

## Plants used to treat epilepsy by Tanzanian traditional healers

Mainen J. Moshi<sup>a,\*</sup>, Godeliver A.B. Kagashe<sup>b</sup>, Zakaria H. Mbwambo<sup>a</sup>

<sup>a</sup> Department of Pharmacology and Toxicology, Institute of Traditional Medicine, Muhimbili University College of Health Sciences, P.O. Box 65001, Dar es Salaam, Tanzania

<sup>b</sup> Department of Pharmaceutics, School of Pharmacy, Muhimbili University College of Health Sciences, P.O. Box 65013, Dar es Salaam, Tanzania

Received 30 June 2004; received in revised form 3 November 2004; accepted 15 November 2004

Available online 1 January 2005

### Abstract

A cross-sectional study performed in Temeke District (Dar es Salaam, Tanzania) showed that 5.5% of the traditional healers have knowledge for the treatment of epilepsy. Of the 100 healers interviewed, 30 (30%) believed that epilepsy was caused by witchcraft, while 19 (19%) thought epilepsy has a genetic origin which can be inherited. Other healers thought epilepsy can be caused by head injury or malaria (24%), and the remaining 27% did not know the cause. Most of the healers (92%) could present an accurate account on the symptoms of the disease, including dizziness, loss of consciousness, abrupt falling down, frothing from the mouth, loss of memory, biting of the tongue, confusion, and restlessness. They showed competence in the treatment of the disease, whereby 60 plants that are commonly used were mentioned. *Abrus precatorius* L. (Leguminosae), *Clausena anisata* (Willd.) Oliv. (Rutaceae) and *Hoslundia opposita* Vahl (Lamiaceae), which are among the plants mentioned, have proven anticonvulsant activity, while a few other species on their list have been reported to be useful in the treatment of epilepsy. Biological testing of these plants, using different models of convulsions is, suggested.

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**Keywords:** Traditional healer; Epilepsy; Diagnosis; Treatment; Plants

### 1. Introduction

Epilepsy is one of the most common neurological disorders with no age, racial, social, sexual or geographical boundaries (Hausser and Kurland, 1975; Goodridge and Shorvon, 1983; Shi-Chuo et al., 1985), and affects about 50 million people worldwide. The prevalence is high in tropical countries, particularly in Africa, where it varies between 10 and 55 per 1000, with an estimated mean prevalence of 15 (Senanayake and Roman, 1992). In most of these societies, epilepsy is thought to be due to possession by evil spirits (Gelfand, 1974), and is seen as a highly contagious and shameful disease. It has a severe social impact as it carries stigma and patients are shunned and discriminated against in education, employment and marriage (Matuja and Rwiza, 1994).

In the developed countries, where drugs are easily available, epilepsy responds to treatment in up to 70% of the patients. However, in developing countries 75% of people with epilepsy do not receive the treatment they need (WHO Information Fact Sheets, 2001; WHO Press Release, 2001). Their epilepsy remains uncontrolled, rendering the patients unproductive in all spheres of life, and the majority of them rely on treatment given by traditional healers. This may be the true situation in both rural and urban areas.

A study performed in Dar es Salaam, Tanzania, on the pattern of health-seeking behavior, reported that 21% of the people consult a traditional healer before going to a public health facility (Kilima et al., 1993). That being the case, the present study had the objective to inquire whether these traditional healers truly treat epileptic patients and what types of plants are used for the treatment. The study was facilitated by the fact that different types of ethnic groups live in Dar es Salaam, allowing inquiry into plants used by traditional healers from different tribes of Tanzania. Information from

\* Corresponding author. Tel.: +255 22 150096; fax: +255 22 2150465.  
E-mail address: [mmoshi@muchs.ac.tz](mailto:mmoshi@muchs.ac.tz) (M.J. Moshi).

the literature has been used as one of methods to validate the claimed efficacy of the plants for treatment of epileptic seizures.

## 2. Methodology

### 2.1. Study area

The study was undertaken in 2001 in Temeke District, Dar es Salaam, among traditional healers that are registered under the Association of Traditional Medicine Men (ATME).

