

**Tropical Journal of Phytochemistry & Pharmaceutical Sciences**Available online at <https://www.tjpps.org>**Original Research Article****Documentation of the Medicinal and Nutritional Benefits of *Parkia biglobosa* (Jacq.) R.Br. ex G. Don Used by the People of Auta Balefi Community in Nasarawa State, Nigeria**Tayo I. Famojuro<sup>1\*</sup>, Oluwatoyin B. Famojuro<sup>2</sup>, Uduak P. Ise<sup>3</sup>, Raphael R. Wasa<sup>1</sup><sup>1</sup>Department of Pharmacognosy, Faculty of Pharmaceutical Sciences, Bingham University, Karu Nigeria.<sup>2</sup>Department of Pharmaceutical Microbiology, Faculty of Pharmacy, Olabisi Onabanjo University, Ago-Iwoye, Nigeria.<sup>3</sup>Department of Pharmacology and Toxicology, Faculty of Pharmaceutical Sciences, Bingham University Karu, Nigeria.**ABSTRACT**

Plants remain a veritable source of medicine for a substantial world population. The knowledge of medicinal properties of plants such as *Parkia biglobosa*, by indigenous people is progressively fading out due to poor record-keeping, modernization, and loss of language. Therefore, this study was designed to determine if the knowledge of *P. biglobosa* is still preserved among the inhabitants of the Auta Balefi, community. Relevant information was obtained from traditional medicine practitioners and other professionals using a semi-structured questionnaire, and one-on-one verbal communication. A total of sixty (60) respondents were interviewed. Descriptive statistics were used to analyze the information obtained. The study's findings revealed that *P. biglobosa* was widely used both medicinally and nutritionally by the people in the study area. The majority (83.3%) of respondents claimed medicinal and nutritional knowledge of the plant and acknowledged utilizing all portions of the plant medicinally for various health concerns, whilst 16.7% claimed no knowledge of the plant. The root was the most frequently mentioned therapeutic benefit (65%), while protein (33.3%) was cited for nutritional benefit, and decoction (33%) was the main method of preparation. 38.3% of respondents mixed *P. biglobosa* with other plants for medical purposes, while 61.7% did not. Most respondents (26.7%) are knowledgeable and attribute their knowledge to studies, whereas only 6.7 percent say their dreams inspired them. Phytochemical screening revealed the presence of major metabolites except for anthraquinone and flavonoids. The study concludes that inhabitants of the Auta Balefi community had medicinal and nutritional knowledge of *P. biglobosa*,

**Keywords:** Ethnopharmacological survey, *Parkia biglobosa*, Medicinal & Nutritional benefits, Phytochemicals, Karu L.G.A.

Received 23 May 2023

Revised 11 August 2023

Accepted 29 August 2023

Published online 06 September 2023

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*Parkia biglobosa*, commonly known as the African locust bean, is a tree from the family Leguminosae, that grows up to 20 to 30 m tall.<sup>1</sup> The plant is native to West and Central African countries such as Senegal, Guinea, Burkina Faso, Mali, Ghana, Nigeria Togo, Sudan, and Uganda.<sup>1</sup> Robert Brown named African locust beans after the great Scottish botanist and surgeon Mungo Park in 1926. The plant can be found in open savannah woodlands, bush fallow, and in environments ranging from tropical forests with copious and evenly distributed rainfall to desert zones.<sup>2</sup> The plant is mostly propagated by seeds, and its cultivation is a significant economic activity for many Africans, including women.<sup>2</sup> The plant produces locust beans, the mature seeds that are derived from the pods. *P. biglobosa* blooms from December to March and ripens from February to July.<sup>3</sup> The fruits are green when immature and brown when fully, and the mature seeds are made up of husks that are embedded in the dark brown pod.<sup>3</sup>

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Tel: +234 806 074 2845**Citation:** Famojuro TI, Famojuro OB, Ise UP, Wasa RR. Documentation of the Medicinal and Nutritional Benefits of *Parkia biglobosa* (Jacq.) R.Br. ex G. Don Used by the People of Auta Balefi Community in Nasarawa State, Nigeria. Trop J Phytochem Pharm. Sci. 2023; 2(3):75-81 <http://www.doi.org/10.26538/tjpps/v2i3.2>

Official Journal of Natural Product Research Group, Faculty of Pharmacy, University of Benin, Benin City, Nigeria

