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THE USE OF AZADIRACHTA INDICA AS AN ABORTIFACIENT IN FIRST TRIMESTER PREGNANCIES.

Joy Ziworitin

ABSTRACT

The use of *Azadirachta indica* as an abortifacient in first trimester pregnancies. A case study of selected areas in Amassoma Town, Southern Ijaw Local Government Area of Bayelsa State, Nigeria was used. The study consisted of students of Niger Delta University (N.D.U) Wilberforce Island, Midwives, massage therapists, herbal medical practitioners and traders. Use of *Azadirachta indica* as an abortifacient in first trimester pregnancies was determined by distributing 100 questionnaires with 96 retrieved to determine the views and perspectives on the subject. The results showed that a majority of the respondents were in support of the effectiveness of *Azadirachta indica* in first trimester abortions. Different types of abortion were described. Despite the large numbers of deaths and disabilities caused by abortions the world over, the practice is still on an increase and it is widely recognized that unintended pregnancies and abortions are experiences shared by people around the world. According to Friday Okonofua (2001) between 26 and 53 million abortions are carried out annually. Different types of abortions are carried out and they are medical, vacuum aspiration also known as suction method, dilatation and evacuation and labour induction. There is presently an awareness campaign of some sorts to include natural medical abortions as a means of getting rid of unwanted pregnancies. With more knowledge of abortifacient properties of natural remedies like *Azadirachta indica*, in first trimester abortions, more calls are being made for this wonder plant colloquially known as Neem to be researched properly and more intensely. The good properties of this plant are constantly called upon and they include a high safety profile, cost effectiveness, potency and little or no ontoward effects and availability. Sensitization should be encouraged especially in women that are rape victims that desire to have an abortion but are terrified about going through any of the methods of abortion stated earlier: The results of this research are in favour of *Azadirachta indica* use.

INRODUCTION

1.1. Background of the Study: MEDICINAL PLANTS

The term medicinal plants include various types of plants that are used in herbalism (herbology or herbal medicine) is the use or application of herbs for medicinal purposes.

Herb is a word derived from the Latin word “Herba” it also derived from the old French word “Herbe”. Currently, the word herb is used to describe any part of a plant which includes seeds, fruits, stem, bark, stigma, flower, leaf and even roots as well as plants that are not woody and these include those derived from trees and shrubs. Medicinal plants also have other values such as their use as food, perfumes, flavonoids and other non physical functions.

Traditional medicine is very well practiced with many reasons why they are being increasingly used. Few of the reasons are an increase in populations, high cost of treatments, side effects and drug interactions of synthetic drugs, inadequate supply of drugs, various degrees of resistance being developed with currently used drugs for different diseases have led to more emphasis being placed on the use of plant sources in medicine for various forms of ailments in man. If we consider ancient civilizations known for their rich deposits or stores of medicinal plants, India takes centre stage because it has a large number of aromatic and medicinal plants that are collected as raw materials for the manufacture of drugs.

Over 8,000 herbal medicines are known in India according to the World Health Organization (W.H.O). About 80% of people worldwide rely on herbal medicines for their primary health care needs. The W.H.O also estimates that about 21,000 plant species have the potential for being incorporated or used as medicine. There are estimates that in developing countries such as United States of America, plant drugs make up about 25% of the total drugs, while, in fast developing countries like China and India, plant drugs make up about 80% of the total drugs.

The use of medicinal plants is not particularly dependent on any age group or sex because ancient scholars conducted thorough investigations and experimentations on herbs in order to arrive at near accurate conclusions about their effectiveness, most of the drugs are free of ontoward or side effects thereby increasing herbal remedies across the globe.

Some plants are also considered to be very important sources of nutrition and are therefore used for their therapeutic values. Some of the plants are turmeric, garlic, ginger, walnuts, and green tea. Medicinal plants are also used as natural dyes and tea. Others are also useful in pest control, perfumery and production of insecticides etc.

They are also important in the pharmaceutical industry. Herbal products in contrast to synthetic drugs are described as symbols of safety and there is an “aggressive” shift from the synthetic drugs to herbs since the exclusive dependence on synthetic drugs is grinding to a halt. More people are returning to the natural therapies in curing various diseases.

Since historic times, humans have used natural products in this case medicinal plants in amelioration of pain and in the treatment of diseases. Although a small fraction of the existing plant species have been scientifically researched for biological activities since 1805 when the first pharmacologically active compound known as Morphine was isolated from Opium, natural products and use of medicinal plants have already made great contributions to modern medicine.

