

Survey and Availability of Some Piscicidal Plants Used By Fishermen in Adamawa State, Nigeria

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Abstract: *The incidence of using some plants to activate fish catches is part of traditional methods of fishing which is not environmentally friendly to the aquatic ecosystem. A survey was carried out using structured questionnaire distributed among One hundred (100) fishermen fishing on lake Geriyo, Ribadu lake, Mubi and Upper Benue River to assess their awareness about the Piscicidal plants, uses, other significance, side-effect on aquatic fauna and flora, potency in catching fish were all responded to by the fishermen. The result of the study showed that 65% of the respondents were within the ages of 41-70 years while 35% were from 1 -40 years old. 45% had no formal education, 35% Quranic and primary education while 20% secondary school education and above. All of the respondents were aware about the uses and potency of the piscicidal plants. 75% of the respondents have above ten (10) years fishing experiences. 13 Piscicidal plants were assembled during this survey from various fishing locations studied. Three of the plants, Adenium obesum, Balanite aegyptica and Thevetia nerrifolia were commonly used by the fishermen. A. obesum was reported as the most effective plants and the Bark is the most effective parts of this shrub. The side effect of the piscicidal plants were mentioned by the fishermen. The uses of any of the piscicidal plants should be discouraged; fishermen should be educated on the ecological negative impact of these plants so as to preserve the biolife in the aquatic environment.*

Keys: *Fisheries, Fishing method, Piscicidal plants, phytochemical, Adamawa*

I. Introduction

Piscicidal plants have been widely used by traditional fishermen all over the world as a means of catching fish. Some of these plants are non-selective in destruction, thereby interfering with ecological balance of the immediate environment. Piscicides are phytochemical substances that are poisonous to fish the plants contain different active ingredients such as Alkaloid, Micotine, tannis, saponins, pipanne, resin, amide, ricin, glycoside, carbazole, curcin, coumanin, parkine, resoranol and cardol (Fafioye and Adewande et al., 2009.)

Useful effects of poisonous plants have been reported. In Cameron, West Africa, Dupriez and Deleener (1989) reported the use of Thevetia peruviana in limiting rat populations. The fruit from the plants are crushed and mixed with urine and sugar cane juice for use as bait to dope and capture rodents. The use of plants extracts for the control of aquatic mollusks responsible for the transmission of water-bore diseases has been documented (Kela, et al 1989). Though there benefits in the use of plant extracts in the control of snail vectors, the issue of the. Pollution of the aquatic ecosystem by such extracts, particularly their effects on culturable organisms such as fish, mollusks, shrimps and lobsters have been reported by warren (1977).

However, Alkaloids are toxic to fish at high concentration and wear off within short time (Adewumi, 1990). Several plant materials have shown to be toxic to aquatic organism, such phytospecies are Thevetia mirifonia, Euphodia paganorum, Balanites aegyptiaca, Adenium obesum and Azadirachta indica (Ayuba and Ofojekwu, 2002; Wade et al., 2002 and Fafioye, 2005 and Akinwande et al., 2007).

Create awareness on the plants which should and should not be planted or allow to grow around water body or fish pond. It also contributes to the knowledge of lethal dose that could be used on certain volume of water so as to enable the survival of other aquatic organism.

The aim of this study to have a checklist of the Piscicidal plants present in Adamawa state for scientific, research and socio benefits purpose especially regarding conservation of fisheries in the wild and to curb utilization of obnoxious chemicals which are dangerous to man's health.

II. Material And Methods

Study Area: Adamawa state located within the climate of Northern guinea savannah zone and lies between latitude 9⁰ and 11⁰ North and latitude 12⁰ and 10⁰ East the climate is tropical with two distinct seasons; dry and wet seasons.

Field Survey: One hundred structured open ended questionnaire was administered to the fishermen at Lake Geriyo, Numan and Mubi. The main data collection items were age, gender, educational background, occupation, marital status, fishing experience using poison plant.

Statistical Analysis

Data generated were subjected to ANOVA and correlation using, to ascertain the significance level at $p < 0.05$ using SPSS 10.0 window 2007 package.

III. Results And Discussion

Demography Of The Respondent

Table 1 below shows that majority of the respondent were within 51-60 years old age group and was rated 30% of the total respondent, while the least 0% was from age 1-10.

Table 1: Age of the Respondent

| S/No | Age | Frequency | Percentage (%) |
|------|---------|-----------|----------------|
| 1 | 1 – 10 | 0 | 0 |
| 2 | 11 – 20 | 10 | 10 |
| 3 | 21 – 30 | 15 | 15 |
| 4 | 31 – 40 | 10 | 10 |
| 5 | 41 – 50 | 15 | 15 |
| 6 | 51 – 60 | 30 | 30 |
| 7 | 61 – 70 | 20 | 20 |
| | Total | 100 | 100 |

Source: Survey (2013).

Gender Of The Respondent

The analysis below shows that 65% of the respondent were male, while 30% are female

Table 2 Shows Gender of the Respondent

| S/No | Gender | Frequency | Percentage (%) |
|------|--------|-----------|----------------|
| 1 | Male | 65 | 65 |
| 2 | Female | 35 | 35 |
| | Total | 100 | 100 |

Source: Survey (2013).