The pods, 5–11 inches long, found in clusters, are harvested and the seed is processed into a fermented product known as 'Dawadawa' among Hausa and Ghana's Northern tribes, 'sikomu' among the Igbo, 'nune' among the Tiv, and 'iru' among the Yoruba people of Nigeria.<sup>2</sup> The use of fermented African locust bean beans extends back many centuries and was first mentioned in the 14th century,<sup>4</sup> and A significant amount of study has been conducted on the production of African locust bean seeds and related factors such as storage, preservation, processing, cooking time, packaging, and other areas.<sup>2,5,6</sup> Attempts have also been made to do scientific research on the traditional processing, marketing, physical and chemical changes, and microorganisms involved in the processing of African locust beans.<sup>7</sup> *P. biglobosa* is critical for food security in Africa's dry and semi-arid regions, especially during times of food scarcity and drought.<sup>3</sup> It has been claimed as a food species whose value is acknowledged both regionally and internationally since, and in some African communities,<sup>2,3</sup> it is a therapeutic food as well as a source of revenue.<sup>3</sup> For example, a particular tribe in Ondo State, South Western Nigeria, the Arigidi people, have come to rely on "iru" for their domestic luxuries; they are also regarded as the biggest processors of the product in the region.<sup>9</sup> Similarly, 'Dawadawa' created from the plant by the inhabitants of Northern Nigeria, notably the North Central, has become a key delicacy in their diet. The fermented seeds of African locust beans are extensively distributed throughout West Africa, and the yearly production of African locust bean seeds in northern Nigeria is estimated to reach 200,000 tons.<sup>2</sup> African locust beans have long been recognized as an essential indigenous multipurpose fruit tree, with uses ranging from food to medicine to manure to shade, windbreaks, bee food, environmental stabilization, cattle feeds, fuel, fiber, fish poison, and a variety of other domestic applications.<sup>10</sup> Traditionally, the bark, roots, leaves, flowers,

fruits, and seeds of the plant are commonly used in West Africa to cure a wide range of diseases, both internally and topically, and are sometimes combined with other medicinal plants.<sup>2</sup> Antimalarial, anthelmintic, antibacterial, antidiabetic, antihypertensive, anti-inflammatory, analgesic, anti-carcinogenic, anti-trypanosome, and antioxidant characteristics have also been documented for the plant.<sup>11</sup> Unfortunately, indigenous knowledge involving the medicinal use of plants such as *P. biglobosa* is gradually vanishing due to a lack of good record-keeping,<sup>12</sup> modernization,<sup>13</sup> and language loss.<sup>14</sup> Without proper documentation, knowledge typically handed verbally from generation to generation may be lost and completely disappear.<sup>13</sup> As a result, there is an urgent need to preserve information before it is lost by guaranteeing documentation, preservation, and sharing of traditional knowledge among groups.<sup>15</sup> The present study was therefore performed to record the medical knowledge and nutritional benefits of *P. biglobosa* used by the people of the Auta-Balefi community, Karu Local Government Area of Nasarawa State.

## Materials and Method

### Study area

The study was conducted in the Auta Balefi community in the Karu L.G.A of Nasarawa State. It is located in central Nigeria, with proximity to the Federal Capital Territory of Nigeria (FCT). It has an area of 2,640 km<sup>2</sup>, with its headquarters located in New Karu town. 'Gbagi' is the primary indigenous language of the people in the study area, whereas the predominant language spoken in the village is Hausa, and the religion is primarily Christian, with a tiny percentage of the population being Muslim. The research area has two different seasons of tropical climate, the rainy season (April - October) and the dry season (November - March). Temperatures often range between 25°C and 32°C, with significant humidity. The vegetation in the research region is primarily guinea savanna, and the people's vocations include traditional medicine practice, orthodox medicine practice, nursing, business, civil service, and farming.

