

**EFFECT OF DIFFERENT POTTING MEDIA ON THE GROWTH OF  
FLUTED PUMPKIN**

*(Telferia occidentalis Hook.F.)*

**BY**

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**FACULTY OF AGRICULTURE**

**UNIVERSITY OF BENIN**

**BENIN CITY, NIGERIA.**

**JULY , 2021**

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## CERTIFICATION

This is to certify that this project work was carried out by **Deborah Omotomilola OLUMOKOR** with matriculation number of **AGR1500169** in the Department of Crop Science , Faculty of Agriculture , University of Benin , Benin City .

Prof . K.E. Law - Ogbomo

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Head of Department

Date :

## **DEDICATION**

This work is dedicated to God for his love that is shed abroad in my heart, his favour upon my life, he held me by his hands throughout the period of my undergraduate program, and my parents Mr and Mrs Felix Olumokor for their love , support , attention. I will also dedicate this work to my pastor Rev'd marvel Gabriel Idemudia , thank you for your prayers sir , your words were always ringing in my heart , they kept me strong .

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All the glory to God for his mercies, who granted me strength to complete this program.

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A big thank you to my parents, I love you Dad and mum ( Mr and Mrs Felix Olumokor ) for the support you have shown me . My siblings , Ayo , Pst Shola , Taye and Kehinde thank you for your encouragement , care and love , To my Papa Rev'd Marvel Gabriel Idemudia thank you for the teachings , prayers , hands laid , I know I can never miss it .

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## TABLE OF CONTENTS

<b>CONTENTS</b>	<b>PAGE</b>
Title page - - - - -	ii
Certification - - - - -	iii
Dedication - - - - -	iv
Acknowledgement - - - - -	v
Table of content - - - - -	vi
List of tables - - - - -	vii
Abstract - - - - -	viii
<b>CHAPTER ONE</b>	
Introduction - - - - -	1
<b>CHAPTER TWO</b>	
2.0 Literature review - - - - -	4
2.1 potting medium - - - - -	4
2.2 composition of potting medium - - - - -	5
2.3 The use of organic sources as potting media - - - - -	9
<b>CHAPTER THREE</b>	
3.0 Materials and Methods - - - - -	12
3.1 Experimental site - - - - -	12

3.2 Sources of Materials	-	-	-	-	-	-	-	-	12
3.3 Analysis of different potting sources	-	-	-	-	-	-	-	-	13
3.4 Experimental design	-	-	-	-	-	-	-	-	13
3.5 General procedure	-	-	-	-	-	-	-	-	13
3.6 Data collection	-	-	-	-	-	-	-	-	14
3.7 Data analysis	-	-	-	-	-	-	-	-	15
<b>CHAPTER FOUR</b>									
4.0 Results	-	-	-	-	-	-	-	-	16
4.1 Physical and chemical properties of the different potting media sources									16
4.2 height of fluted pumpkin	-	-	-	-	-	-	-	-	16
4.3 Stem girth of fluted pumpkin	-	-	-	-	-	-	-	-	17
4.4 Number of leaves of fluted pumpkin	-	-	-	-	-	-	-	-	21
4.5 leaf area ( cm2 ) of fluted pumpkin	-	-	-	-	-	-	-	-	21
4.6 Yield of fluted	-	-	-	-	-	-	-	-	22
<b>CHAPTER FIVE</b>									
5.1 Discussion	-	-	-	-	-	-	-	-	26
5.2 Conclusion and Recommendation	-	-	-	-	-	-	-	-	27
References	-	-	-	-	-	-	-	-	28