### 2.2. Sampling and interview of healers

This was a cross-sectional study among 2000 traditional healers who were registered under ATME. Since among these healers, 110 were reported to treat epilepsy, a convenience sample of 100 healers was interviewed using a structured questionnaire. A prior informed consent for each interview was secured. All the interviewed healers were required to nar-

rate the symptoms that an epileptic patient would have. They were also asked to indicate the plants they use for treatment, parts used, methods of preparation and frequency of administration. Other data included information on toxicity and its treatment, as well as management of overdose, and duration of treatment.

### 2.3. Identification of plants and literature review

Vouchers for each of the reported plants were collected, dried and brought back to the Institute of Traditional Medicine for identification and follow-up literature search. The plants were identified by Mr. E.B. Mhoro and Mr. S.H. Shunda. All the vouchers have been deposited in the herbarium of the Institute of Traditional Medicine, Muhimbili University College of Health Sciences. The NAPRALERT database of the University of Illinois at Chicago was queried to download literature data on the plants mentioned by the healers. Information that may have a relationship with the treatment of convulsions or epilepsy was documented. Information on reported toxicity was also recorded.



Fig. 1. The map of Tanzania showing the origin of the different tribes representative of the healers who participated in the study. The uncolored circles indicate the names of the tribes and their geographic origins.

Table 1  
Plants used in the treatment of epilepsy by traditional healers in Dar es Salaam, Tanzania

Botanical name	Voucher no.	Vernacular name (tribe)	Part used	Method of preparation	Route and method of administration
<i>Abrus precatorius</i> L. (Leguminosae)	KAG 6	Zangaso (Yao)	Leaves	The leaves are boiled with water	Oral; three table spoonfuls are taken twice daily
<i>Abrus schimperiana</i> Hochst. ex Benth. (Leguminosae)	KAG 21	Mshewa (Sambaa)	Leaves	Used to make a tea	Oral; half a cup of tea is taken three times a day
<i>Acacia glaucophylla</i> Steud. ex A. Rich. (Leguminosae)	KAG 34	Mzasa (Gogo)	Leaves	Leaves are burnt	Inhalation; the patient is covered with a blanket and made to inhale the smoke
<i>Acalypha ornata</i> Hochst. ex A. Rich. (Euphorbiaceae)	KAG 2	Mfulwe (Sambaa)	Stem barks	Stem is burnt on broken pot	Inhalation: smoke is inhaled twice a day
