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Comparative Evaluation of the Proximate, Mineral and Phytochemical Compositions of the Aqueous and Ethanol Extracts of *Albizia zygia* Leaves

Okoro, I.O.

Department of Biochemistry,
Faculty of Science,
Delta State University,
PMB 1,
Abraka, Nigeria
Email: israelik@yahoo.com

Abstract
This study was carried out to comparatively examine the proximate, phytochemical and mineral compositions of Albizia zygia leaf extracts (ethanol and aqueous). The determinations were made by standard methods. Results of proximate analysis indicated the existence of significantly (p < 0.05) higher moisture (11.37±0.14%), and crude fibre (31.70±0.30 %) contents in the aqueous extract (AE) relative to the ethanol extract (EE). Also, higher (p < 0.05) protein (4.85±0.04 %), ash (16.41±0.09 %) and carbohydrate (35.29±0.28 %) contents were obtained in the EE when compared with the AE. While phytochemical assessment of AE and EE revealed the presence of tannins, alkaloids, flavonoids, terpenoids, saponins, glycoside, steroids, anthraquinones and anthocyanins, with significantly (p < 0.05) higher alkaloids (0.92±0.09), flavonoids (2.89±0.16), tannins (0.94±0.05), anthraquinones (0.90±0.04) and terpenoid (1.13±0.04) in the AE compared with the EE, and significantly (p < 0.05) higher saponins (3.14±0.46 %) and glycoside (3.28±0.79) in the EE. Similarly, significantly (p < 0.05) higher iron (189.69±0.51) content was recorded in the AE relative to the EE. Also, higher (p < 0.05) content of phosphorus (222.61±0.69 mg/kg), sodium (122.77±1.29 mg/kg), potassium (274.18±1.98 mg/kg), calcium (432.50±1.54 mg/kg), magnesium (231.99±1.60 mg/kg), zinc (8.34±0.06 mg/kg), manganese (4.10±0.06 mg/kg), lead (1.39±0.02 mg/kg), copper (36.64±0.36 mg/kg) and cadmium (0.51±0.01 mg/kg) was obtained in the EE relative to the AE. Thus, higher concentration of nutrients were obtained from EE relative to AE. It can be concluded that the presence of phytochemicals and nutrients in the EE and AE of A. zygia documented in this study enables its various biological functions and as precursors of valuable drugs in pharmaceutical industries.

Keywords: *Albizia zygia,* proximate, phytochemicals, mineral compositions, nutrients. ethanol, aqueous.

INTRODUCTION
Albizia zygia (DC) is a member of the Mimosoideae subfamily of the Leguminosae family, frequently found in West Africa (Abere *et al.,* 2014). It is locally recognized in Nigeria as Nyieavu (Igbos), and Ayinrelaby (Yoruba). A deciduous tree with a spreading crown and a lovely architectural style, *Albizia zygia* is 9 to 30 meters tall. The bark is smooth and gray. Its leaves are pinnate, with pinnae in 2-3 pairs and widening toward the apex (Abotsi *et al.,* 2017; Abere *et al.,* 2014). The distal pair of pinnae is the largest, and the apex is obtuse, measuring 29-72 by 16-43 mm (Kokila *et al.*, 2013).

**Author for Correspondence*

A. zygia is helpful in the treatment of respiratory diseases brought on by allergies. The bark and leaves are utilized as traditional relief in treating fever, edema, conjunctivitis and diarrhea. The bark's sap is used for ophthalmia treatment, and decoction from the bark is used for female sterility and bronchial diseases treatment. Also, the decoction is used as aphrodisiac, stomachic, and vermifuge (Okpo *et al.,* 2014; Odeyemi *et al*., 2014). The root is used also as an expectorant/ remedy for cough (Abotsi *et al.,* 2017; Odeyemi *et al*., 2014).
Asthma, arthritis, leprosy, boils, ulcers, and other inflammatory diseases are among the pharmacological effects of Albizia species (Kokila *et al*., 2013). Malaria and other parasite illnesses are treated by traditional medicine experts using an aqueous decoction of the plant's powdered bark (Kokila *et al*., 2013). Diverse types of secondary metabolites, such as saponins, alkaloids, flavonoids, and terpenes, are present in different species of the genus Albizia (Odeyemi *et al*., 2014).

