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Phytochemical and Proximate Analysis of the Leaf, Stem and Root of *Securinega Virosa*

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ABSTRACT

The study investigated phytochemical and proximate analysis of the leaf, stem and root of Securinega virosa. The plant sample was dried under room temperature and grounded into powdered before extraction of the phytochemical using Soxhlet extractor. Result of the screening, shows that there are various phytochemicals such as saponin, alkaloid and tannin among others. The result of the study also showed the plant contain protein, crude fibre, moisture among others. Therefore, the study recommends that phytochemical properties of Securinega virosa should be harness and used in the treatment of diseases.

Keyword: phytochemical, Poximate,Securinega virosa.

1. INTRODUCTION

Securinega virosa is widely distributed plant throughout tropical Africa and in West Afrian country lie Nigeria (Dalziel,2013).This is one of the great African medicinal plant described as a true "cure all", of which all parts of that plant are used for medical purpose particularly the root (Neuwinger,2016).

Flavonoids and flavones which are some of the constituent of the plant are widely distributed secondary metabolites with antioxidant and antiradical properties (Augustin *et al*,2015). The leaves are used in the treatment of fever, body pain, stomachache, rheumatism, diarrhea, pneumonia, diabetes and epilepsy. According to Magaji *et al*., (2017) the stem bark and root back extracts of the plant possess pharmacological activity against diarrhoea in mice and rabbit jejunum and may possibly explain the use of the plant in traditional medicine. It as a result of the health benefit of the plant that warrants this study to investigate the phytochemical and proximate analysis of the parts of *Securinega virosa.*

2. Aim and Objective

The major aim of the study is to investigate the phytochemical and proximate analysis of the parts of *Securinega virosa.* The aim of the study is to ascertain;

1. The phytochemical properties of the parts(leaf, stem and root)of *Securinega virosa*
2. The proximate content of *Securinega virosa*

3. LITERATURE REVIEW

Securinega virosa is a genus of plants in the family Phyllanthaceae, first described as a genus in 1789(Govaerts *et al* 2011). As presently conceived, the genus is native to Madagascar and the Mascarene Islands in the Indian Ocean. In the past, it was considered to be much more widespread, thus explaining the long list of species formerly included. Documentation or researches carried out on S *Securinega virosa* indicate a wide range of phytochemical compounds, including saponins, alkaloids, flavonoids, triterpenes, glycosides, tannins, phenol, resins, steroids and carbohydrates. The plant is well known for its haemostatic and wound healing properties; and has also been shown to alleviate itching and pains of various intensities because of its potentials as analgesic, anti-inflammatory, anti-allergic, anti-tumorous, anti-arthritic, antibacterial, antimicrobial, anti-fungal, antihistamine,

antiviral, insecticidal and muscle relaxant(Jame,2014). The leaves are considered disinfectant, antiseptic, vulnerary, astringent and tonic. The plant also has great antioxidant properties and so may help to slow down cell damage that leads to aging and disease.

In African Traditional Medicine, *Securinega virosa* is one of the great medicinal plants described as a true "cure all". The root is the most commonly used and is said to be the most pharmacologically active part of the plant. It can be used singly or in combination with other medicinal plants to provide synergistic effect for liver, bile, kidney and urino-genital complaints.

Jimoh and Oladiji (2015) studied the phytochemicals from in the seeds of *Securinega virosa.* They reported crude protein, carbohydrate, mineral. elements, saponins, flavonoids, phenols, glycosides, anthraquinones and cardiac glycosides while tannins, steroids, phylobatannins and triterpenes were found to be absent. In thesamr view, Oloyede (2015) reported the presence of saponins and cardenolides, potassium, sodium, calcium, iron, phosphorus, zinc, copper, magnesium and manganese in considerable quantities in mature unripe pulp of *Carica papaya and Securinega virosa*

Proximate analysis of the *Securinega virosa* showed the presence of starch, sugars, crude protein, crude fat, moisture and fiber in various proportions. Tavares *et al*., (2015) reported the presence of stepholidine in genus Fusaea.