## LIST OF TABLES

<b>TABLE.</b>	<b>TITLE</b>	<b>PAGE</b>
Table 1:	Some physical and chemical properties of potting media sources -	18
Table 2:	Effect of different potting media on the height ( cm ) of fluted pumpkin -	19
Table 3:	Stem girth ( cm ) of fluted pumpkin as influenced by different potting media -	20
Table 4:	Number of leaves of fluted pumpkin as influenced by different potting media -	23
Table 5:	leaf area ( cm <sup>2</sup> ) of fluted pumpkin as influenced by different potting media -	24
Table 6:	Yield of fluted pumpkin as influenced by different potting media -	25

## ABSTRACT

The study was conducted at the screen house of the Experimental Farm of the Faculty of Agriculture, University of Benin, Benin City. Four different potting media sources: Top soil (TS), Rice husk (RS), Poultry manure (PM) and Oil Palm Refuse Bunch (OPRB), were used as substrate. The objective of the study was to determine the appropriate potting medium for the growth and yield of Fluted pumpkin (*Telferia occidentalis*). The experiment was laid out in a completely randomized design (CRD) with three replications. Data was collected on plant height, stem girth, number of leaves, leaf length, leaf girth, leaf area, dry weight, moisture content and herbage yield. Results obtained after six (6) weeks showed that Potting media had significant ( $p < 0.05$ ) effect on growth characters. Plants in top soil and Rice husk media exhibited better growth performance than poultry manure and oil palm refuse bunch. Herbage yield, dry and moisture content of fluted pumpkin were significant ( $p < 0.05$ ) by potting media. Plants sowed in top soil had the highest herbage yield which was similar with rice husk plants. Plants in top soil, rice husk and oil palm refuse bunch had comparable values. There was no yield for poultry manure plants as the plants withered immediately after four (4) weeks after sowing. Top soil potting media is thereby suggested for fluted pumpkin growers due to its ease of availability, handling and also had 12% herbage yield advantage over rice husk.

# CHAPTER ONE

## INTRODUCTION

Fluted pumpkin (*Telferia occidentalis Hook.F*), is a member of the family *Curbcbitaceae*, genus *Cucubita* ( Schippers,2002). It is a native to West Africa with countries like Nigeria, Cameroon, Benin Republic, Sierra Leone and Angola ( Akorada, 1990 ), but occurs mostly in its cultivated form in various parts of southern Nigeria ,(Odoemena, 1991). It is a leafy vegetable that produces fruits (Enabuele and Uavbarhe, 2001). Fluted pumpkin consumption has improved over the years and it is an important component of the daily diet of Nigerians ( Okoli and Mgbeogu, 2003). Due to its hypolipidemic action, it lowers blood cholesterol and thus protecting humans from a large range of associated complications like cardiac problems, hypertension and diabetes ( Margret , 2011).

It is a high climbing perennial crop with partial drought tolerant and penetrating root system. Its leaves are picked continually as the plant grows and are used in soups and porridges, as the vegetative parts of the crop makes a good vegetable rich in vitamins. This vegetable has 37.3 % protein content on a dry weight basis (Schippers, 2002). The plant also contain considerable amount of anti nutrients (Ajibade *et al .*, 2006). The crop is often planted solely from seeds often close to fences and walls to provide support for the shoots (Latham, 2002). The seeds can be boiled, roasted and eaten or ground into paste, could be used for thickening

soup (Fashina *et al.* , 2002). The production of fluted pumpkin has been impeded by some constraints which include; the poor storability of the recalcitrant seeds ( Akorada1990); dioeciously character of the crop and the demanded pressure from farmers, consumers and industrialist for the favourable potential seeds of the crop. (Fashina *et al.*, 2002) . In Nigeria, especially southern eastern parts , there is a widespread problem of soil degradation due to continuous cultivation of the soils (Schippers, 2002 ), Due to limited land resources especially in the urban areas, poor soil fertility coupled with some production techniques deployed by farmers (Nwokwu and Ekwu, 2015 ). Hence, the need for setting up potting medium in temporary gardens in urban centers. This will create employment for the urban populaces stimulate economic activity in the urban centers. The use of potting medium will enhance the cultivation of this crop in an area where flooding has taken over lands meant for agricultural purposes, This will ensure the development of environmental friendly techniques with sustainable use of resources that will increase crop productivity and overcome the low native soil fertility status.