<i>Adhatoda engleriana</i> Lindau (Acanthaceae)	KAG 33	Tugutu (Sambaa)	Roots	The roots are powdered	Oral; three table spoonfuls are mixed with water and chewed three times a day
<i>Afzelia quanzensis</i> Welw. (Leguminosae)	KAG 66	Mkongodeka (Kwere)	Roots	Powdered and soaked in water	Topical; soaked powder is applied topically by rubbing the forehead
<i>Ageratum conyzoides</i> L. (Compositae)	KAG 1	Tongola (Fipa)	Seeds	Boiled with water	Oral; three table spoonfuls given three times a day
<i>Albizia bradycalyx</i> Oliv. (Leguminosae)	KAG 4	Muyesiense (Kurya)	Stem barks	Boiled with water	Oral; quarter a cup taken three times a day
<i>Albizia anthelmintica</i> A. Brongn. (Leguminosae)	KAG 7	Olmokotani (Maasai), Mfureta (Ngoni), Mgada (Sukuma)	Leaves, roots	Leaves boiled with water	Oral; one cup is taken three times a day
<i>Aloe</i> sp. (Liliaceae)	KAG 16	Lozeria (Kuri)	Roots	Roots boiled with water	Oral; one table spoonful is taken three times a day
<i>Antidesma venosum</i> E. Mey. (Euphorbiaceae)	KAG 28	Msiru, Kikuro (Digo)	Roots	Roots boiled with water	Oral; three teaspoons taken twice a day
<i>Apodytes dimidiata</i> E. Mey. ex Benth. (Icacinaceae)	KAG 9	Mkanta (Sambaa), Mgarigari (Pogoro), Mnguara (Zaramo), Mgulungu, mnguava (Ndengereko)	Leaves, stem barks	Leaves boiled with water	Oral; one tea cup of decoction taken orally, twice a day
<i>Aristolochia parensis</i> Engl. (Aristolochiaceae)	KAG 84	Lunkulwe (Sambaa)	Roots	Boiled with water	Oral; one table spoonful taken twice a day
<i>Boscia kirkii</i> Oliv. (Capparidaceae)	KAG 57	Mguyuka (Kwere)	Roots	Boiled with water	Oral; half a cup taken twice a day
<i>Canthium hispidum</i> Benth. (Rubiaceae)	KAG 26	Mgogonya (Sambaa)	Roots	Boiled with chicken fat and water	Oral; quarter a cup is taken twice a day
<i>Cassia fistula</i> L. (Leguminosae)	KAG 64	Mkundekunde (Sambaa), Mahumba (Zaramo)	Leaves	Rolled and mixed with milk	Oral; chewed with the milk two times a day
<i>Chrysanthemoides monilifera</i> (L.) J. Mort. ssp. <i>septentrionalis</i> T. Norton (Compositae)	KAG 24	Mdilul (Ndengereko)	Stem barks	Boiled with water	Oral; one cup is taken twice a day
<i>Cissus quadrangularis</i> L. (Vitaceae)	KAG 45	Igandaga (Sukuma)	Leaves	Boil with water	Oral; two table spoonfuls taken three times a day
<i>Clausena anisata</i> (Willd.) Hook. f. ex Benth. (Rutaceae)	KAG 60	Mkoma vikali (Kwere, Nyangalio)	Roots, leaves	Boil with water	Inhalation; patient is covered with a blanket and made to inhale the steam
<i>Commiphora pilosa</i> Engl. (Burseraceae)	KAG 40	Munguru, Mulea (Zaramo)	Stem bark, roots	Boiled with water	Oral; three table spoonfuls twice a day

