

Full Length Research Paper

Wild animals in ethnozoological practices among the Yorubas of southwestern Nigeria and the implications for biodiversity conservation

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A questionnaire-guided ethno-zoological survey of the Yoruba speaking communities of Ogun state (Nigeria) was conducted. Forty Traditional Medical Practitioners (tmps) and ten hunters were interviewed. The choice of species utilised in fauna-based traditional medicinal preparations were found to be guided by many factors which in addition to the bioactive constituents, also include some morpho-physiological characteristics and behavioural ecology of the animal as well as some mythological conceptions associated with the animal. Out of the 55 species identified in use for various traditional medical practices, 21 are listed as threatened in Nigeria's Endangered Species (Control of International Trade and Traffic) Decree 11 of 1985 and the Control of International Trade in Endangered Species (CITES). Animals raised under ex-situ conservation projects were not readily acceptable for perceived deficiencies in requisite characteristics that informed the choice of fauna species. The use of substitute species was also found not acceptable as preferred substitute species are often animals under higher threat than regular one in use. Implications of the findings on biodiversity conservation were discussed.

Key words: Ethnozoology, yorubic medicine, zotherapy, traditional medicinal practitioner, biodiversity.

INTRODUCTION

Wild animals and their products constitute essential ingredients in the preparation of drugs in traditional medicine (Adeola, 1992; Gaski and Johnson 1994). Though a wide range of animal products are used to treat a variety of conditions, many wildlife products are also used for ceremonial and religious practices as well as fetishes. Indeed, animal-based medicines have always played a significant role in the healing practices, magic rituals and religions of societies all over the world (Angelletti et al., 1992; Rosner, 1992). All human civilizations with structured medicinal system would utilize animals as medicines (Dedeke et al., 2006). It had also been estimated that of the 252 essential chemicals selected by the World Health Organisation, 8.7% came from animals (Dedeke et al., 2006).

Africa boasts a long and valued tradition of using wild animals (Figure 1) and plants for medicinal purposes. Traditional healing existed in Africa long before the advent of more orthodox modern medicine and the people depended largely on traditional medicine as their

only source of health care (Adeola, 1992). Traditional medicine as practiced today continues to live side by side with modern medicine actively in Nigeria where the traditional medical practitioners even made new discoveries, which have cured major ailments in the society. Such discoveries stem from the consistent efforts of traditional healers to eradicate dangerous diseases which have plagued the society in recent times and which are apparently incurable through orthodox medicine Major diseases such as epilepsy, cancer, convulsion, paralysis, snake bites, mental illness, even other ailments having hereditary origins are now being cured by traditional medicine, (Odu, 1987). Among the various medical techniques for diagnosis and treatment, Yorubic medicine provides an important and valuable system worthy of study. The purpose of Yorubic medicinal practices is not merely to counteract the negative forces of disease in the human body, but also to achieve spiritual enlightenment and elevation (Sawandi, 2006).

In Africa, reliance on traditional medicine partly owes



Figure 1. Map of Ogun State showing the local governments.

in addition to other factors, to the fact that it is often deemed a more appropriate method of treatment (Marshall, 1998; Ntiamoa-Baidu, 1987). Not only is traditional medicine viewed as the best method for some treatments, the number of traditional medical healers practicing in most regions of Africa is far greater than the number of western medical practitioners. Hence, the availability of traditional medicine invariably outweighs that of orthodox medicine (Marshall, 1998)

The common dilemma facing all fauna species is the soaring demand for their body parts for use in medicinal products (Gaski and Johnson, 1994). Majority of wild animals in trade for use in traditional medicinal preparations are collected from the wild and the continued depletion of medicinal wild life resources not only embodies a challenge for conservation, but more importantly represents a serious threat to the health status of human population (Marshall, 1998). However, these wild resources are already reported declining in population and spread, in most cases very severely (Gaski and Johnson, 1994). Also, reports of scarcity of species used for traditional medicine are being received with increasing frequency. Certain animals are already becoming rare due to indiscriminate killing for traditional medicinal preparations (Kakati and Doulo, 2002). The time has come to record indigenous knowledge related to therapeutic animal uses and to devise strategies to exploit these natural resources more sustainably (Costa-Neto, 1999).