### Study Design and Data Collection

The perspective of the respondents in the study area on the medicinal and nutritional benefits of *P. biglobosa* was carried out between August and September 2022 and relevant information was collected through the use of a semi-structured questionnaire, as well as one-on-one interviews. The questionnaire is an open-ended one that allows the respondents to express themselves clearly. The questionnaire was written in English; however, the conversation was conducted in Hausa for individuals who did not fully comprehend. The questionnaire has three primary sections. (A) Respondent's socio-demographic information, (B) Knowledge of the medicinal benefits of *P. biglobosa*, and (C) Knowledge of the nutritional values of *P. biglobosa*. Respondents were informed of the goal of the study and their consent was asked shortly before the administration of the questionnaire. Furthermore, permission to publish the research findings was secured orally from them. A total of sixty (60) respondents, including herbalists, herb sellers, traditional birth attendants, and other professionals such as Civil servants, orthodox medicine practitioners' medical scientists, and nurses participated in this research. field data were evaluated and analyzed using disruptive statistics according to.<sup>16</sup>

### Collection and Preparation of Plant

Fresh leaves of *P. biglobosa* were collected in August 2022 around the Department of Pharmacognosy Medicinal Plant Garden, Bingham University. The plant sample was identified and authenticated by Dr. Tayo Famojuro at the Department of Pharmacognosy Herbarium, Bingham University, where the voucher specimen (DPHBHU 0027) of the plant was deposited. The collected leaves were washed properly to remove sand particles and other contaminants. It was cut into small pieces and air-dried for two weeks. The dried leaves were coarsely powdered using a mortar and pestle and further blended using a laboratory stainless steel blender.

### Preliminary Phytochemical Screening

Phytochemical analysis of the powdered sample of the leaves of *P. biglobosa* was carried out using the method described by <sup>17</sup>, for the

detection of saponins, tannins, phenolics, alkaloids, steroids, triterpenes, glycosides, and flavonoids.

## Results and Discussion

### Demographic Information of Respondents

The sociodemographic data of the respondents are presented in Table 1. Many (41.7%) of the respondents were between the ages of 21–30 years, while respondents of age 51 and above were only 15%. Most (50%) of the respondents were single, while only a few (3.4 %) were divorced and widowed. Some (15%) of the respondents were herbal practitioners, while the majority (85%) were other professionals including students. The most common religion among respondents (73.4%) was Christianity, followed by Islam (11.7%) and traditionalism (14.9%).

### Respondents' Medicinal Knowledge of *P. biglobosa* Plant

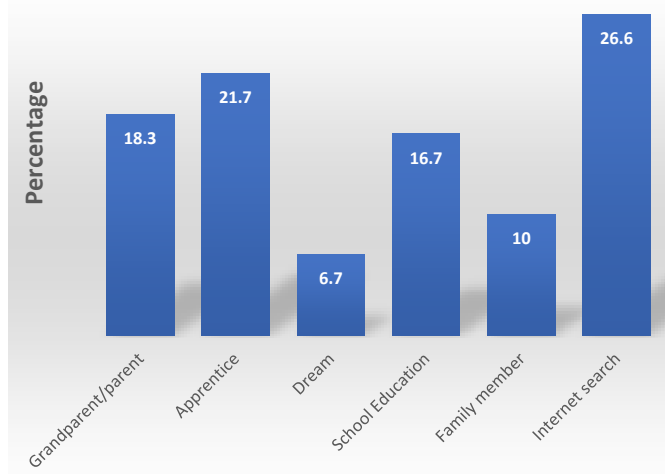
A total of sixty (60) respondents participated in the study, including herbalists, herb sellers, traditional birth attendants, and others (Civil servants, Orthodox medicine practitioners, medical scientists, and nurses) (Table 2), Eighty-three-point three percent (83.3%) of the respondents knew about the plant (*P. biglobosa*), while 16.7% of the respondents did not know about the plant.

**Table 1:** Demographic Information of the Respondents

Variables	Responses	Frequency	Percentage (%)
Sex	Male	33	55
	Female	27	45
Age	Less than 20	4	6.7
	21-30	25	41.7
	31-40	12	20
	41-50	10	16
	51 and above	9	15
Educational level	Primary	7	11.7
	Secondary	17	28.3
	Tertiary	32	53.3
	None	4	6.6
Occupation	Herbal practitioner	2	3.3
	Traditional birth attendant	2	3.3
	Herb sellers	3	5
	Herbalist		
	Others (Civil servants, Orthodox medicine practitioners, medical scientists, and nurses)	51	85
	Marital status	Single	30
Marital status	Married	28	46.6
	Widow	1	1.7
	Divorced	1	1.7
Religion	Christianity	53	88.3
	Islam	7	11.7



