

# Factors Influencing the Awareness and Utilization of *Solanum Macrocarpon* (Egg Plant) as a Medicinal Plant among Rural Farmers in Oyo State Nigeria

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## Abstract

The study examined the awareness and utilization of *solanum macrocarpon* (eggplant) in Oyo State, Nigeria. A multi-stage random sampling technique was used to select 150 farmers in the state. Data were collected through a structured interview schedule and analyses using frequency counts percentages and chi-square. Among the respondents 71.3% are married, the mean household size was 5 persons, 92.0% were female, more than two-thirds (80.0%) of the respondents had formal education. The level of awareness of the nutritional and medicinal value of the plant was high. Sex, marital status, level of education, religion and age significantly associated with the respondents' level of utilization of the cultivation practices @  $p \leq 0.05$ . The study recommended that better cultivation practices should be introduced to the farmers by extension personnel with a view to increasing production and farmer's standard of living

**Keywords:** Awareness, Utilization, *solanum macrocarpon*.

## 1. Introduction

*Solanum macrocarpon* (egg plant) is a very popular traditional vegetable in tropical Africa. There are 2 species (*S.aethiopicum* L and *S. Macrocarpon* L.) grown for their leaves and fruits (Bonsu 1998). Then fruits are consumed fresh as well as boiled, steamed, pickled or in stews with other vegetables, African eggs plant also called garden eggs (Hausa: *Dauta*; Igbo: *Afufa* or *enana*; Yoruba *Igbagba* are highly valued constituents of Nigeria foods and families (Oladiran 1989). The eggs plant form part of the traditional sub- saharan African culture. The fruits said to represent blessings and fruitfulness are offered as a token of good will during visits, marriages and other social event. They are eaten raw and also when boiled or fried as ingredients of stews, soups and vegetable sources (Osei *et al* 2010).

Their uses indigenous medicine range from weight reduction to treatment of several ailments including asthma, allergic, rhinitis, nasal catarrh, skin infection, constipation, dyspepsis (Bello *et al* 2005).

Several studies report that folkloric use of the plants in local food and medicinal preparations, for instance, different researchers have reported significant analgesic, anti-inflammatory, anti-asthmatic, anti-glaucoma and weight reduction effects of egg plant on test animals and humans (dalziel 1937).

*Solanum macrocopen* possesses many valuable characteristics which makes it a great asset to farmers, scientist and other stakeholders. The potentials that are embedded in the vegetable includes its pharmacological properties which have been attributed to the presence of certain chemical substances in the plants such as fiber, ascorbic acid, phenols, anthocyanin and glycoalkaloids. The numerous benefits of the plants have attracted many researchers to conduct studies on all aspect of the plant with a view to knowing the usefulness of each of the components and their findings have greatly enhanced the utilization of the plant locally and globally. However despite the fact that many research institutions have conducted research on the plant because of its components which are useful in preventing certain disease like asthma, reducing poverty and hunger among farm families in Nigeria; the It is against this background information that the study is interested in examining the factors associated with the awareness and utilization of the *solanum macrocarpon* as a medicinal plant among farmers in Oyo state, Nigeria. It is against this background information that the study thus addressed the following research questions.

1. What are the socio-economic characteristics of the respondents?
2. Are the farmers aware of the plants and its usefulness?
3. What is the farmers attitude towards utilization of the plant?

## Objectives of the Study

Specifically, this study was designed to examine the socio-economic characteristics of farmers in the study area, ascertain the level of awareness of the usage of the plants among farmers, determine the attitudes of the farmers towards the cultivation practices of the plant.

## 2. Methodology

### 2.1 Area of study

The study was conducted in Oyo state, Nigeria which is bounded partly by Ogun state and republic of Benin and in the east by Osun state. It consists of Thirty Three Local Government Areas and cover a land mass of about 22, 24 square kilometer. The farmers are involved in all types of food production.

### 2.2 Method of Data Collection

Data used for the study were sourced mainly from primary and secondary sources. Primary data were collected using structured questionnaire administered to the farmers in the study area. The secondary source includes journal, articles and relevant Extension agencies in the area. Multi-stage random sampling technique was used for the study. The first stage involved the random selection of three local government areas in each selected local government area, five villages were randomly selected, within the purposively selected Local Government Area, lastly ten farmers involved in the production of the crop were randomly selected from each village from a list obtained from the agricultural development project. This gave a total of one hundred and fifty (150) respondents.