Phytochemicals are non-nutritive leaf compounds that have preventing or curative effects on disease. They have been documented as nutrients that are optional. They are bioactive compounds of natural occurrence produced by leaf to defend itself from the sun's damaging rays and the earth's elements. The human cells receive dietary resources from these incredible phytochemicals (Manita and Gaurav, 2020; Alagbe *et al.,* 2019). Antimicrobial, antiviral, antioxidant, anti-inflammatory, antifungal, anti-nociceptive, antithrombotic, antidiabetic, chemopreventive, hepatoprotective, and cytotoxic actions are just a few of the significant pharmacological qualities that phytochemical elements possess (Okoro *et al.,* 2015a).

It is important to analyze the nutritional content of food because compositional assessment can help us better understand how nutritional value varies between and within species (Nadeeshani *et al.,* 2021). Most medicinal herbs in Africa are normally prepared locally to derive their medicinal values by extracting them with mainly water or alcohol. Apart from the medicinal benefits gained from consuming the plants' extracts, there is also the added advantage of nutrient intake through these herbs (Ozioma and Nwamaka, 2019). Also, the medicinal values, pharmacological and nutritional properties obtained from plants are dependent and influenced by solvents of extraction (Okoro, 2020; Odeyemi *et al.,* 2014; Abere *et al*. 2014). Similarly, the nutritional values and phytochemical composition of plants are affected by environmental features comprising geography, climate, soil nature, sun exposure, seasonal variations, grazing stress, and more (Mudau *et al.,* 2022; Kumar *et al.,* 2017; Khattak and Rahman, 2015).

There have been reports of *Albizia zygia*'s bark, fruit, flowers, and leaves being used as medicines (Abere *et al*., 2014). It is one of the plants with numerous medicinal uses, but not so much reports are available on its pharmacological and nutritional properties, especially as it relates to the influence of solvents (Okoro, 2020; Odeyemi *et al.,* 2014; Abere *et al*., 2014). Thus, the current study was aimed at comparatively determining the proximate, mineral and phytochemical compositions of two extracts (aqueous and ethanol) of *Albizia zygia* leaves.

MATERIALS AND METHODS

Sample collection and preparation

The leaves of *Albizia zygia* were collected from a farm land at Abraka, Delta State and was authenticated at the Plant Biology/Biotechnology Department, University of Benin, Nigeria. The leaves were air-dried, and powdered using mortar and pestle, then immersed in 70% ethanol for 72 hours with regular shaking and thereafter filtered by Whatman No. 1 filter paper. The filtrate was later freeze-dried. The same process was repeated with distilled water, to obtain the ethanol and aqueous extracts used for the various analyses.

Mineral composition

The mineral contents of *A. zygia* extracts were assessed using Atomic Absorption Spectrometer (Agilent Technologies, USA) as reported by Bhinder *et al*. (2020).

Proximate composition assessment

The aqueous extract (AE) and ethanol extract (EE) of the leaves were examined for moisture, crude fibre, crude fat, protein and ash contents following the procedures reported by Association of Analytical Communities (Association of Official Analytical Chemists (AOAC), 2012). The carbohydrate content was computed using the formula indicated below:
[100 − (% moisture + % crude protein + % crude fat + % ash + % crude fibre)].

Qualitative and Quantitative Phytochemical Analysis

The qualitative phytochemical screening of the extracts was done by standard methods (Trease and Evans, 1989; Harborne, 1985), while the quantitative phytochemical analyses were conducted following standard methods; Total anthocyanin content (Česonienė *et al*. (2012), Alkaloid (Harborne, 1985), Terpenoid (Muhammad *et al*., 2009), Glycoside (Prabasheela *et al*., 2015), Saponin (Mbagwu *et al*., 2011), Steroid (Isanga, and Zhang, 2008), Tannin (Van-Burden and Robinson, 1981), Flavonoids (Krishnaiah *et al*., 2009), and Anthraquinone by (Aguoru *et al*., 2014).

Data Analysis

Data obtained were summarized as mean ± standard deviation (SD) and given in tables. Statistical variations among groups were examined statistically through Student's t-test by GraphPad Prism 6. P value lesser than 0.05 ($p < 0.05$) was judged to be statistically significant.

RESULTS

Proximate Constituents in the Extracts of *A. zygia* Leaves

Presented in Table 1 are results of the differences in proximate contituents in the AE and EE of *A. zygia.* Significantly ($p < 0.05$) higher proximate percentage was obtained in the moisture (11.37±0.14) and the crude fibre (31.70±0.30) contents for the AE relative to the EE. While higher ($p < 0.05$) percentage proximate values were seen in the EE for the protein (4.85±0.04), ash (16.41±0.09) and carbohydrate (35.29±0.28), when compared with the AE. Thus, higher proximate values were obtained from the EE (protein, ash and carbohydrate) than the AE (moisture and crude fibre).

