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A REVIEW OF TRADITIONAL PLANTS USED IN THE TREATMENT OF EPILEPSY AMONGST THE HAUSA/FULANI TRIBES OF NORTHERN NIGERIA.

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Abstract

Five prescriptions used in the treatment of epilepsy amongst the Hausa/Fulani tribe of Northern Nigeria were collected from traditional healers. The five prescriptions containing eight plants were reviewed as in literature to ascertain scientific basis of their use in treatment of epilepsy. *Securidaca longipedunculata* (family *Polygalaceae*) was reported to have such property; *Mitragyna inermis* (family *Rubiaceae*) has alkaloids structurally similar to clinically useful anticonvulsant. *Celtis integrifolia* (family *Ulmaceae*) was reported to contain gamma amino butyric acid (GABA) that its deficiency may lead to convulsions. The remaining plants were basically helpful in alleviation of associated symptoms of epilepsy except *Centaurea praecox* (family *Asteraceae*) which was reported to have neurotoxic substances that may worsen the disease.

Key words: Epilepsy, Traditional healers, prescription, plants, Hausa/Fulani.

Introduction

Traditional medicine refers to health practices, approaches, knowledge and beliefs incorporating plant, animal and mineral based medicines, spiritual therapies, manual techniques and exercises, applied singularly or in combination to treat, diagnose and prevent illnesses or maintain well-being (WHO 2003). In Africa, up to 80% of the population uses traditional medicine for primary health care and the global market for herbal medicines currently stands at over US \$ 60 billion annually and is growing steadily (WHO 2003). The most effective method of identifying medicinal plants today is Ethnopharmacological studies. The clinical success of quinine and quinidine isolated from the *Cinchona* tree bark and recently artemisinin from *Artemisia annua* in the treatment of malaria have rekindled interest in medicinal plants as potential sources of novel drugs (Igoli et al 2005). Today artemisinin based combination therapy is recognized as drug of choice for treatment of malaria (WHO, 2006).

Epilepsy, called "farfadiya" in Hausa has changed from the old belief that was thought to be a curse or caused by gods and then treated by incantation, herbs, rituals and magic to a modern scientific concept. Once a person is diagnosed and known to be epileptic, his career and employment even in government agencies may be adversely affected (Aguwa, 1986). Hence the search for agents and evaluation of drugs for the treatment of the disease becomes of paramount importance.

In modern medicine, epilepsy is considered to be a chronic brain syndrome of various etiology characterized by recurrent seizures and usually associated with loss or disturbance of consciousness. There may be a characteristic body contraction (convulsion). The seizure is due to excessive electrical discharged in the brain and

the seizure pattern depends not only on the cause but the origin, extent, Intensity and type of epileptic discharged in the brain.

Drugs used in the treatment of epilepsy are collectively termed "Anticonvulsants". The mechanisms of seizure suggest several general ways in which drugs might abolish or attenuate them (Toman, 1965).

Most of the drugs currently in use have undesirable effect and unpredictable pharmacological action; hence the need to search for newer drugs with fewer or no side effects and predictable pharmacological action because therapy of epilepsy is long term (at least two years after the last fit) where the drug would be withdrawn gradually for about six months (Roger and Brian, 1996).

Methodology

This work was focused on the traditional treatment of epilepsy among the Hausa/Fulani tribe of northern Nigeria. Non structured questionnaire with in-depth interview was administered to 43 herbalists from northern region of Nigeria. Five prescriptions containing eight plants were collected. Samples of the plants were also collected and verified by way of certification from the herbarium of Department of Biological Sciences, Ahmadu Bello University Zaria. Each plant was reviewed based on works carried on it; chemical structures of the constituents of the plants were obtained from Dictionary of Organic Compounds (1965), the structures were compared with the basic structure of anticonvulsants.

Result and Discussion

The prescription being collected from local traditional healers in northern Nigerian was collected in Hausa language. Five prescriptions of eight plants were collected on the subject: Epilepsy or "Farfadiya" in Hausa. Three out of the five prescriptions have two plants while the two other prescriptions have one plant each (Table 1).

Table 1: Prescriptions for treatment of epilepsy and the part of the plant used.