MATERIALS AND METHODS

Study area

A total of 40 traditional medical practitioners, and 10 hunters randomly selected, were interviewed in a study between April 2002 and March 2004 across all the 20 local governments in Ogun State,

Nigeria.

Ogun State which covers a land area of approximately 16,406,226 square kilometres is bounded in the west by the Republic of Benin, on the south by Lagos State and the Atlantic Ocean, and on the east by Ondo State and in the north by Oyo State. Ogun State has a total of 20 local government areas.

Open-ended questionnaires were administered on the trmps and hunters. The period of visit to each local government was determined by the use of a Latin square design based on the four political-administrative zones in the state. Each practitioner was visited twice, while the hunters were visited once each during the survey.

The species of animals utilised for the different preparations were recorded (Table 1). The underlying factor guiding the choice of such species as well as the complimentary ingredients required for the preparations were also recorded. Other species of animals that could be used as substitutes (Table 3) for the main fauna species alongside the regular ingredients were documented for each condition treated.

RESULTS

Fifty-five fauna species, with representatives from all the six major classes in the phylum chordata were identified in use for various traditional medical preparations. Twenty-one of these species are listed as threatened in Nigeria's Endangered Species (Control of International Trade and Traffic) Decree 11 of 1985 and the Control of International Trade in Endangered Species (CITES) (Table 2). Conditions accommodated for treatment may be physiological, therapeutic, psychological or even spiritual. Most of the present day regular species were actually substitute species that eventually got its use established due to increasing scarcity of the hitherto regular species. The prescriptions utilising species listed in as threatened or endangered will not readily accept a substitute species or will require a species more threat-

Table 1. Wild animal species utilised in Yorubic traditional medicinal practices.

| Common name | Scientific name | Local name |
|----------------------------|----------------------------------|------------|
| Amphibian Species | | |
| Toad | <i>Bufo regularis</i> | Opolo |
| Frog | <i>Rana temporaria</i> | Konko |
| Molluscs | | |
| African giant snail | <i>Archachatina marginata</i> | Igbin |
| Reptilian species | | |
| Cobra | <i>Naja spp</i> | Agbagi |
| Tortoise | <i>Kinixys spp</i> | Ajapa |
| Nile monitor | <i>Varanus niloticus</i> | Awonriwon |
| African python | <i>Python sebae</i> | Ere |
| Senegal chameleon | <i>Chamaeleo senegalensis</i> | Oga |
| Nile crocodile | <i>Crocodylus niloticus</i> | Oni |
| Gabon viper | <i>Bitis gabonica</i> | Paramole |
| Mamba | <i>Dendroaspis spp</i> | Sebe |
| Avian species | | |
| Red eye dove | <i>Streptopelia semitorquata</i> | Adaba |
| Blue-eared glossy starling | <i>Lamprotornis chalybaeus</i> | Agbe |
| Pied crow | <i>Corvus albus</i> | Akalamagbo |
| Little grebe | <i>Tachybaptus ruficollis</i> | Ako |
| Carmine bee-eater | <i>Merops nubicus</i> | Aluko |
| Double-spurred francolin | <i>Francolinus bicalcaratus</i> | Aparo |
| Black kite | <i>Milvus migrans</i> | Asa |
| Harrier hawk | <i>Polyboroides radiatus</i> | Awodi |
| African grey parrot | <i>Psittacus erithacus</i> | Ayekooto |
| Hooded vulture | <i>Necrosyrtes monachus</i> | Igun |
| Cattle egret | <i>Ardeola ibis</i> | Lekeleke |
| Indian peafowl | <i>Pavo cristatus</i> | Okin |
| Barn owl | <i>Tyto alba</i> | Owiwi |
| Spotted eagle owl | <i>Bubo africanus</i> | Owiwi |
| Mammalian species | | |
| Straw-coloured fruit bat | <i>Eidolon helvum</i> | Adan |
| Savanna gerbil | <i>Tatera valida</i> | Afe |
| Roan antelope | <i>Hippotragus equines</i> | Agbagudu |
| Spotted grass mouse | <i>Lemniscomys striatus</i> | Ago |
| Whit-bellied pangolin | <i>Manis tricuspis</i> | Aika |
| Leopard | <i>Panthera pardus</i> | Amotekun |
| Shrew | <i>Crocidiora spp</i> | Asin |
| Beecrot's hyrax | <i>Dendrohyrax dorsalis</i> | Awawa |
| Multimamate rat | <i>Mastomys natalensis</i> | Eda |
| Colobus monkey | <i>Colobus spp</i> | Edun |
| African buffalo | <i>Syncerus caffer</i> | Efon |
| Serval | <i>Leptailurus serval</i> | Ekun |
| Pigmy mouse | <i>Mus minutoides</i> | Eliri |
| Nile rat | <i>Arvicanthis niloticus</i> | Emo |
| African civet | <i>Civettictis civetta</i> | Eta |
| Maxwell's duiker | <i>Cephalophus maxwelli</i> | Etu |
| Bushbuck | <i>Tragelaphus scriptus</i> | Igala |
| Patas monkey | <i>Erythrocebus patas</i> | Ijimere |
| Spotted hyena | <i>Crocuta crocuta</i> | Ikooko |