Table 1. Differences in the proximate constituents in aqueous and ethanol extracts of *A. zygia* leaves

Proximate Content	Ethanol extract	Aqueous extract
Moisture (%)	10.68 ± 0.12^{a}	11.37 ± 0.14^{b}
Crude Fibre (%)	22.03 ± 0.07^{c}	31.70 ± 0.30^{d}
Crude Fat (%)	10.74 ± 0.28^{e}	9.51 ± 0.34^{e}
Protein (%)	4.85 ± 0.04^{g}	4.30 ± 0.08^{h}
Ash (%)	16.41 ± 0.09^{j}	10.31 ± 0.04^{k}
Carbohydrate (%)	35.29 ± 0.28^{m}	32.81 ± 0.23^{p}

*Values are mean ± SD (n=3); Values with dissimilar superscripts across rows are statistically different ($p<0.05$).

Qualitative and Quantitative Phytochemical Constituents of *A. zygia* Leaves' Extracts
Table 2 depict the phytochemical constituents of AE and EE of *A. zygia* leaves. The presence of alkaloids, flavonoids, tannins, saponins, glycoside, steroids, anthraquinones, anthocyanins, and terpenoid were detected in the two extracts for the qualitative test. Also, for the quantitative assay, significantly ($p < 0.05$) higher concentration values were observed in saponins (3.14±0.46), and glycoside (3.28±0.79) from the EE relative to the AE. Similarly, higher ($p < 0.05$) concentration values were obtained in alkaloids (0.92±0.09), flavonoids (2.89±0.16), tannins (0.94±0.05), anthraquinones (0.90±0.04) and terpenoid (1.13±0.04) from the AE compared with the EE. Although higher concentrations of the phytoconstituents were obtained in steroids and anthocyanins from the AE relative to the EE, but the differences between the two extracts were not significantly different from each other ($p < 0.05$).

Table 2. Qualitative and quantitative phytochemical constituents of aqueous and ethanol extracts of *A. zygia*

Phytochemicals	Qualitative test		Concentration (mg/100g)	
	Ethanol extract	Aqueous extract	Ethanol extract	Aqueous extract
Alkaloids	+	+	$0.42±0.05^{a}$	$0.92±0.09^{b}$
Flavonoids	+	+	$1.03±0.04^{b}$	$2.89±0.16^{c}$
Tannins	+	+	$0.47±0.08^{d}$	$0.94±0.05^{e}$
Saponins	+	+	$3.14±0.46^{e}$	$1.42±0.03^{f}$
Glycoside	+	+	$3.28±0.79^{g}$	$0.83±0.05^{h}$
Steroids	+	+	$0.25±0.06^{j}$	$0.43±0.02^{j}$
Anthraquinones	+	+	$0.61±0.09^{k}$	$0.90±0.04^{q}$
Anthocyanins	+	+	$0.96±0.11^{n}$	$1.03±0.07^{n}$
Terpenoid	+	+	$0.55±0.07^{m}$	$1.13±0.04^{p}$

*Values are mean ± SD (n=3); Values with dissimilar superscripts across rows are statistically different ($p<0.05$).

Mineral Content of *A. zygia* Leaves' Extracts
The mineral and trace element contents in aqueous and ethanol extracts of *A. zygia* leaves are shown in Table 3. Significantly ($p < 0.05$) higher contents were obtained from the EE relative to the AE for phosphorous, sodium, potassium, calcium, magnesium, zinc, manganese, lead, copper and cadmium. While higher content of iron was detected in the AE compared with the EE.

Table 3. Mineral content in aqueous and ethanol extracts of *A. zygia*

Minerals (mg/kg)	Ethanol extract	Aqueous extract
Phosphorous	$222.61±0.69^{a}$	$116.48±1.03^{b}$
Sodium	$122.77±1.29^{c}$	$103.17±1.07^{d}$
Potassium	$274.18±1.98^{e}$	$133.03±0.13^{f}$
Calcium	$432.50±1.54^{g}$	$379.58±0.92^{h}$
Magnesium	$231.99±1.60^{j}$	$140.90±0.13^{k}$
Zinc	$8.34±0.06^{m}$	$6.25±0.07^{t}$
Iron	$154.97±1.64^{n}$	$189.69±0.51^{p}$
Manganese	$4.10±0.06^{q}$	$2.51±0.02^{u}$
Lead	$1.39±0.02^{r}$	$1.00±0.02^{w}$
Copper	$36.64±0.36^{s}$	$29.63±1.22^{t}$
Cadmium	$0.51±0.01^{v}$	$0.23±0.02^{x}$

*Values are mean ± SD (n=3); Values with dissimilar superscripts across rows are statistically different ($p<0.05$).