PRESCRIPTIONS	PLANT NAME	LOCAL NAME	PART USED
A	<i>Securidaca longipedunculata</i> family (<i>Polygalaceae</i>)	Sanya	Bark and Leaves
B (1)	<i>Mitragyna Inermis</i> family (<i>Rubiaceae</i>)	Etiyayya	Leaves, Bark and Roots
B (2)	<i>Diospyros mespiliformis</i> family (<i>Ebanaceae</i>)	Kanya	Leaves and Bark
C	<i>Parkia clappertonianna keay</i> family (<i>leguminosae</i>)	Dorawa	Leaves and Bark
D (1)	<i>Celtis integrifolia</i> family <i>Ulmaceae</i>	Zuwo	Bark
D (2)	<i>Combretum hypopilium</i> family (<i>Combretaceae</i>)	Katankara	Whole Plant
E (1)	<i>Centaurea praecox</i> family (<i>Asteraceae</i>)	Gwandar Daji	Leaves
E (2)	<i>Acacia seyal</i> family (<i>Mimosaceae</i>)	Jushi	Bark

Parts of the plants used in the treatment are macerated before use as described by the traditional healers.

The result of the review of these plants showed that;

PRESCRIPTION-A:

Securidaca longipedunculata: - The plant extract has been found to have anticonvulsant property (Odebiyi, 1978) and antimicrobial property (Ajali and Chukwurah, 2004; Apak and Olila, 2006). This finding indicates its usefulness in the management of the disease. Methyl salicylate was also isolated from the plant which

is a useful antirheumatic agent (Odebiyi, 1978, Okoli et al., 2006), and the extract was found to inhibit HIV replication due to presence of alkaloid caffeoylquinic acid (Mahmood, 1994).

PRESCRIPTION-B:

Mitragyna inermis: - The main constituent of the plant are reducing sugar and alkaloids ephedrine and astragaloside (Houghton and Shellard, 1969, Souleymane, et al., 1985). It was reported to have high inhibitory activity against malaria parasites (Souleymane, et al., 1985).

Sugar may be useful in alleviation of hypoglycemia usually associated with epilepsy patients and the alkaloids Rotundifoline and Uncarine have structures similar to the basic structure of anticonvulsant clinically in use hence may be relevant in the treatment of the disease.

PRESCRIPTION-C:

Parkia clappertonianna: the main constituents were amino acids and phenolic constituents (Adeboye and Ajayi, 1983), phenolic substances have antimicrobial activities and this activity may only be useful if the disease is associated with bacterial infection.

PRESCRIPTION-D:

Celtis integrifolia: the main constituents were proline, gamma amino butyric acid (GABA), sugars, gallic acid and leucocyanidin (Muazu, 1997).

Combretum hypopolium: the main constituents were choline, vitexin, oxalic, mallic and gallic acid. It also contains combrestatins (Pettic 1995). The presence of GABA in *C. Integrifolia* is of special interest, because endogenous GABA is a neurotransmitter. Its deficiency leads to excessive firing of electrical impulse, which has been found to be one of the causes of seizure.

Administration of exogenous GABA may therefore alleviate the seizure episodes. Gabapentin is used as anticonvulsant today.

Extract of *C. hypopolium* has been shown to have antimicrobial properties against both Gram positive and Gram negative organisms and also have antineoplastic properties (Pettic 1995). This may be useful if epilepsy is associated with microbial infection.

PRESCRIPTION-E:

Centaurea praecox: The main constituents are cnicin, repin, trace elements (Zn and Cu), aspartic acids and glutamic acids (Janjua, 1993).

Acacia seyal: - The main constituents are onicin Repin Trace elements (Zn and Cu) amino acids. Aspartic acid is mainly hypoglycemic agent which would worsen hypoglycemia already in epileptic patient. This plant can further be evaluated as anti diabetic. The extract is also used as aphrodisiac due to presence of trace element Zn and Cu. The extract has cytotoxic activity and contains neurotoxic compounds (Barrero, 1995).

CONCLUSION

It is pertinent to note that most of the crude drugs (plants) used in the treatment of disease generally in Africa are yet to be thoroughly researched into. The information about these plants in literature is in most cases scanty. It is therefore, difficult and wrong to jump into conclusions on the relevance or otherwise of these crude drugs and the concept of traditional medicine itself. It can therefore, be concluded within the context of this work that prescriptions A and D were very relevant to treatment of epilepsy.

Prescription B has alkaloids with basic structure of anticonvulsants and prescription C has been found useful mainly in treatment of infections that may be associated with epilepsy, while prescription E has no relevance in the management of the disease. Therefore, the use of some of these plants in traditional medicine is to some extent justified, but the need for further research on them cannot be over-emphasized.

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