



A picture of health? Animal use and the Faraday traditional medicine market, South Africa



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ARTICLE INFO

Article history:

Received 19 June 2015

Received in revised form

14 December 2015

Accepted 17 December 2015

Available online 28 December 2015

Keywords:

Ethnozoology

Zootherapy

Conservation

Doctrine of Signatures

South Africa

ABSTRACT

Ethnopharmacological relevance: The use of animals and plants as traditional remedies for both medical afflictions and social or cultural issues (symbolism) has a long history in South Africa and a reasonably large proportion of the population will consult a traditional healer during their life-time. Compared to plants, the use of animal parts in traditional medicine and folklore is poorly documented.

Methods: We interviewed 32 traders from South Africa's largest traditional medicine market, the Faraday Street market in Johannesburg, of which only 20 consented to supplying some species use information. Traders are particularly protective of the medicinal properties of their wares. Given the sensitive nature of this information (12 traders declined to be interviewed), we were only able to gather data on their perceived uses and no data on dosages, efficacy, or individual turn-over of products. We assessed the trade of animal parts from the perspective of consumer needs by analysing use-categories (e.g. headaches, strokes, skin problems, bad luck, etc.) and the degree of informant consensus in the selection of fauna to treat certain conditions.

Results: We documented 301 uses for animal parts from 52 species and 18 'morphospecies' that we allocated to 122 broad-use categories. Overall, reptiles and mammals were the most frequently used taxa in traditional medicine and some species had multiple uses (i.e., appeared in multiple use-categories) including crocodiles, lizards generally, chameleons, striped polecats, elephants and jackals. Animals were mostly used for 'strength' (physical or overcoming fear), but also as love charms, warding off bad luck or bad spirits or improving one's luck. Only 36% of our categories were medicinal (e.g., headaches, skin problems, swollen feet, etc.). We also found a high rate of non-disclosure of uses per species (a mean 86% of traders did not reveal information on the use of a species), and a variable degree of consensus between the traders on what particular species are actually used for.

Conclusions: We suggest that traditional medicine markets provide a unique opportunity to gauge the health and symbolic or personal issues representative of a large sector of society. What's more, we recommend that researchers be more mindful in the way that use information is reported. We also highlight the potentially serious threat of traditional medicine to species that may be particularly vulnerable by virtue of their restricted distribution or predictable behaviour.

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1. Introduction

Animal derivatives have constituted an important component of folk medicines and rituals in numerous cultures (Anyinam, 1995; Lev, 2002; Betlu, 2013). They are also important ingredients in the preparation of curative, protective and preventative medicines for such purposes as immunity from disease, protection against bad luck and witches, aphrodisiacs and potency, and to bring good health to local people and their communities

(Anyinam, 1995). The use of animals and plants as traditional remedies for both medical conditions and symbolic social or cultural issues has a long history in South Africa, and a reasonably large proportion of the population will consult a traditional healer during their life-time. Compared to plant ethnomedicines however, traditional healing with animals (zootherapy) comprises a smaller proportion of the documented ethnomedicinal species and practices, and research in this area has been sporadic and largely neglected (Betlu, 2013).

In South Africa, the majority of traditional medicines (*umuthi*) are of botanical origin (> 2062 species, Williams et al., 2013) whereas only 232 animal species (excluding invertebrates and marine species) have been similarly inventoried (Whiting et al.,

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2011). Furthermore, while studies on the use and trade of traditional medicinal plants have been routinely conducted for more than two centuries, ethnozoological studies in South Africa have mostly occurred since the 1980s amid growing concerns that the hunting, and commercial trade, of animals, are exploitative and unsustainable – for example: vertebrates and invertebrates (Cunningham and Zondi, 1991; Marshall, 1998; Ngwenya, 2001; Whiting et al., 2011), vertebrates (Simelane 1996; Simelane and Kerley, 1998), birds (Derwent and Mander, 1997; Williams et al., 2014), vultures (Cunningham, 1990; Mander et al., 2007), reptiles (Simelane and Kerley, 1997), and invertebrates (Herbert et al., 2003).