Edeoga *et al*., (2015) reported the phytochemical constituents of some Nigerian medicinal plants such as *Securinega virosa* to contain Alkaloids, tannins, flavonoids and cardiac glycosides.

3.1 Botanical Description of *Securinega virosa*

Securinega virosa is erect slender shrub, 1.5 to 2 meter tall, bark smooth, ash coloured in younger parts and blackish- brown in older.Wood hard and close-grained.

Leaves: Leaves simple, alternate, moderate sized, distichious, thin stipulate, stipules lanceolate. 3-5 cm long and 1-1.5 cm broad, coriacious oblong to elliptic inshape. Apex obtuse, venation reticulate 6-8 veins and many veinlets. Upper dark green lower parrot green in colour,

Inflorescence: Inflorescence axillary fascicles.

Male flowers: Pedicels 2-5 mm; sepals 5, ovate or rotund, 0.6-1.2 × 0.6-1.2 mm, margins entire or denticulate; disk segments 5, angular; stamens 5; filaments 0.8-1.8 mm; anthers 0.3-0.5 mm; rudimentary ovary 0.6-1.2 mm high, 2- or 3-lobed, lobes erect or recurved.

Female flowers: Pedicels 1.2-2.8 mm; sepals 5, elliptic or ovate, 0.6-0.8 mm; disk annular, sub entire at apex; ovary ovoid, 2- or 3-locular; styles 0.6-0.9 mm, connate at base, bifid at apex. Female flowers fewer than male flowers. **Berry:** Fruits about 6 mm in diameter,subglobose or spherical, white with a fleshy pericarp. Tepals persist at the base of the fruit and styles persist at the apex. Fruits are whitish in colour when ripe.

Seeds: Seeds rounded at back, minutely puncate, brownish in colour, 1.9-2.5 mm, smooth; hilum invaginated. Flowers appear in April to July & fruits from July to October. On the concave side of the seed the testa intrudes.

3.2. Chemical Composition

Securinega virosa leaves and the bark extracts show the presence of alkaloids, terpenoids, unsaturated sterols, glycosides, saponins, phenolics, flavonoids, tannins, carbohydrates and protein. All the extracts gave positive results for the above screening tests.

3.3 Antimicrobial activity of *Securinega virosa*

Ajmeer *et al* (2014) In his screening work, noted that extract of *Securinega virosa* at different concentrations was found to be comparatively highly effective against all organisms such as Gram positive, Gram negative and single fungal strain. Among three breast cancer cell phenotypes, the decoction is more cytotoxic to the Her2 negative cell lines (MCF-7 and MDA-MB-231) than to Her2 positive cell line SKBR-3.The decoction also exhibits selective cytotoxicity to the breast cancer cells in comparison with the non-cancerous breast cell line MCF-10A. These results help to rationalize the ethno-pharmacological claims.

3.4 Phytochemical Constituent of *Securinega virosa*

Some of the phytochemical constituent in *Nauclea latifolia* includes alkaloids, tannins, flavonoids, saponins, steroids, glycosides and reducing sugars glycoside, anthraquinone etc .

3.4.1 Alkaloids: These are organic nitrogenous compounds that have complex molecular structures of good pharmacological activity thus, bitter in taste and mostly basic in nature (El-Olemy*et al.*, 2013). These chemicals comprise up largest single class of secondary plant substances which contain one or more nitrogen atoms usually in combination as part of cyclic system. Alkaloids do not have an exact nomenclature but they are named as proto alkaloids, when they are without heterocyclic ring in their structures, pseudo alkaloids are those alkaloids with and without heterocyclic rings that are not derived from amino acids and the carbon skeleton is soprenoid, and true alkaloids, which are those that have heterocyclic rings in their structure. True alkaloids and photo alkaloids almost always have amino acids as their distal biosynthetic precursors and acetate is also incorporated in their structure. Alkaloids accumulate in actively growing tissues, epidermal and hypodermal cells, vascular sheath and latex vessels (Evans and Trease, 2009).

Alkaloids are usually colourless, often optically active substance, most are crystalline but few are liquid at room temperature e.g. nicotine.(Kanoma, Muhammad,Abdullahi, Shehu, Maishanu & Isah,2014).