A potting medium is a composition of organic , inorganic or combination of both materials formulated to achieve desirable chemical and physical needs required by the crop to attain its potential growth and development. A good potting medium management is essential for the production of quality crops, since vigorous

growth is needed to face the seasonal hazard encountered in the field ( Khan *et al* ., 2006 ). The dominant factors to consider when choosing materials for potting medium are optimum water holding capacity, electrical conductivity, pH, adequate aeration and organic matter content, ( Khan *et al* 2006 ). This innovation on developing and encouraging fluted pumpkin gardening and production in sub-urban and urban areas, will also ensure adequate use and recycling of organic waste, (Osaigbovo *et al* .,2012 ) generated from various sources ( e.g Poultry farms, Palm oil processing mills, Rice mills etc) in such environment. (Osaigbovo *et al* .,2010 )recommended sole decomposed oil palm refuse bunch as a superior growth medium for African star apple ( *Gambeya albida* ) seedlings, Hence , this study was undertaken to evaluate the growth of fluted pumpkin using different potting medium .

## CHAPTER TWO

### LITERATURE REVIEW

#### 2.1 Potting Medium

Potting medium is a substrate, where roots of the plants grow and extract nutrients and water from medium, it helps in the production of healthy seedlings and serves as the sole source of nutrition for the plants (Khan *et al.* , 2006 ). The type of organic materials and combination for a potting medium for seedling growth of different plants is peculiar to them (Osaigbovo *et al.* ,2010 ). Both the biological and physiochemical characteristics of a potting medium affect plant and root growth ( Ingram *et al.* ,1993 ). Three functions of potting medium are ; to support plant in the soil, to hold and provide water as well as nutrient elements and to enable plant root get sufficient amount of oxygen ( Larsen *et al.* , 2004 ) . Beside water holding capacity, better aeration,root generation, presence of organic matter in the growing medium and so many other related factors are greatly influenced by the growing medium ( Gulcu *et al.* ,2010) reported that organic materials improve soil structure and enhances soil fertility. A good potting medium must be easy to supply, process and also from a cheap source ( Singh *et al.* , 2002 )

## **2.2 Composition of potting medium**

### **Top soil**

Top soil is the uppermost and outermost layer of the soil usually the top 5.1 - 20 cm ( Brady, 1999 ). It is usually higher in organic matter and dark in colouration than the lower horizons. The top soil has the highest concentration of microorganisms and is where most of the earth biological activities occurs resulting in mineralization of nutrients (Brady, 1999 ). Three part top soil to four part poultry manure showed a much better seedling development in the growth of *Gambeya albida* ( Egharevba and Bamidele ., 1998 ). It was reported that a growing medium which contained different mixture of loam , sand and cattle manure at a ratio of 2:1:1 had a significant effect on the growth of sour orange and *twinge citrange* container growing seedlings (Nisar *et al* .,1990 ). Top soil in combination of poultry manure at 2:1 ratio showed a better seedling growth and development of *plukenetia conophorum* ( Egharevba *et al* ., 2005 ).

### **Poultry manure**

Poultry manure is an efficient organic fertilizer and also an important source of plant nutrition. It helps improve the physical properties of soil ( Reddy and Reddi, 1995 ). The amount of nutrients in poultry manure available for plants varies depending on the composition of the feed ratio, water added or lost and method of collection ( Osaigbovo *et al* ., 2010 ).