**Figure 1:** Photographs of the whole plant, pod, and seeds of *P. biglobosa*



**Figure 2:** Proportion of source of knowledge of respondents about *P. biglobosa*

*P. biglobosa* seed (Figure 1c) is used to treat diseases such as diarrhea, hypertension, good eyesight, stroke, diabetes, ulcers, to boost the immune system, tension, mouth ulcers, wounds, stomach pain, fever,

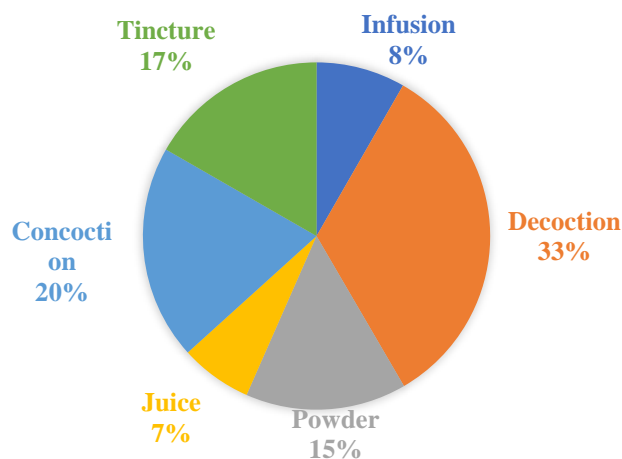
malaria, dog diseases, typhoid, digestive irregularities, kidney failure, sustains penile erection, rheumatic pain, used as an antioxidant and tenacious protection of skin. A considerable proportion of those polled utilize the seed to treat malaria, diabetes, infection, and inflammation, and to improve their vision.<sup>2</sup> while 47.7% denied the use of the plant seed for any medicinal purposes. Fifty-one percent (51.7%) of respondents reported using the plant leaves (Figure 1a) medicinally to cure high blood pressure, diarrhea, and stomach diseases, increase immunity, and treat skin infections, sores, leprosy, and ulcers. Many people utilize the leaves to cure wounds, ulcers, stomach issues, and inflammatory ailments,<sup>11</sup> whereas 29% do not. Some responders reported that ashes from the plant's leaf were used to treat burns, bacterial infections, headaches, diarrhea, stomach ulcers, malaria, persistent cough, skin cancer, and as an antiseptic, while others did not. The bark is used medicinally by 55% of respondents to treat piles in children, make mouthwash to relieve toothache, treat influx in infants, fungal infections, treat body pains, ear problems, obesity, ulcers, typhoid fever, stroke, hypertension, wound healing, leprosy, herpes zoster, abdominal pain, bronchitis, skin disease, sores, malaria, snake bite, scorpion sting, and headache. A substantial proportion of respondents claimed they mostly used the bark to cure malaria, diarrhea, aches, wounds, infection, and hypertension,<sup>18</sup> while 45% said they did not. Sixty-five percent (65%) of respondents claimed they use the root medicinally for wound healing, diarrhea, dysentery, pneumonia, making lotion used for treating sore eyes, stomach pain, blood sugar level control, good eyesight, eye problems, diabetes, stroke, helps reduce arterial blood pressure in rats, fungal infection, skin care, gastrointestinal disorder, ulcer, coccidiosis in poultry and 'Jedi-Jedi'. A bigger proportion of responders utilize the root primarily to cure diarrhea, cough, chronic piles, and hepatitis,<sup>4</sup> whereas 35% do not. The plant's powder is used to treat problems such as hypertension, and wounds, feed animals to halt purging, jaundice, and measles, boost the immune system, antioxidants, dental care, improve digestion, increase eyesight, purgative, sedative, and malaria by 23% of responders. Some respondents primarily use the plant powder to treat measles, improve the immune system, and treat hypertension,<sup>2</sup> while the majority (71.1%) do not use the powder for any treatment.

#### *Medicinal Uses of P. biglobosa in combination with other plants*

A total of 38.3% of the respondents use the plant in combination with other plants, while 61.7% said they do not use the plant with other plants (Table 3).