Table 1 (Continued)

<i>Curcuma longa</i> L. (Zingiberaceae)	KAG 38	Mbirichira (Nyasa)	Leaves	Boiled with water	Oral; one cup taken three times a day Inhalation; steam is inhaled once a day
<i>Cussonia spicata</i> Thunb. (Araliaceae)	KAG 39	Mtendele (Nyaturu, Sambaa)	Leaves	Boiled with water	Oral; two table spoonfuls three times a day
<i>Cussonia zimmermannii</i> Harns (Araliaceae)	KAG 5	Mtindi (Sambaa)	Roots	Powdered roots	Oral; one tea spoon taken with water three times a day
<i>Cynotis nudiflora</i> Kunth (Compositae)	KAG 36	Mkongo (Sambaa), Ulusuki (Zaramo)	Stem barks, roots	Boiled with water	Oral; one tea cup taken three times a day
<i>Dioscorea preussii</i> Pax (Dioscoreaceae)	KAG 61	Mkilika, Mchirika (Kwela)	Roots	Boiled with water	Oral; one cup taken three times a day
<i>Dodonaea schiedeana</i> Schltr. (Sapindaceae)	KAG 31	Luhali (Hehe)	Roots	Boiled with water	Oral; half a cup taken three times a day
<i>Ehretia amoena</i> Klotzsch (Boraginaceae)	KAG 23	Lipelele (Ngoni)	Roots	Boiled with chicken	Oral; one cup taken twice a day
<i>Elaeodendron stuhlmannii</i> Loes. (Celastraceae)	KAG 35	Msofu (Ndengereko)	Stem barks	Boiled with water	Oral; quarter a cup taken twice a day
<i>Encephalartos hildebrandtii</i> A. Br. & Bouché (Zamiaceae)	KAG 56	Mkwanga (Mwera)	Stem barks	Not revealed	Not revealed
<i>Erythrophleum guineense</i> G. Don. (Leguminosae)	KAG 19	Muavi (Kiswahili), Mwayara (Ndengereko)	Roots	Boiled with water	Oral; quarter a cup taken three times a day
<i>Euclea frutuosa</i> Hiern. (Ebenaceae)	KAG 18	Mwenya (Nyamwezi)	Leaves	Powdered leaves boiled with water	Inhalation; steam inhaled twice a day
<i>Fernandoa magnifica</i> Seem. (Bignoniaceae)	KAG 42	Mulia (Ndengereko)	Roots	Roots are powdered	Oral; three table spoonfuls are taken with tea twice a day
<i>Ficus schimperiana</i> Hochst. ex Miq. (Moraceae)	KAG 44	Ndembela (Ngoni)	Stem barks	Boiled with water	Oral; three table spoonfuls taken twice a day
<i>Ficus sycomorus</i> L. (Moraceae)	KAG 22	Mkunju (Ndengereko)	Barks	Boiled with water	Oral; quarter of a cup three times a day
<i>Grewia bicolor</i> Juss. (Tiliaceae)	KAG 15	Mkole mweupe (Zaramo)	Leaves	Boiled with water	Oral; half a tea cup taken three times a day
<i>Harrisonia abyssinica</i> Oliv. (Simaroubaceae)	KAG 11	Ndelagwa (Sambaa)	Roots	Boiled with water	Oral; two table spoonfuls taken twice a day
<i>Heeria insignis</i> (Del.) O. Ktze. (Anacardiaceae)	KAG 12	Kalakala (Nyamwezi)	Roots	Boiled with water	Oral; one cup taken three times a day
<i>Hibiscus subdariffa</i> L. (Malvaceae)	KAG 14 KAG 68	Mkwenge (Ha) Rozi (Ngindo)	Roots leaves	Crushed leaves are soaked with water for 12 h	Oral; one cup of tea is taken three times a day
<i>Hoslundia opposita</i> Vahl. (Labiatae)	KAG 13	Mvulambula (Ndengereko)	Roots, stem barks	Boiled with water	Oral; three table spoonfuls taken twice a day
<i>Lobelia anceps</i> L.f. (Campanulaceae)	KAG 32	Sambaa (Maasai)	Leaves	Boiled with water	Half a cup taken once a day
<i>Lonchocarpus capassa</i> Rolfe (Leguminosae)	KAG 53	Msofu pori, Mwale (Zigua)	Roots	Boiled are burnt	Inhalation; patient is covered with a bed sheet and made to inhale the smoke
<i>Maerua cylindricarpa</i> Gilg and Ben. (Capparidaceae)	KAG 47	Mnuka (Kwera)	Leaves	Not revealed	Not revealed
<i>Myrica kilimandscharica</i> Engl. (Myricaceae)	KAG 87	Mshegeshe (Sambaa), mdaula (Zaramo)	Roots	Boiled with water	Oral; quarter of a cup taken three times a day
<i>Ocimum suave</i> Willd. (Labiatae)	KAG 62	Kivumbasi (Sambaa)	Leaves	Leaves are crushed	Topical; used to rub the forehead twice a day
<i>Oplismenus hirtellus</i> (L.) P. Beauv. (Gramineae)	KAG 50	Ujani (Maasai)	leaves	Boiled with water and filtered	Oral; half a cup of tea taken twice a day
<i>Pouzolzia hypoleuca</i> Wedd. (Urticaceae)	KAG 41	Chopo (Digo), Lusopo (Ngoni)	Roots	Not revealed	Not revealed
<i>Randia kraussii</i> Harv. ev. Msonju (Rubiaceae)	KAG 17	Msonzo (Nyamwezi)	Roots	Boiled with water	Oral; half a cup of tea taken twice a day

Table 1 (Continued)