Table 1. Contd.

| | | |
|----------------------------|--------------------------------|--------------|
| Geoffroy's ground squirrel | <i>Xerus erythropus</i> | Ikun |
| Gorilla | <i>Gorilla gorilla</i> | Inaki |
| Slender mongoose | <i>Herpestes sanguineus</i> | Kolokolo |
| Chimpanzee | <i>Pan troglodytes</i> | Obo |
| Tree squirrel | <i>Funisciurus pyrrhopus</i> | Okere |
| Giant rat | <i>Cricetomys gambianus</i> | Okete |
| Wild cat | <i>Felis silvestris</i> | Ologbo-oko |
| Rufous-bellied rat | <i>Lophuromys sikapusi</i> | Olose |
| Crested porcupine | <i>Hystrix cristata</i> | Oore |
| Greater cane rat | <i>Thryonomys swinderianus</i> | Oya |
| Stripped mouse | <i>Hybomys trivirgatus</i> | Eku onilakan |

Source: Soewu, 2004

Table 2. Species listed in appendix I and II of CITES and Decree 11 (1985) of Nigeria encountered during survey.

| Common name | Scientific name | Cites listing | Decree 11 (NIG) |
|------------------------|-------------------------------|---------------|-----------------|
| Colobus monkey | <i>Colobus sp</i> | I / II | 1 |
| Spotted hyena | <i>Crocutta crocutta</i> | | 1 |
| Patas monkey | <i>Erythrocebus patas</i> | II | 2 |
| Wild cat | <i>Felis silvestris</i> | II | 1 |
| Gorilla | <i>Gorilla gorilla</i> | I | 1 |
| Slender mongoose | <i>Herpestes sanguineus</i> | | 2 |
| Roan antelope | <i>Hippotragus equinus</i> | | 2 |
| Serval | <i>Leptailurus serval</i> | II | 1 |
| Elephant | <i>Loxodonta africana</i> | I | 1 |
| White bellied pangolin | <i>Manis tricuspis</i> | II | 1 |
| Lion | <i>Panthera leo</i> | II | 1 |
| Leopard | <i>Panthera pardus</i> | I | 1 |
| Chimpanzee | <i>Pan troglodytes</i> | I | 1 |
| Black kite | <i>Milvus migrans</i> | II | 1 |
| Vulture | <i>Necrosyrtes monachus</i> | II | 2 |
| Parrot | <i>Psittacus erithacus</i> | II | 1 |
| Owl | <i>Tyto alba</i> | II | |
| Chameleon | <i>Chameleon senegalensis</i> | II | |
| Crocodile | <i>Crocodylus niloticus</i> | I / II | 1 |
| Python | <i>Python sebae</i> | II | 1 |
| Monitor | <i>Varanus niloticus</i> | II | 1 |

Source: Soewu 2004.

ened than the regular species. All the prescriptions will require a change in the complimentary ingredients required if the major fauna species is to be substituted. 92% of the respondents were not aware of the conservation status of the species they utilise. 90% of the hunters admitted to mounting deliberate search, at times hypnotically 'pulling out' animals from their hiding place to a spot close enough for the reach of the hunter's gun.