**Table 2:** Response of Respondent Using *P. biglobosa* Medicinally

Variables	Response	Frequency	Percentage (%)
Do you use the plant medicinally?	Yes	50	83.3
	No	10	16.7
Do you use the seed medicinally?	Yes	32	53.3
	No	28	46.7
Do you use the leaves medicinally?	Yes	31	51.7
	No	29	48.3
Do you use the bark medicinally?	Yes	33	55
	No	27	45
Do you use the root medicinally?	Yes	39	65
	No	21	35
Do you use the powder medicinally?	Yes	17	28.3
	No	43	71.7
Do you use it in combination with other plants?	Yes	23	38.3
	No	37	61.7



**Figure 3:** Proportion of respondent's method of the medicinal preparation of *P. biglobosa*

#### Respondents' Knowledge of Nutritional Use of the *P. biglobosa*

Eighty-three percent (83.3%) of the respondents have knowledge of the nutritional benefits of the *P. biglobosa*, plant, while 16.7% admitted no nutritional knowledge of the plant. A total of sixteen (16) nutrients were listed by the respondents (Table 4), and the respondents highlighted

fermentation, decoction, powdering, and making beverages as the major processes by which the nutrients are derived from the plant. In addition to the medicinal uses, some of the respondents indicated the use of the seed (Figure 1 c) of *P. biglobosa* in making locust beans (*Daddawa*), More so, some respondents use it to make Maggi, and the method of production of the locust bean and Maggi as indicated below.

For the production of locust beans, the respondents indicated that the mature seed was smashed after collecting to separate the seed from the powder, and the seed was then boiled until completely soft. The roasted seed was rinsed and fermented for three days, after which the fermented seed was coated with potassium and processed into various forms. They stated that a sufficient amount of palm oil was heated in a frying pan for Maggi (a local brand of seasoning) manufacturing from already processed locust beans, and then sugar was added and stirred until it stopped foaming. Other ingredients such as crayfish, onions, salt, Onga, garlic, curry, Ajinomoto, and Gino curry were mixed in a large basin (not plastic) and added to the processed locust bean. After that, the mixture was mashed until soft and allowed to dry. It was then placed in a suitable container. The respondents, on the other hand, said that their locally produced Maggi (a local brand of seasoning) differed from the factory-made Maggi and admitted to using other ingredients such as Onga and Ajinomoto in small amounts to conceal the taste. Respondent's Mode of Learning About Medicinal and Nutritional Benefits of *P. biglobosa*

**Table 3:** Other Plants and Their Parts Used with *P. biglobosa* for Medicinal Purposes

Other Plant	Other Plant parts	<i>P. biglobosa</i> part	Medicinal use
Shea nut ( <i>Vitellaria paradoxa</i> )	Bark	Leaf	To cure gonorrhoea and menstrual pain
Tamarind ( <i>Tamarindus indica</i> )	Leaf	Leaf	Abdominal pain and wounds
Ironwood ( <i>Oleña tesota</i> )	Leaf	Leaf	Kidney problems, liver failure, and antioxidant
Guar ( <i>Cyamopsis tetragonoloba</i> )	Gum	Gum	Kidney failure
Wattles ( <i>Acacia spp</i> )	Leaf	Leaf	To treat infections
Guava ( <i>Psidium guajava</i> )	Leaf	Leaf	To treat wounds, fever, diarrhea, and typhoid and to increase the level of milk production
Water leaf ( <i>Talinum fruticosum</i> )	Leaf	Leaf	Blood sugar regulation
Mint leaf ( <i>Mentha piperita</i> )	Leaf	Leaf	Constipation
		Root	Toothache
		Seed	Waist and joint pain
		Bark	Ulcer treatment
Sugar apple ( <i>Annona squamosa</i> ) and potassium ( <i>K – Kalium</i> )	Leaf	Seed	Dehydration, fungal infection, and leprosy
			Teething in children
		Fruit pulp	
Shea butter ( <i>Vitellaria paradoxa</i> )	Bark	Bark	Jedi-Jedi
Iroko tree ( <i>Milicia excelsa</i> ) and Sesame tree ( <i>Sesamum indicum</i> )	Oil from seed	Leaf	Burns, ear pains, and rashes
Mango ( <i>Mangifera indica</i> )	Leaf	Leaf	Diarrhea and ulcer
	Root	Leaf	Running stomach
Paw-paw ( <i>Carica papaya</i> )	Leaf	Leaf	Blood sugar level, to increase the level of milk production
	Root		Running stomach
Neem ( <i>Azadirachta indica</i> )	Leaf	Leaf	Typhoid
Fluted pumpkin ( <i>Telfaira occidentalis</i> )	Leaf	Seed	Improve blood level
Yam ( <i>Dioscorea rotundata</i> )	Porridge	Processed seed	To improve digestion
Bitter leaf ( <i>Vernonia amygdalina</i> )	Leaf	Leaf	Malaria and wounds