<i>Rauvolfia rosea</i> K. Schum. (Apocynaceae)	KAG 20	Mkirifu (Makonde)	Roots	Powdered roots soaked over night with a local brew	Oral; one table spoonful taken twice a day
<i>Rottboellia exaltata</i> L.f. (Gramineae)	KAG 49	Ulusuki (Maasai)	Roots	Powder is mixed with cooking oil and left for 2 days	Topical; the patient is made to shave the head and rub it with the mixture once or twice a day
<i>Salacia stuhlmanniana</i> Loes. (Celastraceae)	KAG 8	Msiga (Ndengereko)	Stem barks	Powdered stem is boiled with water	Oral; two tablespoonfuls taken orally three times a day
<i>Schlechterina mitostemmatoides</i> Harms (Passifloraceae)	KAG 25	Mpongo (Ndengereko)	Stem barks	Not revealed	Not revealed
<i>Tamarindus indica</i> L. (Leguminosae)	KAG 51	Samburai, Mkwazu (Zigua)	Roots	Boil the roots with water	Oral; one cup of the decoction taken twice a day
<i>Teclea nobilis</i> Delile (Rutaceae)	KAG 46	Mdimu pori (Kwere)	Roots	Boiled with water	Oral; half a cup taken twice a day
<i>Tephrosia aequilata</i> Bak. (Leguminosae)	KAG 70	Kikali (Ha)	Stem barks	Fresh barks are crush and then boiled with water	Oral; one table spoonful taken three times a day
<i>Uvaria leptocladon</i> Oliv. (Annonaceae)	KAG 99	Msefu (Ndengereko)	Stem bark	Not revealed	Not revealed
<i>Vitex mombassae</i> Vatke. (Verbenaceae)	KAG 3	Kalakala (Nyamwezi)	Roots	Roots are ground into a powder	Oral; one table spoon is taken with porridge three times a day
<i>Waburgia stuhlmannii</i> Engl. (Capparidaceae)	KAG 86	Mwifu (Sambaa)	Stem barks	Boiled with water	Oral; two cups are taken twice a day
<i>Warburgia ugandensis</i> Sprague. (Canellaceae)	KAG 98	Mdelangwa (Zaramo)	Stem bark	Scraped into a fine powder	Oral; one cup taken with tea twice a day
<i>Xylopia arenaria</i> Engl. (Annonaceae)	KAG 43	Nnelabana (Makonde)	Roots		
<i>Zanthoxylum chalybeum</i> Engl. (Rutaceae)	KAG 54	Mjafari (Albahasili, Sambaa, Zaramo)	Roots	Boiled with water	Oral; three spoonfuls taken three times a day

### 3. Results

#### 3.1. Knowledge on the cause and diagnosis of epilepsy

Of the 2000 traditional healers practicing in the Temeke District at the time of this study, 110 (5.5%) had knowledge for treatment of epilepsy. Table 1 column 3, shows that these healers were from different tribes, both from the coastal regions and from several other regions of Mainland Tanzania (Fig. 1). Among the 100 healers who were interviewed, 30 (30%) believed that epilepsy was caused by witchcraft, while 19 (19%) thought that epilepsy has a genetic origin and, hence, it can be inherited. Of the other healers, 24 (24%) thought that epilepsy can be caused by head injury or malaria, while 27 (27%) did not know the cause. Most of the healers (92%) could present an accurate account of the symptoms of the disease, including dizziness, loss of consciousness, abrupt fall, frothing from the mouth, loss of memory, biting of the tongue, confusion and restlessness.

#### 3.2. Knowledge on the treatment of epilepsy

A total of 60 plant species belonging to 55 genera and 43 families were mentioned to be used for treatment by the healers. Table 1 shows the plant species, the vernacular names

and the parts used. The routes of administration included oral (86%), inhalation of smoke from burnt plant material (2%), steam inhalation from the plant material (2%), topical (2%) and other ways (8%). The duration of treatment was very variable among the healers, ranging from 3 to 90 days (Fig. 2), but the highest percentage of the healers (28%) indicated that the duration of treatment is between 14 and 21 days. Generally, the need for treatment for more than 10 days was indicated by 66% of the healers. No traditional healers reported toxicity associated with their therapies, but in most cases patients were told to avoid alcohol, milk and mixing therapies with conventional medicines.