A natural product is a chemical substance produced by a living organism found in nature which has a pharmacological and biological activity for use in pharmaceutical drug discovery and in the design of drugs. Natural sources may lead to basic research on potential bioactive compounds for the development of lead compounds in drug discovery in commercial quantities. Although natural products have inspired numerous drugs, development of drugs from natural

sources has not been receiving the attention it deserves in the 21st century by pharmaceutical companies and this is due in part to unreliable access concerns of expenditure and profits, problems of supply, differences in composition and other factors.

Medicinal plants such as *Azadirachta indica* (Neem) are a reliable means of obtaining efficacious medicines in the areas of traditional and conventional medicines. Akinyemi, 2000 posits that plants have been used as sources of treatments for different diseases form times past by people of all continents.

The World Health Organization (W.H.O) defines a medicinal plant as that in which some or all of its parts can be used directly in the treatment of a disease. In Africa incorporation of medicinal (herbal) into modern medicine took place during the last 20years, though an exact date on the use of plants for medicinal purposes cannot be placed accurately.

In Nigeria, most of the population depends on herbal medicine (Sofowora, 1992). It is known with evidence that Africa, North and South America together with Asia are the areas containing the world's greatest number of plant species that are not found elsewhere.

The World Health Organization (W.H.O) estimates that around 80% of the population in Africa use traditional (herbal) medicines from medicinal plants. About 85% of traditional medicine involves use of plant extracts (Farnsworth and Sejarto, 1985) implying that reliance on herbal medicine is immense. It is also estimated that in Sub Saharan Africa, there is one traditional healer for every 500 people whereas there is only one medical doctor for every 4,000 people. This simply means that the importance of herbal medicine in the life of Africa cannot be over emphasized.

The W.H.O 2000 states that over 60% of the world's population use herbal medicine for treating their sicknesses. In Africa, traditional medicine made from plants has played significant

roles in the health of millions of people. It constitutes the first line of treatment for 60% of children with different ailments (W.H.O 2001).

Herbal medicine has been described by the W.H.O as one of the surest means of achieving the total health care coverage of the World's population (Principe, 1991). In fast developing countries, like India and China, the contribution of plant drugs constitutes as much as 80% of the total drugs (Wang, 2015).

Though successes have been recorded in India, in the promotion of therapies, still more research and science based approach is needed. Ayurveda, a form of herbal medicine practiced widely in India is considered equal to conventional western medicine, traditional Chinese medicine, naturopathic medicine and homeopathic medicine. Numerous reasons explain the resurgence of herbal (natural) medicine and some of them are (1) Beliefs that herbal products are better than manufactured products (2) Herbal products being seen as a balanced approach to the process of healing (3) Due to improvements in the quality, efficacy and safety of herbal medicines (4) there is also an increase in the level of self medication (Bandaranayake, 2006).

Most people agree that other reasons for increased patronage is the lack of time to see a physician especially when previous visits did not yield positive results (Studdert et al, 1998).

According to Parle and Bansal, 2006 herbal medicine becomes particularly alluring when the body's natural capacity for self-repair given appropriate conditions is emphasized. There is also unavailability of modern health facilities being another reason for resurgence of herbal medicine use.

With increase in global use of herbal medical products, public health issues surrounding their safety are increasingly made known. Many herbal products remain untested which makes knowledge of their potential adverse effects very limited and identification of their safest and

most effective therapies as well as the promotion of their rational use more difficult (W.H.O, 2002).

1.2. STATEMENT OF PROBLEM

Traditional (herbal) medical practices are increasingly becoming a global phenomenon. It is now popular in both developing and developed countries. (Onwuliri and Wonag, 2005).

The W.H.O estimates that in many developing countries 70 – 80% of the population has used some form of alternative medicine. The World Health Organization (W.H.O) also recognizes that herbal medicines are the most popular forms of traditional medicine. There is a common misconception that natural products are not toxic and are devoid of adverse effects which often leads to improper use of unrestrained intake and this has led to severe poisoning and acute health problems.

Studies showed that 325 species and 95 families of medicinal plants were recognized as being used by most of the people in Nigeria (Monier Abd-El Ghani 2016).

According to the W.H.O 2016, traditional medicine is the sum total of the knowledge, skills and practices based on the theories, beliefs and experiences indigenous to different cultures whether explicable or not used in the maintenance of health as well as in the prevention, diagnosis, improvement or treatment of physical and mental illness. There is a rapid growth of medicinal plant markets nationally and globally.

One key to exploiting the potential of medicinal plants is to have a check list of medicinal plants. The check list of medicinal plants have been developed in some parts of Nigeria (Kayode and Ogunleye, 2008; Ojo et al 201, Tchimine et al, 2016; Singh and Singh 2014; I d'u et al, 2010). This study is an attempt to include *Azadirachta indica* as a herbal therapy in its own

right. The study is limited to Amassoma in Southern Ijaw Local Government area of Bayelsa State.