### 2.3 Method of Data Analysis

Descriptive statistical tools such as frequency counts, percentages and means were used to describe the data collected while inferential statistical tools such as chi-square was also employed to analyze the data for the study.

## 3 Results

### 3.1 Socio-Economic Characteristics of Farmers

Table 1 show that respondents within the active age engage more in farming. 74.1% of the respondents engaged in the production of the crop are within the age range of 25-45years. 48.0% of respondents were male while 52.0% were female. A significant proportion/percentage of respondents (71.3%) are married. This will serve as a means of generating family labour since women and children are able to participate in crop production. The table also shows that the distribution of respondents according to their level of Education. More than two thirds 80% of the respondents have Formal Education ranging from tertiary school to primary school while 14% have no Formal education. Aghamu (1993) stated in his findings that Farmers knowledge of farming practices made contributed to utilization. The mean household size of 6 persons. According to Onu (2005) large family size could be as a result of polygamous nature of the rural farmers. This could be linked to the fact that most rural farmers look at large household size as a good and economical ways of maximizing farm returns by using Free family labour. The result also showed that majority (63.4%) of the respondents were Christians 23.3% of the respondents were Muslims while only 13.3% were traditional worshipper.

### 3.2 Awareness of the usage of medicinal value *Salanum Macrocarpon*:

Result in Table 2 showed that majority of the respondents were highly aware that eggplants are used for various purposes. The level of awareness was relatively high. This includes vegetables ( $\bar{x} = 3.4$ ), soup condiments ( $\bar{x} = 2.4$ ), diabetics ( $\bar{x} = 2.6$ ), recipe for weight loss ( $\bar{x} = 2.4$ ), healing hookworm ( $\bar{x} = 2.3$ ). The other areas which respondents were not aware of the usage of the plants includes, ornamentals ( $\bar{x} = 1.7$ ), cleaning teeth ( $\bar{x} = 1.7$ ), ease throat pain ( $\bar{x} = 2.22$ ) regulate blood pressure ( $\bar{x} = 1.24$ ), asthma treatment ( $\bar{x} = 1.8$ ). The result showed that majority of the farmers in the study area are totally not ignorant of the advantages in the use of the crop. The result further implies that most of the farmers were seriously aware of the uses of the plant. This shows that the level of utilization of the plant could be very high among them as awareness had been established as a crucial stage in adoption process as opined by Roger (1965).

**Table 1: Distribution of Respondents by their Personal Characteristics**

Socio economic characteristics	Frequency	Percentage
Age (years)		
<25	10	6.7
26-35	40	26.7
36-45	61	10.7
46-55	35	23.4
Above 56	4	2.7
Marital status		
Single	30	20.0
Married	107	71.3
Widowed	11	7.3
Divorced	1	0.7
Separated	1	0.7
Sex		
Male	72	48.0
Female	78	52.0
Educational attainment		
Completed tertiary school	8	5.4
Attended tertiary school	5	3.3
Completed secondary school	50	33.3
Attended secondary school	38	25.3
Completed primary school	14	9.3
Attended primary school	14	9.3
No formal education	21	14.0
Household size		
1-3	14	9.4
4-6	120	80.1
7-8	7	4.6
9 and above	9	6.0
Religions		
Christianity	95	63.4
Islam	35	23.3
African Traditional	20	73.3

**Table 2: Level of Awareness of the medicinal value of *Solanum Macrocarpon*(egg plant)**

Variable	Very much aware		Aware		Just aware		Not aware		Means	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%		
Vegetable	92	61.3	42	28.0	-	-	16	10.7	3.4	
Ornamentals	15	10.0	8	5.3	38	25.3	89	59.3	1.7	
Laxative	63	42.0	50	33.3	16	10.7	21	14	3.0	
Teeth cleaning	15	10.0	18	12.0	30	20.0	87	58.0	1.7	
treating throat pain	12	8.0	29	19.3	41	27.3	68	45.3	2.2	
Soup condiments	97	64.7	10	6.7	15	10.0	28	18.6	3.2	
Diabetics	28	18.7	69	46.0	23	15.3	30	20.0	2.6	
Regulating blood pressure	19	12.7	22	14.7	20	13.3	89	59.3	1.8	
Lower eye pressure	9	6.0	10	6.7	29	19.3	102	68.0	1.2	
Recipe for weight loss	33	22.0	45	30.0	19	12.7	53	35.5	2.4	
Treating hookworm	31	20.7	51	34.0	33	22.0	35	23.3	2.3	
Asthma treatment	14	9.3	23	15.3	33	22.0	78	52.0	1.8	

