PHYTOCHEMICAL SCREENING OF *PARKIA BIGLOBOSA* STEM BARK AND LEAVES AQUEOUS EXTRACT

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ABSTRACT
The aqueous extract of *parkia biglobosa* stem bark and leaves were subjected to phytochemical screening for possible use in ethnoveterinary research. The secondary metabolites (component) of the extract were determined at the toxicology unit of Biochemistry Division of National Veterinary Research Institute, Vom for saponin, carbohydrate, alkanoid, tannins, flavonoids, anthraguinone, cardiac glycoside and resins using Thin Layer Chromatography (TLC). The result of the phytochemical screening in stem bark revealed the presence of all the secondary metabolic tested for while the leave extract was absent in anthraguinones and cardiac glycoside which may be its reason for the use of both stem bark and leaves of *parkia biglobosa* in traditional medicine. It was therefore concluded that base on this discovery, the phytochemical components could be further taken for investigation in ethnoveterinary Research.

Keywords: Aqueous extract, Phytochemical screening, *Parkia biglobosa*, secondary metabolites.

INTRODUCTION
Phytochemical screening is the scientific process of analyzing, examining, extracting, experimenting and thus identifying different classes of phytoconstituents present in various parts of plants for the discovery of drugs. Medicinal plants, also called medicinal herbs, have been discovered and used in traditional medicine practices since prehistoric times. Plants synthesize hundreds of chemical compounds for functions including defense against insects and diseases *Ahn* (2017). (Chollom, *et al*., 2012) also defined medicinal plants as those plants that have medicinal properties which have been proven to be useful as drugs or contain constituents that are used as drugs.

Plants are known to have the ability to produce and store a wide range of chemical substances. Most of these substances are secondary metabolites which are organic compounds that are not directly involved in the normal growth and development of plant against attacks from microorganisms and other predators Okpara, (2015).

The origin of *Parkia biglobosa*is traced to the West African sub-region where it was first encountered by the Scottish surgeon, Mungo Park as he explored the Niger basin between 1795-1799. He went ahead to describe this tree in his writing "Travels in the interior districts of Africa. *Parkia biglobosa* is a multipurpose fodder tree that belongs to the family MIMOSACEAE. Also called the "African Locust Bean Tree", it is crown large and spread wide with low branches. The leaves are alternate, dark green , bipinnate and about 8-30mm x 1.5-8mm in size with about 13-60 pairs of leaflets of distinct venation on a long rachis (Ajaiyeoba, 2002).

Herbal medicinal products are assuming greater role in lives of people across the world in the face of global upsurge of drug resistance, toxicity and the escalating cost of synthetic products. The potentials of herbal medicines and medicinal plants research result in health care scheme is no longer in doubt having gained recognition in several nations of the World Health Organization (Agunu,*et al*. 2005)

The cost of obtaining veterinary drugs is at the increase and the need for alternatives. The objective of the study is to determine the phytochemical constituents of locust bean tree (*Parkia biglobosa*) stem bark and leaves aqueous extract

MATERIALS AND METHODS
Plant Collection, Authentication and Extraction
These were carried out as earlier described by (Chollom, 2012). The stem bark and leaves of *Parkia biglobosa* were collected in Mangu Local Government Area, Plateau State of Nigeria. It was identified and authenticated at the Herbarium of Federal College of Forestry, Jos (appendix 1).

Preparation of the Plant Extract

The stem bark and leaves were air dried for seven (7) days, pulverized into powder using mortar and pestle and then sieved.

Three hundred grams (300g) of each of the powder mixed with 4 liters of distilled water was allowed to stay for 24 hours and was shaken at 30 minutes intervals. After close of work, they were kept in a freezer to avoid fermentation. The were then sieved using laboratory sieve with porosity of 150 microns and allowed to stand for 1½ hours to permit heavier particles to settle at the bottom of the measuring cylinder, and were transferred through Whatman's number 1 filter paper. The filtrate were differently transferred into an open tray and then taken into an oven (hot air oven). The oven was adjusted to 40^0C for 3 days to dry. The dried sample were scraped, measured using sensitive balance and 45gm and 48gm were obtained. The were then transferred into specimen container, crushed into fine powder using laboratory mortar and pestle.

Preliminary Phytochemical Analysis

The presence of phytochemical components in the extract was determined at the Toxicology Unit of Biochemistry Division of National Veterinary Research Institute (NVRI), Vom, as described by (Sofowora, 1984), (Okpara, *et al*. 2006), (Chollom, *et al* 2012), and (Okpara, 2015). The extract was screened for the presence of saponin, carbohydrate, alkaloid, tannins, flavonoids, anthraquinones, cardiac glycosides and resins. A thin layer chromatography (TLC) was used in analyzing the components in the extract.

RESULTS

Phytochemical Screening

The result of the phytochemical screening of aqueous extract of *parkiabiglobosa*stem bark and leaves is presented in Table 1 and 2.The result shows presence of saponin, carbohydrate, tannins, flavonoids, cardiac glycoside and resins, alkaloid and anthraquinones in the stem bark while the leaves extract shows presence of saponin, carbohydrate, tannins, flavonoids, resins, alkaloid but absent in cardiac glycoside and anthraquinones. The presence of this components in the stem bark and leaves may be the reason for its used in traditional medicine.

Table 1: Result of Phytochemical Screening of Aqueous Extract of*parkiabiglobosa* stem bark

Test	Inference
Saponin	+
Carbohydrate	+
Alkaloid	+
Tannins	+
Flavonoids	+
Anthraquinones	+
Cardiac glycoside	+
Resins	+

+ Presence; -Absence

Table 2: Result of Phytochemical Screening of Aqueous Extract of *parkia biglobosa* leaves

Test	Inference
Saponin	+
Carbohydrate	+
Alkaloid	+
Tannins	+
Flavonoids	+
Anthraquinones	-
Cardiac glycoside	-
Resins	+

+ Presence and –Absence

DISCUSSION

The presence of saponin, carbohydrate, alkaloid, tannin, flavonoids, anthrraquinones, cardiac glycoside and resins in the stem bark and saponin, carbohydrate, alkaloid, tannins, flavonoids and resins in leaves of *parkia biglobosa*aqueous extract may be the reason for it's used in traditional medicine. Traditional herbal medicine is an integral part of local culture widely used for the treatment of livestock diseases. Carbohydrate being a primary metabolite might be responsible for plant biochemical reaction like respiration and photosynthesis. Both the stem bark and leaves are known to contain more secondary metabolites like saponin, alkaloid, tannin, flavonoids and resins.

Ahn (2017) and Chollom, *et al.* (2012) reported that plants have been discovered and used in traditional medicine practice since prehistoric time. Okpara (2015) also states that plants synthesize chemical compounds for defense against insects and treatment of diseases. Kumar and Sharma (2008) observed that *parkia biglobosa* contain constituents that are used as drugs and plays major role in the treatment of various diseases which is in agreement Okpara (2005) that chemical compounds such as common sugar, alkaloid, steroids, tannin etc. in plants are responsible for curing different kind of diseases. The medicinal values of *parkia biglobosa* stem bark and leaves are likely attributed to the ethno-veterinary active compound.

CONCLUSION AND RECOMMENDATIONS

The aqueous extract of *parkia biglobosa* stem bark and leaves have been analyzed and identified to contain phyto constituents in both the stem bark and leaves although more in the stem bark than in the leaves. Base on this discovery, the phytochemical components could further be taken for investigation in ethno-veterinary research. The potential toxicity, safety and protective mechanisms of the compound in ethno- veterinary should be determined to provide an alternative to modern veterinary medicine.

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