Alkaloids are rich in the angiosperms families and are generally absent or infrequent in the gymnosperms, ferns and lower plants (Evans and Trease, 2009).

3.4.2 Tannins: The term tannins denote substances present in plant extracts which are able to combine with proteins of animal hides and convert them into leather. Tannins are widely distributed in plants and occur in solution in the cell sap, often in distinct vacuoles. Tannins are readily soluble in water or alcohol, given as stringent solution that is useful in medicine. They are also used with ferric chloride in compound inks of greenish black to bluish black colours. There are two main groups of tannins; namely, true tannins and pseudo tannins. The true tannins are complex phenolic compounds (Kanoma, Muhammad,Abdullahi, Shehu, Maishanu & Isah,2014). They display the general properties of tannins and are precipitated by gelatin in a 1% aqueous solution. True tanninsare further classified into two main classes; hydrolysable (pyrogallol) tannins (Ellagitannin and gallitannin), and condensed tannins (catechol and catechin). The pseudo tannins (gallic and ellagic acids) are simple phenolics that give some of the tests of tannins, but are not precipitated by gelatin.

Tannins have a therapeutic value as astringents, since; they are able to precipitate proteins. Through this effect they can be used to stop hemorrhage and to treat diarrhea as well as local burns (EL-Olemy*el al.*, 2013).

3.4.3 Flavonoids: These are the largest group of naturally occurring phenols and they occur in the plant both in the freestate and as glycosides. The flavonoids group may be described as a series of C6-C3-C6 compounds (Kanoma, Muhammad,Abdullahi, Shehu, Maishanu & Isah,2014).. The majority of flavonoids are characterized by containing linkage of the three carbon chain with one of the benzene rings. Flavonoids are widely distributed in nature, but are more common in the cell sap of higher plants. They usually constitute the yellow, red and blue pigments of flowers and fruits. Flavonoids are important in many industries such as fermentation of tea, tannins of. Some flavonoids have fungicidal properties and are found to protect the plant against attack by pest and parasite (Evans and Trease, 1999).

3.4.4 Saponin: Saponin is one of the groups of glycosides found in many plant species with known foaming properties when mixed with water, allowing the formation of small stable bubbles. The amount of foam created by the crushed plant samples shaken with water in a jar is a good indication of the amount of saponins present. Saponins are normally broken down in the digestive system and are toxic when absorbed into the blood stream(Kanoma, Muhammad,Abdullahi, Shehu, Maishanu & Isah,2014). They are used in modern times in the manufacture of fire extinguisher foam, tooth paste, shampoos, liquid soap and cosmetics. It is also used to increase the foaming of beer soft drink. As glycosides they are hydrolysed by acids to give an agylcone (sapogenin) and various sugar and related uronin acids. The steroidal saponin and pertocyclicterpenoids have a glycosydial linkage at -C3 and have a common biogenetic origin through malvalonic acid and isoprenoid unit (Evans and Trease, 2009).

3.5.5 Glycosides: Glycosides are non-reducing substances, which on hydrolysis with reagents or enzymes yield one or more reducing sugars among the products of hydrolysis. The non-sugar part of the molecule is called the agylcone or genin, and the sugar component, the glycine (Ogbonnaya, 2016). There are also c-glycosides (e.g. barbalion) in which the sugar is linked to the agylcone by a carbon to carbon bond. All naturally occurring glycosides are of the β-type, although the α-linkage is found in some carbohydrates such as sucrose, glycogen and starch (Evans and Trease, 2009). Glycosides occur widely in nature and occur in low concentration in nearly all plants. They occur not only in angiosperms but also in lower plants e.g. in streptomyces species. Glycosides are found in all parts of the plant, in roots, bark, leaves, flowers, fruits and seeds. Much plant pigments responsible for the colour of flowers and fruits are glycosides. Glycoside formation may well be a method of storing certain organic compounds e.g. phenols. It is also suggested that, some glycosides have a role of defence against the invasion of the tissue by micro-organisms subsequent to wounding, since many agylcones are aseptic and hence bactericidal in character. Plant glycosides that are currently used in medicine, though not larger in number, are important drugs. Glycosides of medicinal plants may be used as

cardial stimulants (e.g. digitoxin and quabian or laxatives) Sinnosides and barbaloin or local irritants e.g. sinigrin or analgesics (silicon) and against capillary frugility (hesperidin) (Evans and Trease, 2009; Obia,2014).