1.3. OBJECTIVE OF THE STUDY

The following objectives guide this study

- (a) To enlighten the public on the effectiveness of herbal concoctions in terminating unwanted pregnancies
- (b) Resolving problems of women scared of undergoing medical and surgical abortions.

1.4. SIGNIFICANCE OF THE STUDY

Herbs have been used as abortifacients by most rural dwelling women with little knowledge of pharmacokinetics and pharmacodynamic profiles. The study is aimed at creating awareness on these areas.

For many people medicinal plants have become a major source of income generation. By exploring the medicinal value of herbs, it can lead to an increase in markets, improve socio-economic status while also improving trade between those that are taking advantage of its value. It will help to generate income in areas where the plants are found in large quantities

CHAPTER TWO

LITERATURE REVIEW

HISTORICAL PERSPECTIVE OF HERBAL MEDICINE

In recent times large numbers of people have turned to the use of herbal products to improve their health. It is also evident that there is a resurgence of herbal treatments. According to the world Health Organizations (W.H.O) 75% of the World's population are using herbs for their basic health care needs. It is known that the pharmacological treatment of disease began with

the use of herbs (Schulz et al, 2000). From written records, we know that the Sumerians described the medicinal uses of plants at least 5000 years ago.

From archeological studies, we also know that the practice of herbal medicine dates back to 60,000 years ago in Iraq. The earliest time however recorded in Circa 1770 and 550BC in the code of Hammurabi (Babylon) and Egypt respectively.

Since medicinal plants have been used for thousands of years in folk medicines in Asian and African populations with majority of plants being consumed for their health benefits in countries that are developed. The W.H.O states that some nations still rely on plant based treatments as their major sources of medicine. Some compounds, extracted from plants are taxol, polyphenols and barassinosteroids. Attention is also geared towards production of foods with medicinal properties. We will focus on some different areas with herbal medicine practices.

CHINA:

The Chinese have used herbal remedies from ancient times. Of the more than 12,000 items used by traditional healers; about 500 are in common use (Li, 2000). The highest prevalence of the use of traditional remedies is in rural areas. There are about 5000 traditional remedies available in China and they account for approximately one fifth of the Chinese pharmaceutical market.

JAPAN:

Herbs native to Japan were named in the first pharmacopoeia of Japanese traditional medicine in the 9th century (Saito, 2000). There is a resurgence of interest in herbal medicines due to the desire to capture the wisdom of traditional systems.

UNITED STATES OF AMERICA:

In the United States of America, there are small and large scale productions of herbal products with great differences in their contents and quality.

USES OF MEDICINAL PLANTS

❖ Medicinal plants as anti-cancer agents:

Cancer is a disease that is characterized by the constant multiplication of cells on the human body. This constant growth is uncontrollable, eventually presents as tumours which have the ability to become metastatic. Available management procedures of cancer are chemotherapy, radiotherapy and use of drugs that are chemically derived. The problem of chemotherapy is that patients are left weaker than when they started the procedure.

❖ Anti inflammatory, analgesic and anti-spasmodic effects

The use of traditional herbal medicines (remedies) is becoming increasingly popular the world over. The effectiveness of plant therapies (phytotherapies) have been proven in the treatment of many diseases.

The analgesic, anti-inflammatory and anti-spasmodic activities of decoctions of plants such as *Maytenus senegalensis*, *Sterospermum kunthianum* and *Trichilia emetica* are known (Sanogo and Diallo, 2005). The analgesic, anti inflammatory and anti spasmodic actions of decoctions of these plants were reported Sanogo et al, 2006, Sanogo, 2017.

❖ Medicinal plants with uterotropic properties:

During pregnancy, herbal plants are introduced to initiate uterine contractions, in the removal of retained placenta's as well as in managing bleeding after child delivery. Some herbs have uterine smooth muscle stimulating effects. Examples of herbs with uterotonic properties include diterpenes (Kaurenoic acid), grandifloric acid, Kauradienoic acid which is

isolated from *Montanoa tomentosa* and *Aspilia mossum*. Traditionally used herbal medicines such as cyclotides found in flowering plants are ideal starting points for biological target oriented drug discovery efforts. Search for novel cyclotide producing plants and other pharmacological characterization may eventually lead to the development of uterotonic and tocolytic drugs

❖ Medicinal plants and diseases:

There was a review of the potentials of medicinal plants in Nigeria as anti malaria agents from 1999-2011 (Ibrahim et al, 2012). The reports from epidemiological evidences from various literatures showed the potential of medicinal plants in Nigeria to possess chemo preventive, chemotherapeutic, schizonticidal and antipyretic properties which are like synthetic anti malaria therapies. They proposed an intensification of natural anti-malarial research from medicinal plants in Nigeria due to the resistance posed by the parasite to different anti-malarial drugs.