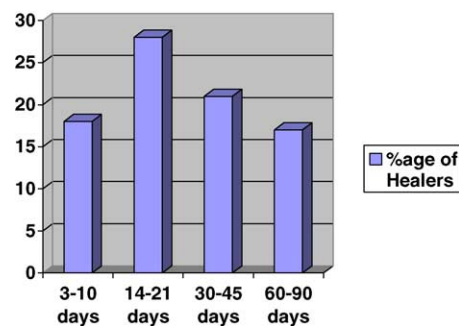


Fig. 2. Duration of medication for traditional herbal remedies used to treat epilepsy.

### 3.3. Reports from literature supporting use for the treatment of epilepsy

Information from the literature shows that *Abrus precatorius* L. (Adesina, 1982), *Clausena anisata* (Willd.) Oliv. (Adesina and Ette, 1982; Makanju, 1983), *Ehretia amoena* Kloetzsch (Chhabra et al., 1987), *Hoslundia opposita* Vahl (Akah and Nwambie, 1993; Olajide et al., 1999) and *Zanthoxylum chalybeum* Engl. (Chhabra et al., 1991) are used by people in other countries for the treatment of epilepsy. A 70% ethanol extract of *Abrus precatorius* has been reported to have anticonvulsant and CNS depressant activity in mice (Adesina, 1982), while the anticonvulsant activity of *Hoslundia opposita* has been demonstrated in mice (Akah and Nwambie, 1993; Olajide et al., 1999). An even more intriguing corroboration is the report that compounds with anticonvulsant activity have been isolated from *Clausena anisata* (Adesina and Ette, 1982). *Cassia fistula* has been reported to have a CNS depressant activity (Mazumder et al., 1998), which may suggest a potential for anticonvulsant activity. Plants reported to be used for the treatment of febrile convulsions are also potentially useful anticonvulsants, such as *Ehretia amoena* (Chhabra et al., 1987), *Teclea nobilis* Delile (Mascolo et al., 1988; Al Rehaily et al., 2001), *Harrisonia abyssinica* Oliv. (Hassanali et al., 1987; Johns et al., 1994), *Cussonia spicata* Thunb. (Chhabra et al., 1984), *Clausena anisata* (Boye,

1990), *Cassia fistula* L. (Brandao et al., 1985), *Albizia anthelmintica* A. Brogne. (Hedberg et al., 1983; Johns et al., 1994) and *Ageratum conyzoides* L. (Zani et al., 1995). Some of these plants have also been used to treat malaria. These included *Ageratum conyzoides* (Leaman et al., 1995; Madureira et al., 2002), *Albizia anthelmintica* (Mazzanti et al., 1983; Carpani et al., 1989), *Antidesma venosum* E. Mey. (Chhabra et al., 1993), *Clausena anisata* (Boye, 1990; Weenen et al., 1990; Chhabra et al., 1991), *Cussonia spicata* (Chhabra et al., 1987), *Harrisonia abyssinica* (Chhabra et al., 1993), *Hoslundia opposita* (Hedberg et al., 1983; Achenbach et al., 1992; Gessler et al., 1994; Gessler et al., 1995; Olajide et al., 1999), *Teclea nobilis* (Kuria et al., 2001), and *Zanthoxylum chalybeum* (Khan et al., 1980; Chhabra et al., 1991; Gessler et al., 1994, 1995). Some of the plants have a combination of two or all three of the above claims (Table 2).

### 3.4. Reports of toxicity

Two of the plants in Table 1 have been reported in the literature to have toxic effects. *Ageratum conyzoides* has been shown to be toxic when included in a ration for ewes, causing severe colic pains, dilated pupils, distressed breathing, difficulty in standing and a swinging gait (Purohit, 1962). *Albizia anthelmintica* has been reported to be toxic in man when used in large doses (Galal et al., 1991a, 1991b).