3.6 Previous Studies

Duru and Onyedineke (2010) reported the presence of some bioactive compounds; alkaloids, anthranoids, anthraquinone, glycosides, saponins, starch and tannins following the phytochemical analysis of ethanolic extracts of the mesocarp of *Voacanga africana*.

God'swill *et al*. (2010) made a comparative study of total phenolic contents in the aqueous and methanolic extracts of *Vernonia amygdalina* and Talinum triangulare. Ietidal *et al*. (2010) evaluated alkaloids, tannins, saponins, steroids and flavonoids in the Sudanese medicinal plants, *Acacia nilotica* L. and *Cassia obtusifolia* L.

Imaga *et al*. (2010) studied the phytochemical and antioxidant nutrient constituents of *Carica papaya* and *Parquetina nigrescens* extracts. Phytochemical screening confirmed the presence of folic acid, vitamin B12, alkaloids, saponins, glycosides, tannins and anthraquinones. This study also showed that each of these plants extracts contained flavonoids and the antioxidant vitamins A and C. Cyanogenic glycosides were absent from both plant extracts, indicative of the non-toxic effects of these plants when taken orally. Eghareva *et al*. (2010) performed phytochemical and proximate analysis of the leaves of *Piliostigma thonningii* and reported the presence of bioactive constituents of carbohydrates, glycosides, flavonoids, tannins, saponins, balsams, volatile oil, and terpenes; however, phlobatannins, resins, alkaloids, anthraquinones and sterols were not detected.

Karthishwaran *et al*. (2010) conducted phytochemical investigation of methanolic extract of the leaves of *Pergularia daemia* by TLC, HPLC and HPTLC. The scan of the methanolic extract of *P. daemia* evidenced the presence of multiple components in the extract. The results obtained after qualitative analysis confirmed by spectral analysis. It shows the presence of two major peaks observed in the HPTLC, HPLC and IR spectrum and exhibited the presence of two principle components in the methanolic extract of the leaves.

Nisha Shri *et al*. (2010) conducted phytochemical screening of the root and rhizome of *Corallocarpus epigaeus* by way of phytochemical extraction, phytochemical testing and thin layer chromatography (TLC) and reported the presence of alkaloids and flavonoids.

Dike (2010) assessed the proximate, phytochemical and nutrient compositions of fruits, seeds and leaves of some Nigerian plant species. Fat was highly represented in the family of Annonaceae. Calcium, manganese, potassium, sodium, phosphorous, iron, zinc and lead were at low concentration.

The leaves had higher percent protein, carbohydrate, moisture content and higher concentration of saponin than those of the fruits. Gangwa *et al*. (2010) reported the presence of triterpenoids, flavonoids and sterols from *Lagenaria siceraria* fruits. Kiran Kumar *et al*. (2010) studied and reported the presence of alkaloids, flavanoids, phenols, glycosides, tannins, saponins and lignins in the leaf extract of *Mirabilis jalapa*. Maurya and Singh (2010) studied the total phenolic contents in *Adhatoda vasica* leaves. Patel *et al.* (2010) showed the presence of alkaloids, tannins, saponins, amino acids, flavonoids, steroids, glycosides and carbohydrates in the seeds of *Celosia argentea*.