Organic material such as waste from livestock animals adds to the soil thereby increasing soil fertility. This improves the plant growth and makes the plant less prone to infection by pathogens ( Mohammad *et al.* , 2001 ). Three part top soil and four part poultry manure showed a better seedling development in the growth of *Chrysophyllum albidum* ( now known as *Gambeya albida* ). Egharevba *et al.* , (2005 ), reported that humus plus poultry manure at a ratio of 2:1 showed a better seedling growth and development of *plukenetia conophorum*. Poultry manure contains a high percentage of nitrogen and phosphorus for the healthy growth of plants ( Ewulo, 2005 ). Nitrogen is equally said to be the motor of plant growth , the improvement in the leaf quality of a crop cultivated with poultry manure could be adduced to the lower C:N and C:P ratios recorded for poultry manure in previous study ( Macrere *et al.*, 2001 ). Manure in general is known to have positive influence on soil ( Joan *et al.*, 2000 ). Sanwal *et al.* , (2007), reported that farmyard manure application significantly increased number of branches and the growth of crops . (Agbede *et al.*, 2008), reported that fruit and fruit quality is improved as a result of the application of poultry manure. Awodun (2007), observed that the number of leaves, Branches, stem girth and internode length of *Telferia occidentalis* were increased by poultry manure treatment.

### **Oil Palm Refuse Bunch**

Oil Palm Refuse Bunch is the by product of Oil Palm processing Mills, it is high in potassium contents, it has a coarse nature and is able to improve root development for an enhanced nutrient utilization because of the increase aeration in the medium (Osaigbovo *et al .*, 2010 ). According to (Aminah, 2002 ), *Dyera constulata* seedlings raised in composited oil Palm mesocarp fiber, had a significant increase in plant height, diameter and root weight compared with those grown in medium containing coconut husk, peat agro and oil palm stem compost combined with forest soil. Seedling of *Shorea loproslula* raised in potting medium with 100 % oil palm mesocarp was significantly better than those raised in coconut husk, peat agro combined with rice husk in ratio 1:3 potting medium (Aminah *et al .*, 2004 ).

Medium containing only decomposed OPRB significantly performed better for growth attributes such as number of leaves, stem girth and dry weight of shoot and roots as compared with other combination except for cow dung plus OPRB 1:2.

### **Rice husk**

It constitutes the largest by product of the milling industry ( Mervyn, 1978 ). Rice husk contains generally about 70 % fibre ( carbonaceous materials ) and between 10 - 20 % silica, 0.5 - 1 % N and about 0.5 % K<sub>2</sub>O, 0.2 % Mn, and 0.5 % Calcium

(Mervy, 1978 ). It is available in different forms using names such as parboiled, carbonised and composed. Rice husk finds use as a loose insulation material in building and for cold storage due to its thermal insulation properties, the finely ground husk is used as a filler in the manufacturing of plastics and ply woods, glues , as an anti - cake agent in the commercial fertilizer mixture and in the manufacturing of hard boards. Rice husk is the hard dry shell that protects the outermost layer of the rice kernel ( Aderolu *et al .*, 2007 ), it is usually removed during the milling process. About 770 million tonnes of rice Hus are produced annually in Asia. In Japan only, more than 1.8million tonnes per year of rice husk are produced ( Ministry of Agriculture, 2013 ). Thus, the immense amount of annually produced rice husk needs to be effectively managed. One way to accomplish this is by directly incorporating rice husk into the soil , thereby increasing soil organic matter. It's application to crop field not only improves the physical or chemical properties of soil but also resolve the waste disposal problem. It also improves soil conditions and crop production by improving soil chemical characteristics ( Zhang *et al .*,2010 ) According to ( Bandaranyake *et al .*, 1997 ), a top mixture of top soil plus cow dung plus paddy husk in a ratio of 1:2:3 gave a good seedling vigour of coconut.

### **2.3 THE USE OF ORGANIC SOURCES AS POTTING MEDIA FOR THE GROWTH OF FLUTED PUMPKIN.**

Organic agriculture has been encouraged in recent times because it is an environmental friendly system of agricultural practices. (Mussof and Odening ,2005 ). Sciallaba *et al .* , (2003 ), stated that it is the fastest growing sector in the range of 20- 25% per year globally. Nutrient balances in the soil are maintained by farmers through the incorporation of locally available organic materials or recycled farm waste.