❖ Medicinal Plants as stimulants:

There have been reports of the aphrodisiac (substances that increase sexual desire or behavior) properties of the plant *Securidaca longepedunculata* known by various names of English violet tree, Rhode's violet, wild wisteria etc in albino rats which was investigated by Hamza K. Yusuf (2014). He studied penile erection index (PEI) for each group of the albino rats he used for the experiment. His results showed that there was possible aphrodisiac property in the samples by very high PEI from lowest to highest values of 24 and 500 using 22 as a standard.

❖ Medicinal plants as anti-venom:

Numerous plant species known as anti venom or anti snake have been studied. Examples include; *Eclipta* species, *Curcuma longa*, *Hibiscus esculentus*, *Casaria* species, *Mucuna pruriens*, *Bauhinia forficata*, *Annoma senegaliensis*, *Piper* species, *Cordia verbenacea*, *Pentaclethra*, *Andrographis paniculata* etc. Investigations of the therapeutic potentials of plants used for snake bites shows the presence of different phytochemicals and active principles isolated have been associated with different pharmacological properties which include anti inflammatory, anti haemorrhagic and anti coagulant activities.

Methanolic leaf extracts of *Azadirachta indica* have shown significant inhibition of PLA2 enzymes (phospholipase A2 are a large family of enzymes stereospecifically numbered second carbon atom (sn2: therefore PLA2) of the triglyceride backbone of membrane phospholipids, producing 2 substances; a free fatty acid and a lysophospholipid. PLA2 is activated by trypsin, and are commonly found in mammalian tissues as well as arachnid, insect and venoms of snakes) of cobra and Russell's viper. While *Withania somnifera* has produced a glycoprotein inhibitor found in viper and cobra bites. *Tamarindus indica* has potent venom neutralizing properties.

Antibacterial and anti-parasitic activity: *Mikonia glomerata* and *Mikonia laevigata* which possess anti-parasitic, anti-ophidian and antibacterial activity has been used successfully in treating snake bites.

❖ Treatment of skin diseases:

There are different skin diseases that pose a health problem and also alienate people socially. They affect all ages from the very young to the old. Natural remedies have been used probably for as long as humans have been on earth. Benefits of natural remedies on the

treatment of skin diseases include their cost effectiveness since most of them are said to be cheap when compared with synthetic treatments. In addition, they are used as raw materials for the manufacture of synthetic drugs.

The skin is the primary line of defense, it's the largest organ in the body and it's also made up of specialized cells. It guards the structures beneath it like the muscles, ligaments, bones and internal organs. It also protects the body against disease causing organisms, regulates temperature, synthesizes vitamin D, absorb oxygen and drugs. It prevents excessive water loss. Whenever it is severely damaged, it compensates by forming scar tissue. There are different types of skin infections with the most common ones being bacterial, viral, fungal infections, rashes, tumours, cancers, disorders in pigmentation, varicose veins, rosacea, wrinkles and trauma.

Reasons for using herbal remedies for treatment of skin infection: it has been observed that using herbal remediation procedures is more gainful since it is relatively less cost intensive, treats skin diseases that are often resistant to conventional treatments with fewer side effects and duration of effective usage. About 31 plant species have been employed in the treatment of different skin problems. Some herbal dermatologic remedies include:

- (a) *Allium sativum*: commonly known as garlic from Liliaceae family; ingestion of garlic causes a delay in formation of papillomas and this is believed to be due partly to induction in mice of cellular defense mechanisms.
- (b) *Azadirachta indica*: common name Neem form family Meliaceae; leaf extracts of *Azadirachta indica* applied to boils and blisters resulted in pain ameliorations and drying up of pus. This is said to be due to the chemo-protective properties of *Azadirachta indica* against murine skin carcinogenesis.

- (c) Ethanolic extracts of *Andrographis paniculata*, *Ocimum sanctum*, *Azadirachta indica*, green tea and *Glycyrrhiza glabra* have potentials for blocking occurrence of acne.
- (d) *Brassica oleraceae*: common name – red cabbage from family Brassicaceae; this achieved very prominent reduction of tumours in mice with induced skin cancers.
- (e) *Beta vulgaris*: common name – Beetroot from family Brassicaceae; In vivo studies showed anti tumour promoting activity evaluation against mice skin and bio assay of the lung revealing a significant inhibitory effect on tumours which implies its usefulness in prevention of cancer of the skin.
- (f) *Cannabis sativus*: common name Ganja, charas in the family of Cannabinaceae: It is used in the form of powdery leaf extracts in dressing sores and wounds. Ganja is administered externally to ameliorate pain in skin diseases that are itchy. Hemp seed oil is useful in treating dermatitis, varicose eczema, psoriasis etc. with the application of hemp seed oil, the skin is strengthened and resists bacterial, fungal and viral infections better. In the control of scabies, crushed leaves are applied on affected areas.
- (g) *Curcuma longa*: common name – Turmeric in the family of Zingiberaceae: It significantly reduced tumours in mice with artificially induced skin cancers.
- (h) *Magnifera indica*: common name Mango from the family Anacardiaceae: Latex from *magnifera indica* is used in treating ulcers and the gum is used for cracked feed and scabies.
- (i) *Mirabilis jalapa*: common name – Four O'clock flower, marvel of Peru from family Nitaginaceae. It is useful in treating allergic skin disorders.
- (j) *Rose marinus officinalis*: common name Rosemary from family Labiatae:

It is found useful in the prevention of cutaneous photo damage that is induced by ultra violet radiations. Rosemary oil is also potent against acnes: a bacterium which causes acne.

(k)Lycopersicon esculentum: common name Tomato from family Solanaceae:

It is known to be able to protect against ultra violet light induced erythema, it also provides protection against acute and long term photo damage.

ABORTION:

An abortion is a procedure to end a pregnancy. It uses medicine or surgery to remove the embryo or fetus and placenta from the uterus or womb before it has reached the stage of viability. It may occur spontaneously and when it does, it is called a miscarriage or it may also be brought on purpose in which case it is called an induced abortion.

According to Merriam-Webster Dictionary an abortion is the termination of a pregnancy after accompanied by resulting in or closely followed by the death of the embryo or fetus such as spontaneous expulsion of a human fetus during the first 12 (twelve) weeks of gestation.

TYPES OF ABORTION

Medical abortion

Vacuum aspiration or suction abortion

Dilation and evacuation

Labour induction

MEDICAL ABORTION:

A medical abortion also known as non-surgical abortion is one way to terminate an early pregnancy using medications. It is provided by trained health care personnel and the duration is the time the pregnancy is confirmed up until 9 weeks from a woman's last menstrual period. Medications prescribed are Mifepristone also known as "Mifeprex" or RU-486 and Misoprostol. It works by blocking the action of the natural hormone progesterone on the uterus, what this does is to cause the lining of the uterus to shed as is obtainable in a menstrual period thereby stopping the growth of the embryo. Misoprostol also called "cytotec" causes the uterus to contract thereby initiating cramping and bleeding. Heavy bleeding that requires blood transfusion is very rare and occurs in less than 0.5% of people studied. Short term side effects of a medical abortion include nausea, vomiting, strong cramps, chills and fever. With the failure of medical abortions a surgical procedure is performed.

VACUUM ASPIRATION:

Vacuum aspiration is a surgical procedure in which the cervix is dilated (opened) and vacuum is used to remove tissue from the uterus. It is also called suction aspiration and suction evacuation.

There are two (2) methods of vacuum aspiration:

- (a) **Manual Vacuum Aspiration:** A manual vacuum aspiration procedure can be used about 5-12 weeks after a woman's last menstrual period. A syringe that is specially designed is used to apply suction.
- (b) **Machine Vacuum:** In machine vacuum aspiration, a thin tube or cannula is attached by tubing to a pump and bottle which provides gentle vacuum. The procedure involves the cannula being introduced into the uterus with the pump turned on and subsequent gentle removal of the tissue from the uterus. It takes between 10-15 minutes.

DILATION AND EVACUATION:

Dilation and evacuation is a surgical procedure performed in the second trimester of pregnancy. It includes a combination of a vacuum aspiration, dilation and curettage (D and C) and the use of the surgical instruments such as forceps. A cervical osmotic dilator is often inserted into the cervix to enable dilation (opening) of the cervix. Injuries to the cervix are minimized when the cervix is dilated.

Signs of recovery from D and C include: Cramps which are similar to menstrual cramps and may last from several hours to a few days because the uterus needs to shrink back to a non-gravid size, irregular bleeding which may be spotting for the first two (2) weeks. Red flags of complications include: severe bleeding which is different from a normal menstrual period.

LABOUR INDUCATION:

Labour induction also known as inducing labour is the stimulation of uterine contractions during pregnancy before labour begins on its own in order to achieve a vaginal birth. There are instances when labour can be induced for example when the health of a mother or her baby is of great concern.

Most times benefits outweigh risks. Some reasons for inducing labour are infection in the uterus, Oligohydramnios, High blood pressure, placental abruption, post term pregnancy etc.

PREGNANCY: This is a period of time in which a fetus develops inside the uterus or womb. Pregnancies are usually divided into segments called trimesters.

TRIMESTER: A trimester is a period of 3(three) months especially expressed as a division of the duration of pregnancy. Pregnancies are divided into 3(three) trimesters which is equivalent to 9(nine) months.

EMMENAGOGUES: These are defined in herbal medicine as herbs capable of stimulating the menstrual flow even when it is not due.