Okoh-Esene *et al*. (2011) performed proximate and phytochemical analysis of leaf, stem and root of *Eugenia uniflora* (Surinam or Pitanga cherry). The leaves were found to contain saponin, saponin glycosides, flavonoids, tannins and phenol. Anthracenes, balsams, alkaloids and volatile oils were absent. The stem contained phenol, tannin and flavonoid while the root contained just saponin. Proximate analysis revealed moisture, ash, fat, crude fibre, nitrogen and carbohydrates in varied proportions for leaves, stem and roots of *Eugenia uniflora*. Ayoola *et al*. (2011) performed phytochemical and nutrient evaluation of *Tetracarpidium conophorum* (Nigerian walnut) roots. Phytochemical screening was performed by Zaheer *et al*. (2011) on various extracts of flowers and bark of *Spathodea campanulata*. Tests showed the presence of carbohydrates, alkaloids, tannins, glycosides in extracts of flowers and presence of steroids, carbohydrates proteins, tannins glycosides and alkaloids in bark of the plant.

Yadav and Agarwala (2011) studied the phytochemicals of some medicinal plants (*Bryophyllum pinnatum*, *Ipomea aquatica*, *Oldenlandia corymbosa*, *Ricinus communis*, *Terminalia bellerica*, *Tinospora cordifolia*, and *Xanthium strumarium*). Proteins, carbohydrates, phenols, tannins, flavonoids, saponins, were detected in all of the plant parts tested viz., *B. pinnatum* (Leaves), *I. aquatica* (Leaves), *O. corymbosa* (Whole plant), *R. communis* (Roots), *T. bellerica* (Leaves), *T. cordifolia* (Leaves), *T. cordifolia* (Stem), and *X. strumarium* (Leaves).

4. METHOD

The plant sample (*Securinega virosa*)was collected from Okpuno Awka Anambra state Nigeria**.** The plant sample was then taken to Maeve academic research laboratory and identified by a botanist before analysis for analysis.

4.1 Equipment/ Reagents

The equipment and reagents are as follows, Text tube rack, Soxhlet extractor, Conical Flask, Electric oven, digital weighing balance, Pipette, Electric blender, Heating mantle, Concentrated sulphuric acid, glacial acetic acid, dilute hydrochloric acid, distilled water, ethanol ,Acetic anhydride, Ferric Chloride, Petroleum ether, distilled water and Methanol.

4.2 Preparation of plant sample

The samples(*Securinega virosa*) was dried for 3 days under room temperature and grinded into powdery form. Out the total 350g powder of the sample, 100g of the sample was weighted and soaked in methanol and ethanol respectively after which it was transferred into soxhlet extractor and extracted for 1hrs. The plant extract was collected and transferred into conical flask ready for the test.

4.3 Procedure Phytochemical Screening

Major metabolites classes such as alkaloids,Cardiac glycoside, Anthraquinone glycosides, flavonoids, Tannins saponins, steroids and terpenes were screened according to the methods described by a guide to modern techniques of plant analysis, Medicinal Plants and Traditional Medicine in Africa and Pharmacognosy (Harborne,1973).

4.4 Test For Phenol

2ml of the extract was pipette into a test tube, few drops of dilute ferric chloride solution is added. The formation of a red, blue, green, or purple coloration indicates the presence of phenols.

4.5 Test for Alkaloids

2ml of the extract was pipette into a test tube The filtrate was carefully tested with Mayer's reagent(potassium mercuric iodide). yellow coloured precipitate indicates the presence of alkaloids.

4.6 Cardiac glycoside

Keller-Killani test- To 2 ml of extract, few drops of glacial acetic acid was added, few drop 10 % ferric chloride and concentrated sulphuric acid were added. Appearance of reddish brown colour at the junction of the two liquid layers indicates the presence of cardiac glycosides.

4.7 Anthraquinone glycosides

Borntrager's Test – To 2 ml extract dilute sulphuric acid was added, boiled and filtered. To the cold filtrate equal volume benzene or chloroform was added. The organic layer was separated and ammonia was added. Ammonia layer turns pink or red.

4.8 Test for Flavonoids

To 2ml of extract, few drops ammonia solution was added. Appearance of yellow or orange colour indicates the presence of flavonoids.

4.7 Test for Tannins

To 2 ml water extract of all plant parts, 2 ml of 10% ferric chloride solution was added in a test tube. Blue-black precipitate indicates the presence of tannins.