DISCUSSION

There have been reports of *Albizia zygia*'s bark, fruit, flowers, and leaves being used as medicines. It is one of the plants with numerous medicinal uses, but not so much reports are available on its pharmacological and nutritional properties, especially as it relates to the influence of solvents (Okoro, 2020; Odeyemi *et al.,* 2014; Abere *et al*., 2014). Thus, in this study, the comparative evaluation of the proximate, mineral and phytochemical compositions of two extracts (aqueous and ethanol) of *Albizia zygia* leaves was undertaken.

In order to determine the nutritional importance of edible plants and vegetables, proximate analysis is extremely important. Proximate analyses of *A. zygia* leaves were done to determine the nutritional value of the leaves in traditional remedies. The proximate analyses results in this study showed differences in proximate constituents of the two extracts of *A. zygia* leaves. The AE gave higher percentage moisture and crude fibre contents relative to the EE. Whereas higher percentage values for protein, ash and carbohydrate, were obtained from the EE when compared with the AE. Accordingly, higher values of the proximate contents were obtained from the EE (protein, ash and carbohydrate) than the AE (moisture and crude fibre). Thus, the proximate composition of the extract was in the order: Carbohydrate > Crude Fibre > Ash > Crude Fat > Moisture > Protein, for EE, Carbohydrate > Crude Fibre> Moisture > Ash > Crude Fat > Protein, for the AE. However, previous proximate analysis report on the powdered leaves of *A. zygia*, showed Carbohydrate > Crude Protein > Moisture > Crude Fat > Ash > Crude Fibre (Akinsola *et al.,* 2022), Protein > Moisture > Carbohydrate >Ash > Fat > Fibre (Agiang *et al.,* 2016). The differences in proximate compositions between the previous reports and the present study can be ascribed to the processing and extraction solvents used in this study and differences in locations of samples' collection (Okoro, 2020; Khattak and Rahman, 2015).

Fibres are essential in the diet for digestion and the efficient removal of wastes, and they can reduce serum cholesterol, hypertension, constipation, and the risk of coronary heart disease, and other conditions. Dietary fibre is linked to improved insulin sensitivity and may, thus, play a part in the management and prevention of diabetes, Type 2 (Okoro *et al.,* 2015a). As a result, the leaves of *A. zygia* can be regarded as an important dietary fibre source for human nutrition. Elevated dietary fibre is helpful because it lowers the risk of cardiovascular disease and blood cholesterol levels and encourages animal digestion (Onuegbu and Iwu, 2020). To guarantee that animals get the energy they need, dietary fat is required, especially when the amount of carbohydrates in a diet is small or deficient (Oluwafemi *et al*., 2020). Additionally, fats facilitate the absorption of fat-soluble vitamins and improve the biological and structural function of animal cells (Onuegbu and Iwu, 2020).

The amount of moisture in an object relies on its storage environment as well as environmental factors like humidity, harvest season, temperature, and climate. Thus, the ability to accurately quantify moisture contents is crucial for food scientists. Given that fibre is quickly digested and degraded. There's high association between moisture concentrations and fibre, which may be of interest to human health (Mudau *et al.,* 2022; Kumar *et al.,* 2017). Samples with low moisture tend to stay longer when stored than those with high moisture content, and the moisture content in a sample is used to ascertain its shelf life (Onuegbu and Iwu, 2020). Thus, in this study, higher moisture content was obtained from the AE when compared with the EE, thereby indicating that aqueous leaves' extract of *A. zygia* would have lower shelf life compared with the EE.