### 3.3 Respondents Attitudes Towards Utilization of *Solanum Macrocarpon* Plant

Result in table 3 showed the means scores and standard deviation of farmer's attitude towards utilization of the plants. Respondents have favorable attitudes towards the following: *Solanum Macrocarpon* cultivation is simple ( $\bar{X} = 4.0$ ), cost of cultivation is low and affordable ( $\bar{X} = 3.6$ ), no specialized skills is needed ( $\bar{X} = 4.3$ ), no specialized knowledge is needed ( $\bar{X} = 3.4$ ), the taste is not delicious ( $\bar{X} = 3.6$ ), it does not have many nutritional value ( $\bar{X} = 2.3$ ), its utilization have no side effects ( $\bar{X} = 2.4$ ), it does not have many medicinal uses ( $\bar{X} = 2.4$ ), it is not generally known and accepted by people ( $\bar{X} = 2.1$ ).

The statements all indicated that respondents have favorable attitudes towards utilization of the plant. This implied that with extensive extension services, they may likely utilize the plant for income generation and health treatment in the study area. The implication of this is that they would be committed to the production of the plant

**Table 3: Distribution of Respondent's Attitude Towards Utilization of *Solanum Macrocarpon***

Statements	Mean	Std Dev.
Egg plant cultivation is simple	4.0	0.31
Cost of cultivation is low and affordable	3.6	0.83
No specialized skills is needed	4.3	0.21
No specialized knowledge is needed	3.4	0.73
The taste is not delicious	3.6	0.87
It does not have many nutritional value	2.3	0.02
Its utilization have no side effects	2.4	0.41
It does not have many medicinal uses	2.4	0.89
It is not generally known and accepted by people	2.1	0.63

### Results of Hypothesis Testing

**Table 4: Shows the Association between Socio-Economic Characteristics of Respondents and Utilization Of *Solanum Macrocarpon* Plant**

Result of chi-square analysis in table 4 showed that there were significant association between level of utilization of *solanum macrocarpon* practices and age ( $p=0.974$ ), sex ( $p=0.490$ ), marital status ( $p=0.874$ ), education ( $p=0.887$ ), Religion ( $p=0.180$ ) and Household size ( $p=0.073$ ). The relationship between sex of respondents and utilization of the plant suggest that cultivation of *solanum macrocarpon* plant may be gender bias. This means that the cultivation is twisted towards a particular sex.

Also marital status comes with some level of responsibilities. A married person would be faced with the possible ways of meeting his family needs, thus such an individual is expected to utilize more than those that are single. Similarly religion affiliation could also influence the utilization behavior of respondents. Level of Education had been linked to adoption because it increases as Education status of respondent's increases. The implication of this finding is that respondents with higher Education status are expected to utilize the cultivation practices of *solanum macrocarpon* better and quicker than those with low Education.

**Table 4: Socio-Economic Characteristics of Respondents and Their Level of Utilization of *Solanum Macrocarpon* Practices**

Characteristics	p.value	d.f	Decision
Age	0.974*	4	Significant
Gender	0.490*	1	Significant
Marital status	0.874*	4	Significant
Education	0.887*	6	Significant
Religion	0.180*	2	Significant
Household size	0.073*	3	Significant

\* significance at 0.05 level

### 4. Conclusion

The findings concludes that farmers in Oyo state, Nigeria has high level of awareness of *solanum macrocarpon* as a medicinal values with just a few exceptions of its usages. Respondent's attitudes towards utilization of the plant is favorable. The importance of agricultural sector in the country cannot be over-emphasized, particularly in the area of promoting the economic growth. Increase usage of *solanum macrocarpon* would help to increase the health status and the standard of living of the rural economy in the study area.

## 5. Recommendation

Based on the foregoing, the following recommendations were proffered as way forward.

1. Better cultivation practices should be introduced to the farmers by extension personnel with a view to increasing production and farmers standard of living
2. Extension agencies should explore and exploit the multi-task ability of the farmers through sensitizing them and drawing their attention to the vast potentials inherent in the plant
3. Farmers should be encouraged to source information on *solanum macrocarpon* from research stations for better production and knowledge about the benefits inherent in the plant

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