4.8 Test for Saponin

To 2ml methanolic extract of all plant parts, 2 ml distilled water was added in a test tube and vigorously shaken. Persistent froth volume produced, checked each 10 minutes for 30 minutes, and indicates the presence of saponin.

4.10 Test for Steroids and Terpenes *(Liebermann-Burchard reaction)*

To 2 ml extract of all plant, 2ml acetic anhydride and few drops concentrated sulphuric acid were added in a test tube. Blue-green ring between layers indicates the presence of steroids and pink- purple ring indicates the presence of terpenes.

4.11 Quantitative Screening

The method of AOAC(1973) was adopted and used for the screening of all the parameters. The parameters that were screened are moisture content, carbohydrate, Crude fibre, protein, fat and ash content.

Moisture content: The sample size of five grams was dried for 1hr. The sample was allowed to cool down and re-weighed. The moisture content of was then determined as follows

$$\% \text{ Moisture} = \frac{\text{initial weight} - \text{final weight}}{\text{Initial weight}} \times 100$$

Ash Content : five(5g) of the sample was weighed and heated on a crucible for 30mins to char, the sample was heated till it turn white to light gray after which the sample was allowed to cool and re-weighed again. Percentage ash was calculated as follows;

$$\textbf{\%Ash} = \frac{\text{Weight of ash}}{\text{Weigh of sample}} \times 100$$

Crude fibre: The sample of five grams and defat in 20ml of petroleum ether to remove fat content. The sample was further boil under reflux for 30 minutes duration with 200ml solution of H_2SO_4 then filtered through cheese cloth on fluted funnel. This was followed by washing in boiling water until no acid traces were found in it. The sample poured into a beaker and boil for 30 minutes with 80ml free carbonate sodium hydroxide then filtered. The residual was then transfer into an oven and dried for 30min. The residual was incinerated, cooled and weighed. Percentage crude fibre was then calculated as follows

% Crude fibre = weight loss after incineration x 100

The Percentage Fat: 80g of the sample was weight into a thimble extractor and assembled into a Soxhlet apparatus and allow to reflux for 1hour. The fat content was precipitated out and collected into a beaker and allowed to cool. Percentage fat was then calculated as follows

$$\% \text{ fat} = \frac{\text{Weight of fat}}{\text{Weight of sample}} \times 100$$

Protein: The sample weight of 5 grams was weighed and 5g anhydrous sodium sulphate was added to Kjeldahl flask. To this flask we added 1g copper sulphate and selenium speck. 25ml concentrated sulphuric acid and glass beads were added. The mixture in the fume cupboard was heated gently to and keep shaking till the solution assumes a green colour at a digester temperature above 420 ^0_C. After the digestion, the digested sample was transferred into Markham distillation apparatus and stem for 15 minutes with 100ml conical flask containing 5ml of boric indicator such that the condenser tip is under the liquid. The titrate solution is received in the receiving flask with 0.01N Hydrochloric acid. The protein content is calculated as follows

$$\% \text{ Nitrogen} = \frac{Vs-Vb \times Nacid \times 0.01401 \times 100}{w}$$

Vs = Volume of acid (ml) to titrate sample

Vb = volume of acid (ml) to titrate the blank

Nacid = Normality of acid (0.1N)

W= Weight of samples

5. RESULT

Table 1 shows that phenol is present in the leaf of *Securinega virosa*, alkaloid, Cardic glycoside, Anthraquinone glycoside, Flavonoid, Saponin Steroid and Terpenes are all present in the leaf extract of the *Securinega virosa*

Table 1: Phytochemical Properties of *Securinega virosa* Leaf

Phytochemical	Methanol
Phenol	+
Alkaloid	+
Cardic glycoside	+
Anthraquinone glycoside	+
Flavonoid	+
Tannin	+
Saponin	+
Steroid	+
Terpenes	+

Key: Present (+) Absent (-)

Table 2 shows that phenol is present in the stem of *Securinega virosa* but absent in the root. Alkaloid, cardic glycoside, anthraquuinone, flavonoid, steroid and terpene are all present in the stem and leaf of the *Securinega virosa.* On the other hand, saponin and tannin are present in the stem but absent in the root while. This result indicates that some phytochemicals are present in parts of the *Securinega virosa* in various concentration.