Table 2

Evidence of previous reports related to treatment of epilepsy, febrile convulsions, fever, malaria or reports of proven anticonvulsant activity

Botanical name	Information in literature related to convulsions
<i>Abrus precatorius</i>	Used as an anticonvulsant (Adesina, 1982); used for treatment of malaria (Adesina, 1982; Gessler et al., 1995). Anticonvulsant and CNS depressant activity were observed in mice using a 70% ethanol extract (Adesina, 1982)
<i>Ageratum conyzoides</i>	Used for the treatment of fevers (Zani et al., 1995); exhibited a weak in vitro activity against <i>Plasmodium falciparum</i> (Leaman et al., 1995; Madureira et al., 2002); reported to have toxic effect when included in a ration for ewes; causing severe colic pains, dilated pupils, distressed breathing, difficulty in standing and swinging gait (Purohit, 1962). An ethanolic extract of the plant did not show anticonvulsant activity (Agrawal, 1991)
<i>Albizia anthelmintica</i>	Used against malaria (Mazzanti et al., 1983; Carpani et al., 1989; Chhabra and Uiso, 1991; Johns et al., 1994), fever (Hedberg et al., 1983; Johns et al., 1994); reported to be toxic (Galal et al., 1991a, 1991b); inactive against <i>Plasmodium falciparum</i> (Weenen et al., 1990)
<i>Antidesma venosum</i>	Decoction used to treat malaria (Chhabra et al., 1993)
<i>Cassia fistula</i>	Used as a febrifuge (Brandao et al., 1985), migraine (Girach and Aminuddin Khan, 1993), CNS depressant activity (Mazumder et al., 1998)
<i>Clausena anisata</i>	Used to treat malaria (Boye, 1990; Weenen et al., 1990; Chhabra et al., 1991) but when tested no activity was observed on <i>Plasmodium falciparum</i> (Weenen et al., 1990); treatment of fever (Boye, 1990); used for epilepsy (Adesina and Ette, 1982; Makanju, 1983; Adesina and Adewunmi, 1985; Makanju, 1985; Chhabra et al., 1991) CNS depressant and anticonvulsant activity proven in mice (Adesina and Ette, 1982; Makanju, 1983; Makanju, 1985)
<i>Cussonia spicata</i>	Used for treatment of malaria, fever (Chhabra et al., 1984), mental illness (Chhabra et al., 1984; Chhabra et al., 1987)
<i>Cussonia zimmermannii</i>	Mental illness (Chhabra et al., 1987), malaria (Gessler et al., 1994; Gessler et al., 1995), active on <i>Plasmodium falciparum</i> (Gessler et al., 1994)
<i>Ehretia amoena</i>	Used for epilepsy and febrile convulsions (Chhabra et al., 1987)
<i>Harrisonia abyssinica</i>	Used for fever (Hassanali et al., 1987; Johns et al., 1994), malaria (Chhabra et al., 1993), found to be active against <i>Plasmodium falciparum</i> (Tahir et al., 1999)
<i>Hoslundia opposita</i>	Used for mental disorders (Hedberg et al., 1983; Ngadjui et al., 1991; Olajide et al., 1999), fever (Boye, 1989), convulsions (Akah and Nwambie, 1993), used for malaria (Hedberg et al., 1983; Achenbach et al., 1992; Gessler et al., 1994, 1995; Olajide et al., 1999), convulsions in children (Hedberg et al., 1983). Anticonvulsant activity confirmed in mice (Akah and Nwambie, 1993; Olajide et al., 1999). Antimalarial activity confirmed (Weenen et al., 1990; Achenbach et al., 1992; Gessler et al., 1994)
<i>Teclea nobilis</i>	Infusion used to treat malaria (Kuria et al., 2001); antipyretic activity (Mascolo et al., 1988; Al Rehaily et al., 2001)
<i>Xylopia arenaria</i>	Root decoction used for convulsions in children (Chhabra et al., 1987)
<i>Zanthoxylum chalybeum</i>	Treatment of malaria (Khan et al., 1980; Chhabra et al., 1991; Gessler et al., 1994, 1995), tested positive for antiplasmodial activity (Gessler et al., 1994), convulsions (Chhabra et al., 1991)

