, Phytochemicals and Proximate.

INTRODUCTION

Medicinal plants are varieties of plants that have medicinal properties used to maintain health and cure diseases. Herbal medicine have always played a key role in the health of man and animals[1] Ethnobotanical studies have shown that the rural and urban dwellers in Nigeria use many of these plants as medicine for treatment of illnesses. Any part of the plant can be used for herbal drug preparation [2]. Medicinal plants are a major source different phytochemical compounds and nutrients that exhibit various properties which can be effective as a chemotherapeutics agents without undesirable side effects [3].

Phytochemicals are chemical components of plants that possess numerous health benefits and disease prevention properties.These chemicals are produced by plants to sustain life, which in turn confer health benefits to man upon consumption [4]. Phytochemicals are bioactive constituents that perform numerous functions, they possess unique pharmacological effects such as anti-inflammatory, antioxidants, antibacterial, antifungal, neuroprotective, anti plasmodium and anti-aging. They stimulate the immune system, block the formation of carcinogens, reduce oxidation, slow the

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growth rate of cancer cells and regulate hormones [5]. Proximate composition refers to macro-components that contributes to the structural and functional properties of plants. Consumption of vegetables aids in maintaining human health [6]. The absence of these nutrients in the body can lead to diseases. ***Bobgunnia fistuloides*** : is a genus of flowering plants in the legume family, Fabaceae. It belongs to the subfamily Faboideae. It is commonly called snake bean. Various parts of the plant are used in traditional medicine. A decoction of *Bobgunnia fistuloide* fruits has been used to induce vomiting to remove poison from the stomach and to treat other conditions like bilharzia, leprosy and ear-ache. It was also reported that the roots are used to induce abortion, counteract venomous stings and bites, kill or expel intestinal worms and treat leprosy [7]. [8] reported the presence of a group of flavonoids, which are powerful antioxidants, saponins, alkaloids, tannins and steroids in B. fistuloide. In other to compliment the work of other researcher, this study was done to evaluate the phytochemical and proximate compositions of the methanolic extract of Bobgunnia fistuloide.

MATERIALS AND METHODS

Collection, identification and preparation of plant material.

Fresh plant sample was collected from Bida, Niger State, Nigeria**.** It was identified and name authenticated by Mallam Umar Garba at the herberium of the Department of Plant Biology, Ahmadu Bello University Zaria. Voucher number was given as ABU1125, (*B. fistoluoide*). The samples was washed under running tap water to remove soil and other dirt, air dried at room temperature for four weeks and grinded into powder using an electric grinder. 200g of the powdered leaves sample was soaked in 600 cm^3 of methanol for 72 h and filtered with Whatman filter paper No 1. The filtrate was dried using a rotary evaporator at 35°C for 48 h. The extract obtained was transferred into sample bottles, preserved in a refrigerator for future use [9].

Preliminary Phytochemical Screening

The presence of phytoconstituents such as alkaloids, steroids, saponins, tannins, phenolic. steroids, triterpenes, glycosides and flavonoids were determined using standard test methods.

Phytochemical Composition

The quantitative phytochemical analyses of (saponins, flavonoids, steroids, glycosides, triterpenes and alkaloids) of the medicinal plant was determined in triplicates using the procedures described by [10].

Proximate Analysis

The proximate compositions of the plant sample was analysed in percentage for moisture, ash, crude protein, crude fibre, crude lipid and carbohydrate using various methods [10] with little modification.

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RESULTS AND DISCUSSION

Table 1: Qualitative Phytochemicals of the Leaf Extracts

Phytochemical	Bf
Saponins	+
Tannins	+
Phenolics	+
Flavonoids	+
Steroids	+
Coumarins	+
Anthocyanins	-
Glycosides	+
Terpenoids	-
Philobatanins	-
Alkaloids	+

Key: +: present, - : absent

The result of phytochemical screening revealed the presence of some phytochemicals such as saponin, tannin, flavonoid, steroid, glycoside and phenolics in the sample which agrees with the report of [11]. Anthocyanins, terpenoids and philobatanins were absent. Phytochemicals observed in the sample have therapeutic values, like flavonoid can inhibit tumor growth, act as an antiparasitic agent, can be used as an antidepressant and has antioxidant property. Steroids are also good antioxidant agent and saponins lowers serum cholesterol levels, can be used to remedy human diseases.

Quantitative Phytochemical Composition of Crude Extract

The result of the quantitative phytochemical composition of the crude extract is shown on Table 2.

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Table 2: Phytochemical composition of leaf extract

Parameter (mg/100g)	Bf
Glycosides	5.08 ± 0.00
Alkaloids	43.33 ± 0.07
Saponins	42.75 ± 0.17
Steroids	293.52 ± 0.17
Flavonoids	55.31 ± 0.38

The composition of ptytochemicals in mg/100g of *Bobgunnia fistuloides* leaves extract are: glycosides (5.08), saponins (42.75), alkaloids (43.33), steroids (293.52) and flavonoids (55.31). Glycoside moieties such as saponins, anthraquinones, cardiac glycosides and flavonoids can inhibit tumor growth, act as an antiparasitic agent, and can be used as an antidepressant [12]. Alkaloids provokes DNA damage, inducing apoptosis, and acting as anti-proliferative agents [13]. Alkaloids are known as antimalarial agents, analgesics and can act as stimulants [12]. Saponins have functions such as permeabilization of the cell membrane, lowering of serum cholesterol levels, stimulation of luteinizing hormone release leading to abortifacient properties and cytotoxic effects on malignant tumor cells [13].

Proximate Composition

The proximate composition of the leaves extract is shown in Table 3.

Table 3: Proximate composition of leaf extract

Parameter	Bf
Moisture (%)	10.39 ± 1.17
Ash (%)	3.86 ± 0.13
Carbohydrate (%)	54.73 ± 0.01
Crude lipid (%)	5.81 ± 0.59
Crude protein (%)	21.85 ± 0.38
Crude fibre (%)	3.36 ± 0.35

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The proximate composition of the crude extract revealed moisture content as 10.39%, ash content 3.86%, carbohydrate 54.73%, crude protein 21.85%, crude lipid 5.81% and crude fibre 3.35%. According to [14], the moisture content is low and could be afford a long shelf life; the moisture content value is within the suggested limit for the water or moisture content of vegetable drugs which range from 8 to 14% and is associated with high shelf life [15]. The finding revealed that the plant leaves is a good source of carbohydrate which can give the energy needed for good living of human and livestock. The leaves sample has some amount of crude fiber which are needed for digestion, for effective elimination of wastes and can lower the serum cholesterol that can cause coronary heart disease and hypertension [16]. In this study, the crude protein content shows that the leaves sample is a good source of protein which is helpful in maintaining proper growth and development in human. It was found that the medicinal plant can be considered as a valuable source of secondary metabolite and nutrient in human healthcare.

CONCLUSION

It could be concluded from this study that the medicinal plant contained appreciable amount of secondary metabolites: such as alkaloids, flavonoids, saponin, and glycoside which justified their use in the treatment of degenerative diseases. Proximate constituents indicates that the plant leaves when used for drug prepararion will have a long shelf life. Further research on its pharmacological activities and drug formulation is recommended. .

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