In this study, higher percentage of crude protein was comparatively derived from the EE compared with the AE. The human body requires proper amounts of protein for the replacement of lost tissues, the delivery of energy, and the formation of the necessary amino acids. Protein deficiencies result to growth obstruction, muscular atrophy, oedema, anomalous belly swelling, and fluid retention in children. Plants with high protein content help the body create and repair tissues, regulate bodily functions, and produce antibodies, hormones, and enzymes that help the body fight infections (Onuegbu and Iwu, 2020; Ojewuyi *et al*., 2014). Protein can stimulate growth, transfer molecules like oxygen, and fortify an animal's immune system (Ojewuyi *et al*., 2014; Asagba *et al.,* 2010).

The amount of inorganic elements (micro and macro elements) in a plant sample is signified by its ash content (Radha *et al.,* 2021; Ozioma and Nwamaka, 2019). Significantly higher percentage of ash was obtained from the EE relative to the AE. The most crucial step in understanding the pharmacological and nutritional benefits of medicinal plants is mineral element analysis. Major, small, and trace amounts of the elements in food are essential for human health and welfare, and their excessive or inadequate consumption can lead to serious health issues (Radha *et al.,* 2021). Both metallic and non-metallic elements are required by the human body for healthy growth, development, and optimal bodily operation (Kannan *et al.,* 2014). The mineral and trace element content in ethanol and aqueous extracts of *A. zygia* assayed in this study showed appreciably higher contents from the EE relative to the AE for phosphorous, sodium, potassium, calcium, magnesium, zinc, manganese, lead, copper and cadmium. While higher content of iron was detected in the AE compared with the ethanol extract. Thus, the mineral contents of the extracts were in the order; Calcium > Potassium > Magnesium > Phosphorous > Iron > Sodium > Copper > Zinc > Manganese > Lead > Cadmium, for the ethanol extract, Calcium > Iron >Magnesium > Potassium > Phosphorous > Sodium > Copper > Zinc > Manganese > Lead >Cadmium, for aqueous extract. These orders are also slightly different from previous results reported by Akinsola *et al*. (2022) on the leaves powder of *A. zygia*. The authors documented Calcium >Potassium > Phosphorus > Magnesium > Sodium > Iron > Manganese > Copper > Zinc) as the order obtained in their study. Again the variations in mineral compositions between previous report and the present study may be due to the solvents of extraction and the locations of sample collection (Okoro, 2020; Khattak and Rahman, 2015).

Minerals found in plants are essential for controlling a variety of physiological functions in the bodies of the animals that eat them, including the control of enzyme activity, skeletal development, neuromuscular irritability, and blood coagulation. Chronic metabolic diseases can result from a lack of any one of the important minerals, which can also harm the health of the organisms that consume them. Fe has a crucial role in the immune system, brain development, temperature control, and energy metabolism. The presence or absence of iron affects the activity of specific neurotransmitters in our brain. It is crucial for keeping the immune system strong (Alagbe, 2019; Geissler and Singh, 2011). In order to preclude anaemia and other linked disorders, it is crucial that pregnant and nursing females, children, and elderly individuals follow a healthy diet (Geissler and Singh, 2011).

Phosphorous is necessary for cell growth, bone formation, renal function, and maintaining blood sugar levels. It is also essential for regular heart contraction and normal cell growth and repair. It is crucial for preserving the body's acid-alkaline equilibrium. For the growth and upkeep of bones and teeth, Ca and P are necessary. Ca plays a significant role in bone, extracellular fluid and human blood (Serna and Bergwitz, 2020; Alagbe, 2019). It is essential for the healthy operation of cardiac muscles, blood clotting, milk clotting, and cell permeability regulation (Serna and Bergwitz, 2020).

Mg is necessary in the plasma and extracellular fluid of humans, where it contributes to the preservation of osmotic balance. It is necessary for various enzyme-catalyzed processes, particularly those involving nucleotides and the reactive species being the magnesium salt, such as Mg ATP2-. Additionally, it can reduce blood pressure and help avoid some cardiac diseases. A deficiency of magnesium is linked to aberrant muscular excitability and convulsions, whereas an excess of magnesium is linked to central nervous system depression. More than 300 enzymes that use adenosine triphosphate require magnesium (Nadeeshani *et al.,* 2021). During cell division, it aids in the production of DNA and RNA (Serna and Bergwitz, 2020; Asagba *et al.,* 2010).