CHAPTER THREE

MATERIALS AND METHODS

Study Area:

Amassoma is in the southern Ijaw local government area of Bayelsa State, Nigeria with its headquarters in the town of Oporoma (Osokoma) with a coast line of approximately 80km on the Bight of Benin. The people and their language are known as Izon. It has an area of 2.2682km and a population of 319,413 at the 2006 census.

Study Design:

The design used for this research was descriptive survey research method. The method uses survey to gather data about varying subjects. The data aims to know the extent to which varying conditions can be obtained among subjects.

Study Population:

One hundred respondents consisting students of the Niger Delta University (NDU) Wilberforce Island, midwives, massage therapists, herbal medical practitioners and traders were used for the study.

Sampling and Sampling Procedures:

The study was carried out using a random sampling method. A total of 100 respondents were randomly selected from the various categories of NDU students, midwives, massage therapists, herbal medical practitioners and traders in Amassoma, Southern Ijaw Local Government Area of Bayelsa State, Nigeria.

Instrumentation:

The instrument for data collection was the demographic questionnaire. The questionnaire approach involved two (2) sections.

SECTION A

This section contained information relating to the demographics of the respondents such as age, sex, educational qualification, marital status, religion and occupation of respondents.

SECTION B

This section was made up to elicit information on opinion of *Azadirachta indica* as an abortifacient in first trimester pregnancies in Amassoma Town, Southern Ijaw Local Government Area of Bayelsa State, Nigeria.

METHOD OF DATA COLLECTION

The instruments were administered to the participants in their various locations. One hundred participants were randomly selected, briefed on the purpose of the research and also assured of confidentiality. They administered questionnaires we collected from the respondent within 2 (two) days and a total of 96 questionnaires were retrieved.

CHAPTER FOUR

RESULT AND DISCUSSION

Introduction:

Findings of this research are discussed in this chapter. One hundred (100) questionnaires were distributed to respondents in Amassoma Town in Southern Ijaw Local Government Area of Bayelsa State, Nigeria. The respondents comprised of students of Niger Delta University, Wilberforce Island, Bayelsa State, herbal medical practitioners, massage therapists, midwives and traders.

TABLE 1: QUESTIONNAIRE DISTRIBUTION AND RETRIEVAL

S/No.	RESPONDENTS	No. of Questionnaires Administered.	No. of Questionnaires Retrieved.
1.	Students of Niger Delta University (N.D.U)	20	20
2.	Herbal medical practitioners	20	20
3.	Massage Therapists	20	18
4.	Mid Wives	20	20
5.	Traders	20	18
	TOTAL	100	96

TABLE 1

The above table shows the distribution and retrieval of questionnaires administered to the different respondents. A total of 100 questionnaires were administered and 96 were retrieved.

RESEARCH QUESTION 1

Table 4.2.

How often are natural (herbal) remedies employed in termination of first trimester pregnancies in Amassoma, Southern Ijaw Local government area of Bayelsa State.

S/No.	QUESTION	AGREE (A)	STRONGLY AGREE (SA)	DISAGREE (D)	STRONGLY DISAGREE (SD)
1.	Is Azadirachta indica potent when used alone in terminating first trimester pregnancy?	20	64	8	4
2.	Azadirachta indica is often administered in conjunction with other natural remedies in terminating first trimester pregnancies?	8	30	8	50
3.	Other natural remedies are frequently used in place of Azadirachta indica in terminating first trimester pregnancies.	10	6	24	56

Figure 4.2 shows 20 respondents agreed that Azadirachta indica is potent when used alone in terminating first trimester pregnancies, 64 respondents strongly agreed that Azadirachta indica is potent when used alone in terminating first trimester pregnancies, 8 respondents disagreed and 4 respondents strongly disagreed that Azadirachta indica is potent when used alone in terminating first trimester pregnancies.

While 8 respondents agreed that Azadirachta indica is often administered in conjunction with other natural remedies in terminating first trimester pregnancies, 30 respondents strongly agreed, 8 respondents disagreed and 50 respondents strongly disagreed that Azadirachta indica

is often administered in conjunction with other natural remedies in terminating first trimester pregnancies.

10 respondents agreed that other natural remedies are frequently used in place of Azadirachta indica in terminating first trimester pregnancies, 6 respondents strongly agreed, 24 respondents disagreed that other natural remedies are frequently used in place of Azadirachta indica in terminating first trimester pregnancies. 56 respondents strongly disagreed that other natural remedies are frequently used in place of Azadirachta indica in terminating first trimester pregnancies in Amassoma Town, Southern Ijaw Local Government area of Bayelsa State, Nigeria.