Manures or animal fertilizers improve the soil physical properties, soil air circulation AND also supply nutrients to the plants (Hu and Barker, 2004). Large amounts of natural manures like poultry manure is easily accessible in town axes, and these are a dynamic basis of nutrients for vegetables such as tomato (Adediran 2003). Different natural organic materials are good alternatives for soil amendments. Fluctuation in the top farming soil and soilless growing media with different organic substrates raises the nutrient supply, natural defense against soil-borne diseases, and the physicochemical and biotic features of the soil (Janvier *et al.*, 2007; Veecken *et al.*, 2005).

Organic sources are variable in their nutrient content and have very little control over their nutrient content. However, organic sources can sometimes be obtained for little or no cost , it adds valuable organic matter to the soil and has slow

release of nutrients, supply secondary and trace elements occasionally lacking in conventional farming systems that rely on primary or artificial sources of fertilizer, and have been shown to cause much less pollution than inorganic fertilizers (Tilman ,1998; Bailey ,2002). Furthermore, organic sources are usually developed by farmers themselves making use of resources that are indigenous to them and adapting it to their peculiar conditions. Several studies have confirmed the use of organic manure sources by local people to conserve soil and improve their crop yields (Badayos *et al .* , 2000; Dela Cruz ,2003). For example ,Hargroveetal (1991) reported the incorporation of rice straws in soils to boost soil fertility. Some farmers have as well used other organic manure sources such as greenleaves, shrubs and crop residues etc to improve soil fertility. These substances recorded faster decomposition rates in addition to maintaining cooler surface temperatures during hot spells. The use of rice straw and rice husks in the field has been practiced for some time (Ponamperuma, 1982). Research has shown that incorporation of rice straw and rice husks can significantly improve soil properties by decreasing soil bulk density, enhancing soil pH, adding organic carbon, increasing available nutrients and removing heavy metals from the system, ultimately increasing crop yield . Ojeniyi (2006 ) , found out that oil palm refuse bunch supplied organic matter, N, P ,Ca and Mg to the soil and increase the yield of crops. It was also found to increase nutrients supply to the soil.

Palm bunch is an effective fertilizer for peat soils ( Othman *et al* ., 2005 ). In recent times it has been used as substitute for NPK fertilizers ( Awodun *et al* ., 2007 ). Safo *et al* , (1997 ), found out that OPRB increased the yield of cowpea as well as soil organic matter, available phosphorus and effective cation exchange capacity of Ghanian soils. It was recorded that OPRB is a very important liming material that is environmental friendly.

## CHAPTER THREE

### 3.0. MATERIALS AND METHODS

#### 3.1 Experimental site

The study was conducted at the Screen House of the Teaching and Research Farm of the Faculty of Agriculture, Department of Crop Science, University of Benin, Benin City, Edo State, Nigeria from March to May 2021. Benin City. The location lies between latitude 6° 20' and 17.34" N and longitude 5° 37' and 32.70 E, characterized by a tropical humid rain forest, with an average rainfall of about 1,360 mm per annum, with mean temperature of 27 °C and relative humidity of about 69 % The rainy season is from April to October and the dry season is from November to March.

#### 3.2. Sources of materials

Mature pods of *Telferia occidentalis* local variety , was bought at New Benin Market, Benin City, Edo State .**Top soil** was collected from the Forestry nursery at the Department of Forestry and Wildlife Management, Faculty of Agriculture, Benin City, Poultry manure was collected at the University of Benin farm project and cured under shade for six ( 6 ) weeks before use. Rice **husk** was collected at a rice milling factory at Auchi, Edo State, Decomposed Oil Palm Refuse Bunch was collected from a small scale oil mill factory at Uselu, Benin City, Edo State.