The antioxidant enzymes (Superoxide dismutase, glutathione peroxidase, and catalase) contain Zn and Se as part of their structure. In addition, Zn plays a crucial role in male growth and sexual development and is necessary for the operation of approximately 200 enzymes. The main component of extracellular fluid, Na, is essential for maintaining bodily fluid levels. Together with K, electrical potential is generated, allowing for the transmission of nerve impulses and the induction of muscle contraction. It helps to make it easier for the small intestine to absorb nutrients like glucose and amino acids. However, high Na levels are associated with hypertension and high blood pressure (Serna and Bergwitz, 2020; Khattak and Rahman, 2015). Together, Ca, Mg, and K are known to lower blood pressure and hypertension, and are utilized in the treatment and prevention of high blood pressure (Serna and Bergwitz, 2020).

A phytochemical analysis is highly helpful in assessing some biologically active compounds found in some therapeutic plants (Akinsola *et al.,* 2022). The quanlitative phytochemical study of the *A. zygia* leaves revealed the presence of alkaloids, flavonoids, tannins, saponins, glycoside, steroids, anthraquinones, anthocyanins, and terpenoid in the two extracts. Quantitatively, considerably higher concentration values of phytochemicals were detected in saponins and glycoside from the EE relative to the AE. Similarly, higher concentrations were obtained in alkaloids, flavonoids, tannins, anthraquinone and terpenoid from the AE compared with the EE. Although higher concentrations were obtained in steroids and anthocyanins from the AE relative to the EE, but the differences between the two extracts were not significantly different from each other. The phytochemicals detected in the extracts were in the order; Glycoside> Saponins > Flavonoids > Anthocyanins > Anthraquinones> Terpenoid> Tannins> Alkaloids> Steroids, for AE, Flavonoids> Saponins> Terpenoid> Anthocyanins> Tannins> Alkaloids> Anthraquinones> Glycoside> Steroids, for the EE. However, Agiang *et al.* (2016), reported the following order; Saponin > Glycoside > Alkaloid > Tannin > Flavonoid for A. zygia powdered leaves. Variations between the previous report and the present results may be as a result of the solvents used for extraction and variations in locations of sample collection (Mudau *et al.,* 2022; Kumar *et al.,* 2017; Khattak and Rahman, 2015).

Alkaloids are often nitrogen-containing chemical and natural compounds that have physiological activity in addition to sedative and analgesic effects. They are effective in easing the symptoms of depression and stress. Due to their stimulatory properties, which cause excitation linked to cell and nerve problems, alkaloids tend to be hazardous when consumed in large amounts. Tannins are secondary substances found in plants and are made up of a variety of polyphenols. Tannins have diverse physical and chemical characteristics depending on the type of plant, the portion of the plant, and the season (Alagbe, 2019; Farquar, 2013). Tannins hasten the recovery process for cuts and inflamed mucous membranes (Farquar, 2013).

Saponins are glycosides inclosing polycyclic aglycone moiety of triterpenoids joined to carbohydrate sugar (Mudau *et al.,* 2022; Akinsola *et al.,* 2022). High Saponin quantities have been connected with gastroenteritsis, exhibited by dysentery and diarrhea (Akinsola *et al.,* 2022). Saponin has a number of significant pharmacological properties, including antibacterial and antifungal properties (Soetan *et al*., 2006). The leaves' extract studied contained significant levels of saponins and steroids, making them excellent candidates for use as fertility enhancers. Also, high saponin levels have been linked to gastroenteritis, which is characterized by diarrhea and dysentery (Akinsola *et al.,* 2022; Okoro *et al.,* 2015b).

The plant samples are assumed to have biological properties like anti-oxidation and defense against free radicals, allergies, inflammation, platelet accumulation, viruses, bacteria, and tumors because the presence of appreciable amount flavonoids. Strong anticancer, anti-ulcer, and protection against various stages of carcinogenesis are all properties of flavonoids, which are effective water-soluble antioxidants/free radical scavengers that reduce oxidative cell damage. Cardiac glycosides are a significant class of innately occurring medications that are effective in treating congestive heart failure (Radha *et al.,* 2021; Karthik, 2015). Terpenoids have been found to have anti-malaria, antimicrobial, antiviral, anti-inflammatory, and cholesterol synthesis inhibition properties (Alagbe, 2019). The findings of this investigation demonstrate that phytochemicals are distributed relatively in solvents with varied polarities and their occurrence may be solvent dependent.

CONCLUSION

In this study, the comparative evaluation of the proximate, mineral and phytochemical compositions of two extracts (aqueous and ethanol) of *Albizia zygia* leaves was undertaken. The results showed the extracts were rich in phyto-constituents, mineral and proximate compositions, which varied with the solvent of extraction with higher contents of the components noticed in the EE relative to the AE.

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