Educational Background Of The Respondent

The analysis below shows that 35% of the respondent are primary school graduates which is the highest percent of the total population, while the lowest is secondary and PhD with 5%. as seen in the table above. 25% goes to those with no formal education, and finally 15% goes to those with HND/BSc, and diploma.

Table 3: Shows Educational Background of the respondent

| S/No | Education | Frequency | Percentage (%) |
|------|---------------------|-----------|----------------|
| 1 | No formal education | 25 | 25 |
| 2 | Primary school | 35 | 35 |
| 3 | Secondary school | 5 | 5 |
| 4 | Diploma | 15 | 15 |
| 5 | HND/BSc | 15 | 15 |
| 6 | MSc/PhD | 5 | 5 |
| | Total | 100 | 100 |

Source: Survey (2013).

Occupation Of The Respondent

Table 4 below, 55% of the respondent are into fishing as their main occupation while 15% are farmers, 2% are civil servant. 5% practice orthodox medicine.

Table 4: Shows Occupation of the Respondent

| S/No | Occupation | Frequency | Percentage (%) |
|------|-------------------|-----------|----------------|
| 1 | Fishing | 55 | 55 |
| 2 | Farming | 15 | 15 |
| 3 | Civil servant | 10 | 10 |
| 4 | Orthodox medicine | 5 | 5 |
| | Total | 100 | 100 |

Source Survey: (2013)

Marital Status Of The Respondent

85% of the respondents were married while 5% were widow and no widower as shown in Table 5

Table 5: Shows Marital Status of the Respondent

| S/No | Marital Status | Frequency | Percentage (%) |
|------|----------------|-----------|----------------|
| 1 | Single | 10 | 10 |
| 2 | Married | 85 | 85 |
| 3 | Widow | 5 | 5 |
| 4 | Widower | 0 | 0 |
| | Total | 100 | 100 |

Source Survey: (2013).

Quality And Awareness Of The Respondent

In the Table 6, 40% of the total respondent has 11-20 years of experience, while 0% has 1-5 years, 20% are between 21-30 years and 25% are between 6-10. finally, 15% are between 31-40 years.

Table 6: Shows Quality and Awareness of the Respondent

| S/No | Experience | Frequency | Percentage (%) |
|------|------------|-----------|----------------|
| 1 | 1 – 5 | 0 | 0 |
| 2 | 6 – 10 | 25 | 25 |
| 3 | 11 – 20 | 40 | 40 |
| 4 | 21 – 30 | 20 | 20 |
| 5 | 31 – 40 | 15 | 15 |
| | Total | 100 | 100 |

Source Survey: (2013)

List Of Available Plants Poison Found In Adamawa State

The Table 7 shows the list of some piscicidal plant found in Adamawa state with their active ingredient.

Table 7: List of Available Plant poison Found in Adamawa State

| S/No | Plant Name | Habit | Location | Part Use |
|------|------------------------|---------|-------------|-------------|
| 1 | Adenium obesum | Shrub | Mubi | Bark |
| 2 | Balanite aegyptiaca | Tree | Yola, Mubi | Fruit |
| 3 | Tephrosia Vogelii Hook | Herb | Numan | Entire plan |
| 4 | Piper guineense | Climber | Demsa | Seed |
| 5 | Thevetia neriifolia | Tree | FUTY | Stem |
| 6 | Euphorbia kamerunica | Shrub | Mubi | Bark |
| 7 | Euphorbia poissonii | Shrub | Mubi | Bark |
| 8 | Carica papaya linn | Tree | Yola, Mubi | Leaves |
| 9 | Nicotiana tabacum | Herb | Mubi | Leaves |
| 10 | Manihot esculenta | Herb | Song | Root |
| 11 | Acacia Penna | Tree | Gombi | Bark |
| 12 | Rourea Thomsonii | Shrub | Mubi | Fruit |
| 13 | Ipomoea carnea | Shrub | Numan, Yola | Leaves |

Source Survey: (2013)



(a) Rourea thomsonii



(b) ipomoea carnea



(c) Adenium obesum



(d) Acacia penna



(e) *Euphobia kaerunica*



(f) *Thivetia nirifolia*

Plates1: a-f show the different Piscicidal plants identified in the studied areas of Adamawa state

Commonly Used Plant Poison By Fishermen In Adamawa State.

The table below shows that *A. obesum* has the highest number of respondent using the plant to poison fish, and that is why it is been selected to used in this research, followed by *balanite aegyptiaca* with 30% of the respondent prefer to use it as plant poison, lastly, 10% of the respondent prefer to use *Thevetia nerrifolia*.

Table 8: Shows Commonly used plant poison in Adamawa State

| S/No | Plants | Frequency | Percentage (%) |
|------|----------------------------|-----------|----------------|
| 1 | <i>Adenium obesum</i> | 60 | 60 |
| 2 | <i>Balanite aegyptiaca</i> | 30 | 30 |
| 3 | <i>Thevetia nerrifolia</i> | 10 | 10 |
| | Total | 100 | 100 |

Source Survey: (2013)

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