### **3.3 Analysis of different potting sources**

Before sowing was done, samples were taken from each of the treatments separately, The samples were air dried, ground and pass through a 2 mm mesh for the determination of the physical and chemical properties using standard laboratory procedures outlined by Mylaravapus and Kennelly ( 2002 ).

### **3.4 Experimental design**

The study involved four potting media ( top soil , poultry manure , rice husk , and. Oil palm refuse bunch ) laid out in a completely randomized design with four replications. Each treatment had three polyethylene bags giving a total of twelve (12 ) polyethylene bags per treatment.

### **3.5 General procedure**

Polyethylene bags measuring 30 by 20 cm was perforated at the bottom for easy water drainage, the different treatment were weighed separately at 6 kg weight and was used to fill the polyethylene bags, the potting was then watered. Matured Pods of Fluted pumpkin was cut opened using a Cutlass, and the seeds was removed carefully and left to air dry for two days under a shade before sowing in potting media with the different treatments. The seeds was planted one seedling per polyethylene bag. Hand weeding was carried out regularly as the need arose and watering was done twice daily ( morning and evening ). **Stalking was** done after two weeks of germination to allow proper growth and easy data collection.

### **3.6 Data collection**

Data was collected every two ( 2 )weeks until the Sixth (6 ) week for plant height, Vine girth , number of leaves , leaf length and width, leaf area.

Plant height was measured with a measuring tape calibrated in cm from the base to the terminal point of the plant , Vine girth was measured using a thread and then read out from a ruler ,Number **of** leaves was measured by counting the fully expanded leaves directly ,Leaf length was measured vertically using a measuring tape from the tip of the leaves to the base of the leaf , Leaf width was measured horizontally from one end to the other on the widest points of the leaves using a thread and reading it out with a ruler.

Leaf area was calculated from the leaf length and width, it was estimated as thus ;

$$\text{Leaf Area}=0.9467+0.2475LW+0.972LWN$$

Where

L= Leaf length

W= Leaf width

N= Number of leaves

### **Dry weight determination**

At the end of ten (10 ) weeks after sowing , the plants were harvested and shoot was separated from the leaves. The shoot was cut into bits, wrapped in foil paper

and oven dried at 70 oC to a constant weight for 48hrs in order to determine the dry weight of the shoot, % dry weight was estimated as;

$$\text{Dry weight/Fresh weight} \times \frac{100}{1}$$

Moisture content was estimated by subtracting the % dry weight from 100.

### **3.7 Data Analysis**

The data collected was subjected to Analysis of variance (ANOVA) using the GENSTAT statistical package, means were separated using the Least Significant Difference (LSD) at 5% Level of significant.

## CHAPTER FOUR

### 4.0

### RESULTS

#### **4.1 Physical and chemical properties of the different potting media sources**

The results of the physical and chemical properties of the potting media sources used are presented in Table 1. Top soil and poultry manure was moderately acidic, rice husk was slightly acidic while oil palm refuse bunch was alkaline. Total Nitrogen was below critical level for all potting media except poultry manure. Total organic carbon was higher in poultry manure, rice husk and oil palm refuse bunch than top soil. It was however highest in OPRB. Rice husk had highest exchangeable K, Mg, Cl, Na, while poultry manure had the highest exchangeable Ca. Exchangeable acidity (hydrogen and Aluminum ions) were not detected in poultry manure, oil palm refuse manure and rice husk. Sulphur content was highest in poultry manure and OPRB. The top soil was texturally Sandy loam.

#### **4.2 height of fluted pumpkin.**

Effect of different potting media on the height of fluted pumpkin are presented on Table 2. There was significant difference ( $p < 0.05$ ) in plant height in response to potting media. At 2 and 4 weeks after sowing, oil palm refuse bunch had the shortest plants which were similar with all other potting media except top soil. Top soil plants were the tallest but only taller than oil palm refuse bunch plants.