RESEARCH QUESTION 2

Table 4:3

To what extent is Azadirachta indica used in place of medical and surgical means of terminating first trimester pregnancies

S/No.	QUESTION	AGREE (A)	STRONGLY AGREE (SA)	DISAGREE (D)	STRONGLY DISAGREE (SD)
1.	Is Azadirachta indica first choice of natural abortifacients used in terminating first trimester pregnancies?	24	40	22	10
2.	Is there enough information on the use of Azadirachta indica in first trimester abortions?	20	14	40	22

3.	Is the management of Niger Delta University aware of students use of Azadirachta indica as an abortifacient in first trimester pregnancies?	8	4	36	48
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Figure 4:3 shows that 24 respondents agree that Azadirachta indica is the choice of natural abortifacients used in terminating first trimester pregnancies. 40 respondents strongly agreed, 22 respondents disagreed while 10 strongly disagree that Azadirachta indica is the first choice of natural abortifacients used in terminating first trimester pregnancies in Amassoma Town, Southern Ijaw local Government area of Bayelsa State.

20 respondents agreed that there is enough information on the use of Azadirachta indica in first trimester abortions. 14 respondents strongly agreed, 40 respondents disagreed while 22 respondents strongly disagreed that there is enough information on the use of Azadirachta indica in first trimester abortions.

8 respondents agreed that the management of Niger Delta University is aware of students use of Azadirachta indica in termination of first trimester pregnancies. 4 respondents strongly agreed, 36 respondents disagreed while 48 respondents strongly disagreed that the management of Niger Delta University is aware of student's use of Azadirachta indica in termination of first trimester pregnancies.

RESEARCH QUESTION 3**TABLE 4:4**

In what ways do mid wives, massage therapists, herbal medical practitioners and traders encourage student's use of Azadirachta indica.

S/No.	QUESTION	AGREE (A)	STRONGLY AGREE (SA)	DISAGREE (D)	STRONGLY DISAGREE (SD)
1.	Are students compelled to use Azadirachta indica as the first option in terminating first trimester pregnancies?	8	6	26	56
2.	Do students abuse the use of Azadirachta indica in terminating first trimester pregnancies?	28	40	18	10
3.	Are there major on toward effects of Azadirachta indica use in terminating first trimester pregnancies?	8	4	30	54

Figure 4:4 shows 8 respondents agreed that students are compelled to use Azadirachta indica as the first option in terminating first trimester pregnancies, 6 respondents strongly agreed that students are compelled to use Azadirachta indica; 26 respondents disagreed that students are compelled to use Azadirachta indica while 56 respondents strongly disagreed that students are compelled to use Azadirachta indica as the first option in terminating first trimester pregnancies.

28 respondents agreed that students abuse the use of Azadirachta indica in terminating first trimester pregnancies; 40 respondents strongly agreed; 18 respondents disagreed that students abuse the use of Azadirachta indica in terminating first trimester pregnancies while 10 respondents strongly disagreed that students abuse the use of Azadirachta indica in terminating first trimester pregnancies.

8 respondents agreed that there are major on toward effects of Azadirachta indica use in terminating first trimester pregnancies; 4 strongly agreed; 30 respondents disagreed that there are major on toward effects of Azadirachta indica use in terminating first trimester pregnancies while 54 respondents strongly disagreed that there are major on toward effects of Azadirachta indica use in terminating first trimester pregnancies.

CONCLUSION:

Abortion has been concisely defined by different sources as the expulsion of a fetus from the uterus before it has reached the stage of viability. In human beings it is usually about the 20th week of gestation. An abortion may occur spontaneously in which case it is called a miscarriage, or it may be brought on purposely in which case it is often called an induced abortion.