**Table 4:** List of Nutrients and Part of *P. biglobosa* they are Derived

Nutrients	Plant part	Frequency	Percentage (%)
Carbohydrate	Seed and powder	8	13.3
Protein	Seed and powder	15	25
Vitamin C	Yellow pulp	5	8.3
Calcium	Seed	6	10
Fat and oil	Seed	6	10
Potassium	Seed	4	6.7
Simple sugar	Yellow pulp	3	5
Phosphorus	Seed	0	0
Manganese	Seed	0	0
Copper	Seed	0	0
Vitamin-B	Seed	2	3.3
Tannin	Bark	0	0
Fiber	Gum and seed	0	0
Vitamin-D	Bark	3	5
Magnesium	Seed	0	0
Folate (Vitamin B <sub>9</sub> )	Seed	1	1.7

Figure 2 depicts a way to learn about the pharmacological and nutritional benefits of *P. biglobosa*. Few respondents (6.7%) stated that they learned about *P. biglobosa* medicinal and nutritional properties through dreams, however, the majority (26.6%) stated that browsing the internet considerably aided them in learning about many topics, including medicinal and nutritional facts about the plant under study.

#### Respondents' Method of Medicinal Preparation of *P. biglobosa*

Figure 3 shows the outcome of the *P. biglobosa* medicinal preparation. It was discovered that the majority of respondents (33%) used the decoction method in the production of plant components for therapeutic reasons. This was followed by mixture, tincture, and powder, with only a small percentage (7%) using juice in their preparation.

#### Phytochemical screening

Table 5 summarizes the results of the phytochemical screening *P. biglobosa* (African locust bean) is a tree that produces mature seeds that are fermented into a processed product that is a fantastic soup seasoning and has numerous medicinal and nutritional benefits, grows in Nigeria's North Central area and may be found practically anywhere. Interestingly, People in the research region have implicated the plant's various therapeutic and nutritional applications, which may be related to the plant's abundance and easy accessibility in the area. A large proportion of respondents (83.3%) claimed to be aware of the medicinal properties of *P. biglobosa* and hence employed various portions of the plant to treat various ailments. Hence, the plant's therapeutic value has previously been reported by <sup>4</sup>. The presence of various phytochemicals in the plant may explain why various parts of the plant are used to treat diseases such as diarrhea, hypertension, kidney failure, stroke, diabetes, malaria, typhoid fever, rheumatism, erectile dysfunction, digestive problems, ulcers, and so on. Phytochemicals are the constituents in plants that are responsible for therapeutic/pharmacological activities exerted by the plants.<sup>17</sup> Phytochemical screening of the powdered leaves of *P. biglobosa* revealed the presence of saponins, tannins, flavonoids, terpenes, phenols, sterols, alkaloids, cardiac glycosides, and anthraquinones. This was similar to the studies conducted by,<sup>19</sup> who reported the presence of resins, volatile oil, and reducing sugar in addition to the presence of the various secondary metabolites mentioned above. More so, the phytochemicals reported in this study also aligned with the work of <sup>20</sup>, where all the metabolites were reported with the exception of anthraquinones. However, the work of <sup>21</sup> also reported the absence of anthraquinones but indicated the presence of flavonoids different from our study, this variation may be attributed to the