At 6 weeks after sowing ,top soil and rice husk had comparable height but significantly taller than oil palm refuse bunch. Sulphur content was highest in poultry manure and oil palm refuse bunch , the top soil was texturally Sandy loam.

#### **4.3 Stem girth of fluted pumpkin**

Stem girth of fluted pumpkin as influenced by different potting media are presented on Table 3. There was no significant difference (  $p > 0.05$  )on the stem girth of potting media sources at 2 and 4 weeks after planting , but at six weeks , top soil ,rice husk and oil palm refuse bunch plants had comparable stem girths which was higher than poultry manure which plants withered.

**Table 1: Some Physical and chemical properties of potting media sources**

Parameter	Soil	Poultry manure	Rice husk	OPRB	LSD <sub>(0.05)</sub>
pH (H <sub>2</sub> O)	5.70	6.25	7.46	8.40	1.700
Total N (g kg <sup>-1</sup> )	0.78	1.87	1.30	0.64	0.792
Organic C (g kg <sup>-1</sup> )	15.30	28.60	20.40	45.80	18.701
Available P (mg kg <sup>-1</sup> )	9.25	22.40	1.05	3.35	13.541
Exchangeable cation cmol kg <sup>-1</sup> )					
K	0.18	0.34	2.00	1.35	1.220
Ca	0.64	1.22	0.04	0.23	0.739
Mg	0.20	0.35	0.45	0.25	0.165
Na	0.13	0.35	0.18	0.15	0.150
H	0.40	0.15	0.00	0.00	0.282
Al	0.10	0.00	0.00	0.00	0.075
Sulphur (mg kg <sup>-1</sup> )	2.01	3.88	1.00	3.32	1.947
Particle size (g kg <sup>-1</sup> )					
Sand	886.00	na	na	na	na
Silt	58.00	na	na	na	na
Clay	56.00	na	na	na	na
Bulk density (g cm <sup>-3</sup> )	1.20	na	na	na	na
Porosity (%)	58.60	na	na	na	na
Electrical conductivity (d cm <sup>-3</sup> )	16.30	na	na	na	na
na - not applicable					

**Table 2 : Effect of different potting media on the height ( cm ) of fluted pumpkin.**

Potting media	weeks after sowing		
	2	4	6
Oil Palm Refuse Bunch	7.20	35.20	66.90
Poultry manure	11.90	43.40	0.00
Rice husk.	10.20	79.50	158.90
Top soil	23.50	97.80	191.60
LSD ( 0.05 )	9.870	47.620	62.640

ns - not significant at 0.05 level of significant

**Table 3: Stem girth ( cm ) of fluted pumpkin as influenced by different potting media**

Potting Media	Weeks after Sowing		
	2	4	6
Oil palm refuse bunch	1.92	1.96	2.59
Poultry manure	1.56	1.72	0.00
Rice husk.	1.88	2.05	2.55
Top soil	2.22	2.17.	2.95
LSD ( 0.05 ).	ns	ns	
0.759			

---

ns - not significant at 0.05 level of significant

#### **4.4 Number of leaves of fluted pumpkin**

Number of leaves of fluted pumpkin as influenced by different potting media are presented in Table 4. At 2 weeks after planting , there was no significant (  $p > 0.05$  ) difference in the number of leaves (  $p > 0.05$  ) of the different potting media sources . There was no significant difference among potting media sources of Top soil , oil palm refuse bunch plants. Rice husk at 4 weeks after sowing was significantly more foliated. At six weeks , the most foliated plants were observed in top soil and rice husk potting sources followed by oil palm refuse bunch and poultry manure in descending order.