#### 4. Discussion

Reports from the literature have confirmed that some of the plants reported by the healers have anticonvulsant activity, to the extent that some active compounds have been isolated (Adesina and Ette, 1982). The healers also showed a good understanding of the etiology and manifestations of the disease. In a previous study, in which school children were interviewed, the causes of epilepsy were reported to be hereditary, brain injury, brain infection and witchcraft (Matuja and Rwiza, 1994). Both studies suggest that epilepsy is a well-known disease, although superstition still exists regarding its etiology. It is interesting to note that they identified malaria as one of the causes of epilepsy. Indeed, both malaria and febrile convulsions are risk factors for the development of epilepsy (Rwiza et al., 1992). The febrile seizure tendency has been considered to be a fundamental marker of an individual's seizure threshold (Camfield et al., 1994). Cerebral malaria could also cause brain lesions in children following violent febrile convulsions and, therefore, predispose to the development of epilepsy. This widespread corroboration between the literature and claims by traditional healers justifies an investment of both time and money to study the identified plants further for anticonvulsant activity.

In this part of the world, there are several risk factors which predispose to the development of epilepsy, therefore, one would expect that the disease has existed for a long time

in this country. Since modern health care facilities in most rural areas are either scanty or non-existent, it is justifiable to consider that since time immemorial, people have depended on the efficacy of traditional methods of treatment. This speculation needs to be supported by laboratory evaluation of the identified plants. Different models are needed to test the plant extracts to justify dismissal of any of these claims.

#### 5. Conclusion

Some traditional healers practicing in Dar es Salaam, Tanzania, have knowledge about epilepsy, its symptoms and causes. A few still associate it with witchcraft. Three of the plants mentioned have definitive support from the experimental literature reports, thus justifying the need to study the other plants for anticonvulsant activity.

#### Acknowledgements

We are grateful to the Association of Traditional Medicine Men (ATME) in Temeke District, Dar es Salaam for facilitating the interview of traditional healers, and to Mr. E.B. Mhoro for identifying the plants listed in this paper. We also thank the University of Illinois at Chicago, for allowing us access to the NAPRALERT database.

## Appendix A

### QUESTIONNAIRE

1. Name of traditional healer .....Age: .....
2. Address: .....
3. Tribe: .....Sex: .....Date: .....
4. Married/Single
5. Name five diseases that you are able to treat and cure:
  1. ....2. ....3. ....
  4. ....5. ....
6. Do you know a disease called epilepsy? Yes.....No.....
7. If yes, mention the symptoms of epilepsy shown by patients  
.....
8. What do you think are the causes of epilepsy ( List) .....
9. What do you use to treat epilepsy (List) .....
10. Which plants do you use to treat epilepsy? Name the plants in
  - (a) Kiswahili.....
  - (b) Your vernacular language .....
  - (c) Name of the place where the plant can be obtained/found in Tanzania.....
11. Which part of the plant do you use to treat epilepsy (e.g.leaves, roots etc.) .....
12. How do you administer your medicines to your patients (.e.g. by inhalation, drinking) etc. ....
13. What amount/quantity of the medicine do you give the patient to take at one time  
.....
14. How many times per day is the patient supposed to take the medicine
15. At what time of the day is the patient supposed to take the medication?
16. For how long do your patients have to take the medication (days or months) to be completely cured? .....
17. When giving your medicine to the patient do you consider his/her age as important ?  
Yes.....No..... Why?
18. Are there any precautions to be observed before and after giving the medicine to the patient?
  - (a) Precautions before.....
  - (b) Precautions after.....
19. Do you think these precautions are important in epilepsy Yes/No Why?
20. Do your patients experience any problems after taking the medicines? E.g. Vomiting, diarrhea etc. ....
21. What do you think will happen, if the patient takes your medicine for epilepsy in excess of the stated amount? .....
22. If you happen to administer the drug to patient in excess of the required amount, what do you normally do to reduce the effects (toxic effects) of the drug?



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