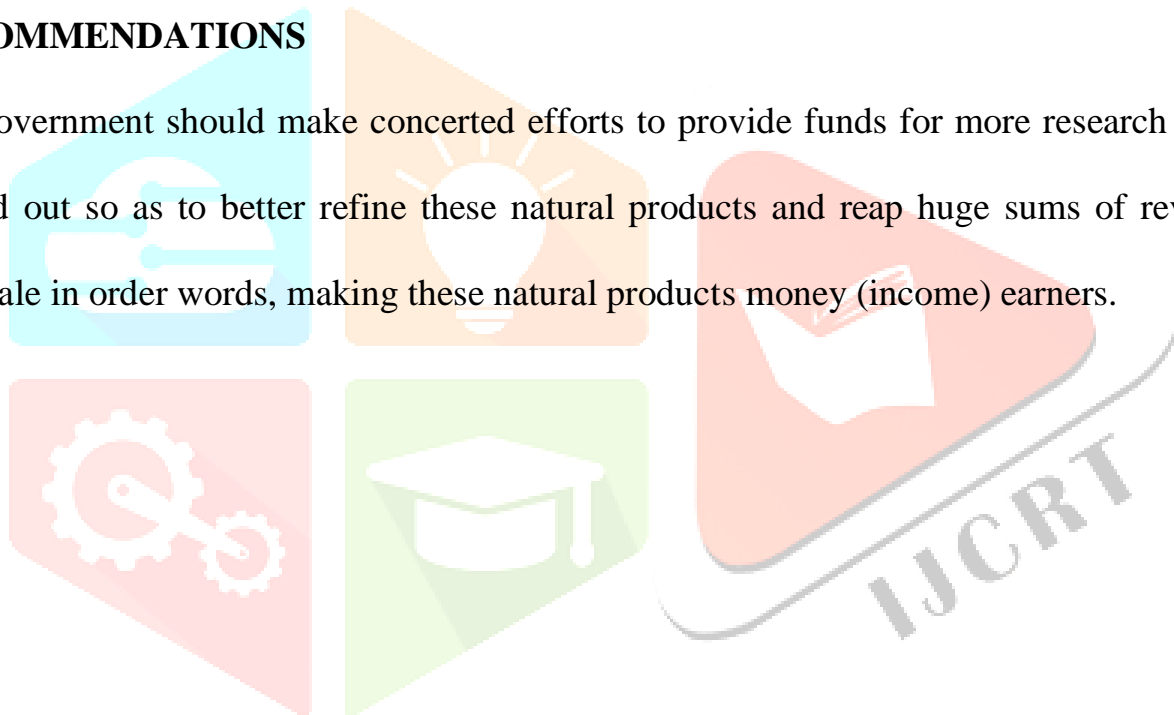
According to the Merriam-Webster dictionary, an abortion is the termination of a pregnancy often accompanied by resulting in or closely followed by the death of the embryo or fetus such as a spontaneous expulsion of a human fetus during the first 12 weeks of gestation. With in depth analysis of the data collected, the researcher has made the following conclusions. More studies need to be carried out using natural products in cases where abortion is necessary especially in rape cases and when a woman's health is at high risk. A major reason for this

study is to seek alternative methods of terminating unwanted pregnancies. Many people spoken to verbally strongly believe this natural method is safer and better than medical abortion which is usually followed by heavy bleeding and in some cases will still need a surgical abortion such as vacuum aspiration which is also not very safe practice.

It is evident from this study that there is a high level of awareness of natural (herbal) concoctions in terminating pregnancy. There is also the advantage of cost effectiveness, availability and tolerance of this natural product.

RECOMMENDATIONS

The government should make concerted efforts to provide funds for more research work to be carried out so as to better refine these natural products and reap huge sums of revenue from their sale in order words, making these natural products money (income) earners.



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QUESTIONNAIRE

Introduction:

This questionnaire is designed to obtain information on use of *Azadirachta indica* (Neem) as an abortifacient in first trimester abortions in Amassoma Southern Ijaw Local Government Area of Bayelsa State, Nigeria.

Responses should be honest Please tick (✓)

SECTION A:

1. Age 20 – 24 () 25 – 29 () 30 – 34 () 34 and above ()
2. Sex: Male () Female ()
3. Marital Status: Married () Single () Divorced ()
4. Occupation: Students () Mid wives () Herbal medical practitioners () Massage Therapists () Traders ()
5. Educational Qualification: Primary Six () SSCE/NECO () First Degree () Masters () Others ()
6. Religion: Christian () Muslim () Tradition () Atheist () Others ()

RESEARCH QUESTIONS

		A	SA	D	SD
1.	How often are natural remedies employed in termination of first trimester pregnancies in Amassoma Town, Southern Ijaw Local Government Area of Bayelsa State?				
a.	Is Azadirachta indica potent when used alone in terminating first trimester pregnancies?				
b.	Is Azadirachta indica often administered in conjunction with other natural remedies in terminating first trimester pregnancies?				
c.	Are other natural remedies frequently used in place of Azadirachta indica in terminating first trimester pregnancies?				
2.	To what extent is Azadirachta indica used in place of medical and surgical means of terminating first trimester pregnancies				
a.	Is Azadirachta indica the first choice of natural abortifacients used in terminating first trimester pregnancies?				
b.	Is there enough information on the use of Azadirachta indica in first trimester abortions?				
c.	Is the management of Niger Delta University				

	aware of students use of Azadirachta indica as an abortifacient in first trimester pregnancies?				
3.	In what ways do mid wives, massage therapists, herbal medical practitioners and traders encourage student's use of Azadirachta indica.				
a.	Are students compelled to use Azadirachta indica as the first option in terminating first trimester pregnancies?				
b.	Do students abuse the use of Azadirachta indica in terminating first trimester pregnancies?				
c.	Are there major on toward effects of Azadirachta indica use in terminating first trimester pregnancies?				