differences in the part of the plant under study. It may also be unconnected with the time and season of the collection as well as differences in geographical location. The role of these metabolites in the general well-being of humans and society, in general, cannot be over-emphasized. For instance, Phenols and Phenolics compounds are known to be responsible for anti-inflammatory, anti-carcinogen cardiovascular protection, anti-atherosclerosis, and antioxidant activities.<sup>22,23</sup> Alkaloids have been known to be toxic to foreign organism cells, and capable of eliminating and reducing human cancer cells. Saponins have been demonstrated as a key ingredient in traditional Chinese medicine due to their activity and are known to produce inhibitory effects on inflammation.<sup>21</sup> Few (38.3%) of the respondents indicated the use of the plant, *P. biglobosa* in combination with other medicinal plants for medicinal purposes. This may be attributed to the fact that medicinal plants contain a number of constituents that may work in synergy when formulated either to be used singly or in combination with other plants.<sup>24</sup> This was evident in the work of <sup>25</sup>, where different polyherbal formulations studied showed scavenging ability against DPPH, ABTS, and NO radicals, and reduced MoO<sub>4</sub><sup>2-</sup> and Fe<sup>3+</sup> and chelated Cu<sup>2+</sup> and Fe<sup>2+</sup>. They adsorbed glucose and stimulated cellular glucose uptake.<sup>24</sup> In the same way, a polyherbal formulation (18KHT01), from extracts of *Quercus acutissima*, *Camellia sinensis*, *Geranium thunbergia*, and *Citrus limon* was studied by <sup>26</sup> for anti-obesity potentials, a strong synergistic antioxidant, antiadipogenic, and anti-obesity activities was established in the study. Hence, polyherbal formulations are effective and very potent formulations and usually contain more than one medicinal plant.<sup>27</sup> More so, the respondents admitted that the combination of the leaves of *Psidium guajava* and the leaves of *P. biglobosa* was an excellent formulation for the treatment of wounds, fever, diarrhea, and typhoid, as indicated in the study conducted by.<sup>28</sup> An advantage of a polyherbal formulation may be the ability of the formulation in some instances to counter the effect of drug resistance especially in the treatment of diseases caused by microorganisms. Decoction (33%) was the most popular preparation method of the polyherbal recipes, this can be linked to the ease with which water can be used in herbal formulation. The majority (83.3%) of the respondents stated used the plant for nutritional purposes, especially the most common which was locust beans, as a source of proteins. In addition, it was indicated that the already processed locust bean can also be used in making Maggi, a good and local brand of seasoning used for cooking that makes food tasty. The nutritional values of the plant appeared to be well known by the respondents in this study, as they affirmed that it was highly

nutritional and good for humans. *P. biglobosa* pulp was stated to be high in calories and vitamin C, while fermented grains provide calcium, lipids, and proteins to vulnerable populations, especially in West Africa.<sup>29</sup> This was demonstrated in the work of<sup>30</sup>, where considerable nutritional benefits of the plant were revealed, including carbohydrate (57.06%), fat and oil (25.62%), protein (0.62%), and crude fiber (2.55%). Several nutrients including minerals, vitamins, proteins, and fats from the pulp and fermented seed of *P. biglobosa* have also been reported.<sup>29</sup> Furthermore, the African locust bean fruit pulp has been shown to have 6.56% protein, 1.80% fat, 11.75% crude fiber, 4.18% ash, and 67.30% carbohydrate.<sup>31</sup> The respondents' capacity to identify distinct types of nutrition that can be derived from *P. biglobosa* may not be unrelated to the majority of other professions, including orthodox medicine partitioners, medical scientists, and nurses. Furthermore, the study area is home to the Bingham University Campus (ECWA). This strongly suggests that the respondents are knowledgeable about the medical and nutritional benefits of the plant, which is further supported by their method of learning: the majority (26.6%) learned through internet research, while only 6.7% were inspired by dreams. The present study documented the medicinal and nutritional benefits of *P. biglobosa*. We think this study might still not cover all the benefits of the plant, but we believe, more research needs to be carried out for more documentation of the medicinal and nutritional benefits of the plant. However, the prevalence use (83.3%) of *P. biglobosa* observed in this study suggests the importance of the plant, both in medicine and in nutrition; this can also be directly linked to various phytochemicals present in the plant.<sup>32</sup>

**Table 5:** Phytochemical Evaluation of *P. biglobosa* Leaves

Phytochemicals	Remarks
Alkaloid	+
Tannins	+
Saponins	+
Sterols	+
Terpenes	+
Glycosides	+
Phenols	+
Anthraquinones	-
Flavonoids	-

+ = Present; - = Absent

## Conclusion

In conclusion, the study discovered that the residents of the Auta Balefi community are well-versed in the nutrients found in *P. biglobosa* and their medical effects. However, further study needs to be done in the scientific community about the plant, including biological testing and validation of some of the plant's and elements' claims. The plant has been demonstrated to be both medicinal and nutritionally beneficial as a food source.

## Conflict of Interest

The authors declare no conflict of interest.

## Authors' Declaration

The authors hereby declare that the work presented in this article is original and that any liability for claims relating to the content of this article will be borne by them.

## Acknowledgments

The authors would like to thank all of the respondents who generously contributed their knowledge of the therapeutic and nutritional benefits of *P. biglobosa* in their area.

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