DISCUSSION

This study shows that fauna-based trado-medicinal preparations in various forms has wide acceptance among the Yoruba people in Nigeria. These fauna species are often used in conjunction with one more other animal and/or plant species, though there are some situations in which a single-species preparation is employed in treat-

Table 3. Identified substitutes for threatened species in trado-medicinal preparations.

| Some Diseases/Conditions for which treatment is commonly sought | Preferred Major Wild life Species | | Feasible substitute Species for regular ingredients | |
|---|--|---|---|---|
| | Animal | Parts | Animal | Part |
| Diseases | | | | |
| Rheumatism | Elephant Python Roan antelope Crocodile Slender mongoose | Bones Fats + bones Bones Whole tail bones Fore & hind limbs | None None Lion None None | Bones |
| Bone fracture | Gorilla Colobus monkey Chimpanzee Elephant Roan antelope | Bones Skull Skull Bones Bones | None None None None | |
| Protection against evil influences/ manipulation | Serval Nile monitor Leopard Vulture Chameleon | Carcass Whole Head Whole Whole | None None None None None | |
| Snake poison | Leopard Python Chameleon Spotted hyena Crocodile | Skin Gall bladder + liver Tail Skin + claws Scales | None None Crocodile Serval None | Tip of tail Skin + bones + claws |
| Fertility for women | Chimpanzee Pangolin Wild cat Parrot Vulture | Placenta Internal organs of female Internal organs of female Eggs Whole | Colobus monkey None None None None | Placenta |
| Aphrodisiacs / potency for men | Gorilla Pangolin Crocodile Wild cat Serval | Male organs Whole male Whole male Male organs Male organs | None None None None None | |
| Appeasing witches | Chimpanzee Python Parrot Vulture Leopard | Left arm Head Whole Whole Head | Gorilla None Owl None None | Left arm Whole |
| Fortune rousers | Serval Pangolin Chimpanzee Patas monkey Owl | Head Whole Head Head + fore hind arms Whole | Python None None None None | Whole |
| Prevention of accidents | Colobus monkey Patas monkey Crocodile Python Owl | Fore limbs Head Head Head Whole | Monitor lizard None None | Whole |
| Seeking marital partner | Vulture Python Colobus monkey Pangolin Slender mongoose | Whole Head Fore / arm Whole Head | None None Patas monkey None None | Fore hind arm |

Source: Soewu, 2004.

ment. The use with other species of plants and animals may be due to either synergistic or additive effects of the constituents as passed down from one generation to another by tradition based on observation and trials for several years (Igoli et al., 2005; Soewu 2006).

It was discovered that the choice of animal species in trado-medicinal preparations is guided by several factors, some of which include:

- i. The recognised bioactive ingredient(s) in the animal part
- ii. Some behavioural ecological tendencies naturally associated with the animal or the concerned part.
- iii. Some mythological conceptions surrounding the animal.
- iv. The array of complimentary ingredients, faunistic or floristic, oftentimes possesses some behavioural ecological tendencies complimentary to that of the main fauna species as far as the condition to be treated is concerned.

These findings corroborated earlier suggestion that the choice of animal for a particular purpose is probably made on the basis of a unique co-evolution between social and ecological systems (IUCN, 1997).