#### **4.5 Leaf area ( cm<sup>2</sup> ) of fluted pumpkin**

The leaf area of fluted pumpkin as influenced by different potting media are presented in Table 5. Potting media sources of OPRB, poultry manure and Rice husk had a significant difference (  $p < 0.05$  ) on leaf area , throughout the duration of the experiment. At two weeks after sowing , the leaf area varied between 63 and 590 cm<sup>2</sup> for oil palm refuse bunch and top soil respectively , at 4 and 6 weeks after sowing ,the largest leaf area was observed in plants sowed in top soil and rice huk potting sources while oil palm refuse bunch and poultry manure plants had the smallest leaf area.

#### **4.6 Yield of fluted pumpkin**

The yield of fluted pumpkin as influenced by different potting media are presented in Table 6 .Potting media sources ( Top soil , poultry manure , Rice husk and OPRB ) had significant effect (  $p > 0.05$  ) on herbage yield, moisture content and Percentage dry weight at 10 weeks after sowing. The highest herbage yield was observed in top soil plants which was similar with rice husk but significant (  $p < 0.05$  ) from oil palm refuse bunch and poultry manure plants. There was a total failure for plants sowed in poultry manure as they withered after four weeks. OPRB , rice husk dry weight had comparable values but significantly higher than poultry manure which was zero.

**Table 4: Number of leaves of fluted pumpkin plant as influenced by different potting Media**

Potting Media	Week after sowing		
	2	4	6
Oil palm refuse bunch	5.33	8.67	12.67
Poultry manure.	6.67	12.00	0.00
Rice husk.	7.00	14.33	19.33
Top soil	7.67	15.00	19.67
LSD (0.05 )	ns	3.075.	2.977

ns - not significant at 0.05 level of significant

**Table 5: Leaf area ( cm2 ) of fluted pumpkin as influenced by different potting Media**

Potting Media sowing	Weeks after		
	2	4	6
Oil palm refuse bunch.	63	510	940
Poultry manure	147	817	0
Rice husk	241	1509	
2615			
Top soil	590	1923.	
3002			
LSD ( 0.05 )	320.6	891.9	
967.6			

**Table 6: Yield of fluted pumpkin as influenced by different potting media**

Potting Media	Herbage yield ( t/ha )	Moisture content (%)	Dry weight ( % )
Oil palm refuse bunch.	5.00	80.20	19.80
Poultry manure	0.00.	ns.	ns
Rice husk.	7.60.	81.50	18.50
Top soil	8.50.	79.30.	20.70
LSD ( 0.05 ).	3.22.	20.30.	9.00

## CHAPTER FIVE

### 5.1

### DISCUSSION

Top soil enhanced fluted pumpkin production the most despite the fact that poultry manure had the highest total Nitrogen value and the only one that is above the critical level. The problem with the poultry manure was that they were water logged and the plants sowed in the medium withered after four weeks.

The medium containing top soil produced superior plant growth in terms of plant height , stem girth , number of leaves and leaf area of fluted pumpkin seedlings . Egharevba *et al* ., (2005 ), reported that top soil produced superior growth in terms of plant height , collar girth and number of number . Lawal *et al* ., (2005 ) reported that sand and a mixture of top soil favours grape growth and that the best Vine yard grows on moderately fertile , well drained sand or gravely loam soil which contains a good supply of organic matter. Herbage yield was produced in top soil plants , rice husk , OPRB but not from poultry manure plants , This could be due to the fact that plants grown in top soil ,rice husk, and OPRB were not water logged .Themost foilated plants were observed in top soil and rice husk potting sources followed by oil palm refuse bunch and poultry manure plants in descending order , this changes in the number of leaves are bound to affect the plant growth and vigour as they are the major organs of photosynthesis

of the plant . The higher number of leaves in top soil and rice husk plant did not translate to higher herbage yield than OPRB.

## **5.2 CONCLUSION AND RECOMMENDATION**

All potting sources except poultry manure enhanced the growth and yield of fluted pumpkin. Growth was more enhanced in top soil and rice husk than in OPRB , poultry manure performed poorly due to water logging. The use of poultry manure as a poor source should be discouraged based on this study.

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