Table 2: Phytochemical Properties of Stem and Root of *Securinega virosa*

Phytochemical	Stem	Root
Phenol	+	-
Alkaloid	+	+
Cardic glycoside	+	+
Anthraquinone glycoside	+	+
Flavonoid	+	+
Tannin	+	-
Saponin	+	-
Steroid	+	+
Terpenes	+	+

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Table 3 shows that the stem of *Securinega virosa* has moisture content of 10.88±0.4, ash content of 9.39±1.0, crude fibre of 8.80±0.5, protein content of 1.98±1.0, carbohydrate is 64.25±1.0 while fat is 4.70±0.5. moisture content of the leaf is 9.5±0.1, ash of the leaf is 13±1.0, crude fibre is 7.0±0.2, protein is 2.7±3.0, carbohydrate is 32.0±0.4 while fat is 13.0±0.3. for the root, moisture content is 10.5±2.1, ash is 12±11, crude fibre is 6.0±1.2, protein is 3.7±1.1, carbohydrate is 23.0±1.4 while fat is 16.0±0.4. this result means that the stem, bark and root of the plant *Securinega virosa* contain various proximate content.

Table 3: Proximate Constituent of *Securinega virosa*

Parameter	Stem	Leaf	Root
Moisture	10.88±0.4	9.5±0.1	10.5±2.1
Ash	9.39±1.0	13±1.0	12±11
Crude fiber	8.80±0.5	7.0±0.2	6.0±1.2
Protein	1.98±1.0	2.7±3.0	3.7±1.1
Carbohydrate	64.25±1.0	32.0±0.4	23.0±1.4
Fat	4.70±0.5	13.0±0.3	16.0±0.4

Table 4 shows that there is not significant difference on the concentration of proximate content of *Securinega virosa* at 0.05% level of significance. But there are significant differences in the parameters measured Therefore, it is concluded that proximate content of the plant are different in their concentration.

Table 4: Two way ANOVA

Source of Variation	DF	SS	MS	F	P
Parameter	5	2585.297	517.059	5.464	0.011
PLANT PART	2	76.502	38.251	0.404	0.678
Residual	10	946.293	94.629		
Total	17	3608.093	212.241		

0.05% level of significance

Fig 1 : *Securinega virosa*

6. DISCUSSION

6.1 Discussion

Finding of the study showed that *Securinega virosa* plant contains phytochemicals such as alkaloid, saponin, tannin, glycoside among others. This phytochemicals are found in both the leaf, stem and root of the plant in various concentration. This phytochemical gives the plant the therapeutic capacity which makes them a good medicinal source. The finding agree with the finding of Dike (2010) who assessed proximate, phytochemical and nutrient compositions of fruits, seeds and leaves of some Nigerian plant species and said that plant contain fat, protein, carbohydrate and moisture among others. The study also agree the finding of Gangwa *et al*. (2010) who reported the presence of triterpenoids, flavonoids and sterols from *Lagenaria siceraria* fruits. The finding of the study also corroborate with the finding of Kiran Kumar *et al*. (2010) who also reported the presence of alkaloids, flavanoids, phenols, glycosides, tannins, saponins and lignins in the leaf extract of *Mirabilis jalapa*. Finding of the study also agree with the finding of Oloyede (2015) who s reported the presence of saponins and cardenolides, potassium, sodium, calcium, iron, phosphorus, zinc, copper, magnesium and manganese in considerable quantities in mature unripe pulp of *Carica papaya and Securinega virosa.*

6. CONCLUSION

Evidence from this study clearly shows that *Securinega virosa* contain phytochemicals that are essential for both the plant and makes the plant a good source of medicine for man. It was noted from the study that the root and stem also contain phytochemical.

6.1 Recommendation

Based on the findings, it is recommended that phytochemical properties of *Securinega virosa* should be harness and used in the treatment of diseases.

6.2 Suggestion for Further Studies

Studies should be carried on the antimicrobial effect of *Securinega virosa*

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