An integral part of the practice of the Yorubic traditional healing system is the use of sacrifices, to appease witches and wizards as well as ancestral spirits often times linked with a disease condition. Disease was considered in Yorubic medicine as possession by evil devils and was to be treated with incantations along with some natural products (Sawandi, 2006). These incantations are often reflective of the basic components of the preparation as well as the perceived behavioural and mythological conceptions that informed the choice of the animal or its part(s) in a particular preparation. For instance, a particular fortune-drawer preparation is accompanied by incantations as follows:

Epin loni ki e pin ire temi funmi loni
 Be lo se fun Alara ti Alara se ori ire
 Ogede agbagba loni ki e lo gba ire temi wa funmi loni
 Be lo se fun Alara ti Alara se ori ire
 Bara loni ki e lo yi ire rindirindi wa funmi loni
 Be lo se fun Alara ti Alara se ori ire
 Oko oloko ni obo ije e sanra, oko oloko
 Emi di Ekun, ekun ko je eran ikase
 Ire ana di ire ikase
 Je ki n ri ire temi gba loni dandan

which literally transliterate to mean:

It is sand paper tree (*Ficus exasperata*) that divines my blessing be apportioned to me today
 Such was done to King Alara and he became prosperous
 It is plantain (*Musa parasidiaca*) that divines that other people's blessing be apportioned to me today
 Such was done to King Alara and he became prosperous
 It is wild gourd *Cortiles colocynthis* (Linn.) Schrad that

commands that huge compact blessings be transferred to me today

Such was done to King Alara and he became prosperous
 Chimpanzee (*Pan troglodytes*) feeds satisfactorily on other people's efforts in the wild

I become serval

Serval refuses to feed on archaic

Previous blessings become archaic

May I receive my blessings unflinchingly today at all cost.

This incantation alludes to the utilisation of the materials mentioned sand paper leave, plantain, wild gourd, serval, and chimpanzee in addition to some other ingredients.

The use of substitute or alternative species as advocated by some previous authors was found not readily feasible because of the factors involved in the choice of the species. In addition, using different species may not have the same efficacy (Sodeinde and Soewu, 1999). The use of a different species may also require a whole different array of complimentary ingredients, which implies another line of depletion of biodiversity resources from the wild. Acceptance of a new recipe involving substitute species on the part of the end user/consumer is another factor militating against the use of alternative species.

This study revealed that most of the main species presently in to ensure use started off as substitute species for some other species that became difficult to obtain then. As the conservation status of the hitherto main ingredient worsen, at least locally over the years, some of them slipping into ecological extinction, the use of the present day regular species became more pronounced until it got established as the preferred species. This trend calls for caution when advocating the use of alternative species in place of threatened ones. A thorough investigation into the sustainability of utilisation for the identified substitute species is required to ensure viability of any such exploitation (Sodeinde and Soewu, 1999).

The general response to the use of fauna species raised under ex-situ conservation projects like domestication and captive breeding were that the efficacy of preparations involving such animals could not be guaranteed. This is because such animals are believed to be lacking in the main attributes that informed the choice of the species. In the fortune drawer mentioned, the aspect of the monkey pilfering farm produce is a factor that may not make individuals raised under ex-situ schemes acceptable as such animals may not have either the need, or the freedom to raid farm plots. This trend poses a new challenge to the conservation world as the products of ex-situ schemes geared towards reducing pressure on in-situ resources is not being accepted in a major utilisation route of these wild fauna resources.

Conclusion

While the use of floristic resources has been widely re-

searched, utilisation of faunistic resources in traditional medicine in is so far little researched Nigeria. There is an urgent need to systematically document uses of wild animals for their medicinal values in all autonomous areas or communities. This need arises due to the fact that the old folks are usually the custodian of such information and, the fast disappearance of traditional cultures and natural resources arising from urbanisation and industrialisation of these areas, such information could be lost forever (Igoli et al., 2005). Such document-tation will be beneficial in general health care, ecological control, biodiversity conservation research and in providing leads to animal species with useful medicinal properties. Also further research is required to determine the bioactive compounds in animal parts already identified as having medicinal properties. Such studies will throw more light into the real basis for the curative powers in preparations made from such species.

Improvement of natural habitats is one major way to enhance continued availability of animal species that will be acceptable for traditional medicine, especially species presently under threats of conservation. There is a need to educate and enlighten the tmgs and the end users on the real essence of biodiversity conservation with emphasis on the implications of local extinction of any species for the human health care delivery system in that region. There is also a need to incorporate indigenous knowledge systems and enjoin the effective participation of local communities in policy making and implementation concerning the sustainable use and conservation of biodiversity resources.

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