The importance of animal-derived ethnomedicines in southern Africa was acknowledged in 1950 by Watt and Breyer-Brandwijk, the authors of the classic works on medicinal and poisonous plants of East and southern Africa (Watt and Breyer-Brandwijk, 1932, 1962). Twelve years before the second edition of their book they wrote: “...the medicines, charms and poisons derived from animal... sources. Many of these are of great interest and are worth putting on record... We often laugh at the bizarre nature of the animal products which are sometimes used... Two live lice thrice daily by the mouth in the treatment of measles is palpably absurd, yet the use of hyraceum (klipsweet or dassiepis) the inspissated urine the rock rabbit (*Procapra capensis*), as a remedy for hysteria and epilepsy, is not so far removed from the present-day use of mare's urine as the source of a hormone remedy. We now have quite an imposing array of medicines, chiefly hormones, derived from animal sources and we seem to be still very much at the beginning of a new phase of therapeutics” (Watt and Breyer-Brandwijk, 1950). The strongly aromatic concretions of rock hyrax (*Procapra capensis*) urine is a well-known Khoikhoi medicine, often used as a post-natal medicine for mothers and babies (Van Wyk et al., 2008). Another ethnomedicine with active ingredients, this time dangerous and potentially fatal, is the blister beetle (*Mylabris* sp.); the complex terpenoids in the genus are a severe irritant that are used to treat skin diseases and have been included in strong enema mixtures (Cunningham and Zondi, 1991; Dzerefos et al., 2013; Hewat, 1906). But, despite Watt and Breyer-Brandwijk's call nearly 70 years ago to investigate animal remedies in southern Africa, very little has been published in the intervening years. Historically, the most meticulously researched account from South Africa is Godfrey's book on bird-lore and “native proverbs” inspired by the symbolic use of birds in the Eastern Cape Province (Godfrey, 1941).

That animals are generally a small component of the *Materia Medica* of indigenous cultures is one reason for the paucity of research and published information (Betlu, 2013). However, animal parts are, with a few exceptions such as the blister beetle, typically used for “symbolic ‘magical’ purposes” (Cunningham and Zondi, 1991) and the general association of animal uses with practices of ‘witchcraft’, especially in Africa, has also deprived zootherapeutics of credibility within ethnopharmacological research, and especially bioprospecting for new medicines, since the spiritual/ancestral and often sacred guidance given to a healer when selecting animals to treat various conditions cannot readily be translated into scientifically screened and medically approved patent medicines. Furthermore, the selection of animals by zootherapeutic practitioners seems to be mostly allied with the Doctrine of Signatures, or what Hutchings (1989) refers to as ‘suggestive forms’ since their appearance suggests the use.

While the Doctrine is usually associated with plants, it is also based upon the complete or partial resemblance of an animal or its behaviour to a specific part of the human body, organ, bodily function, bodily reaction or attribute that signifies its utility relative to the attribute and which it is allegedly capable of treating (De Conconi and Moreno, 1988; Voeks, 1993; Lev, 2002; Douwes et al., 2008). The users of animal medicines also see fauna as

“complex biological systems that undergo mysterious transmutations, e.g. caterpillars turning into moths” (Pujol, 1990), and for this reason they are used in related treatments to “strengthen medicines and provide cures”. In Korean traditional medicine for example, centipedes with numerous legs, feet and articulated body segments are used for leg, foot and joint problems (Pemberton, 1999). In parts of South Africa, the perceived agility of baboons is a reason why their bones may be used to treat arthritis (Pujol, 1990). But despite the wealth of indigenous knowledge and the importance of animals to indigenous communities and consumers around the world (which is especially well documented in Latin America, e.g. Alves and Alves, 2011; Alves and Rosa, 2007), inventories of animal use are sometimes presented in the context of superstition and amusing anecdotes instead of indicators of social health and well-being.

Nevertheless, the reasons behind the selection of animals offers a glimpse into the remedial needs of prospective consumers and the conditions which trouble the sector of society that uses these faunal resources. Furthermore, one can examine the reasons for animal selection by moving beyond the classic ‘species and their uses’ inventories and indices and the commonly accompanying question “what is this animal and what is it specifically used for?”. In so doing, a general picture of the health needs of consumers can be constructed by considering the uses that are most frequently reported and, the species of conservation concern can be examined by considering the animals that are most frequently sought after independent of the specific reason for their use. It is from this perspective that an intention of our paper is to examine species utilisation as indicators of social health and well-being. Hence, we have intentionally ‘uncoupled’ alleged use from the actual species and explored each aspect separately in order to portray a ‘picture of health’ of the community of users. Thus, through this process, the specific indigenous knowledge of the research participants is purposefully safeguarded.

In 2004/2005 we conducted an investigation at the large urban Faraday traditional medicine (*‘muthi’*) market in Johannesburg, South Africa, primarily to quantify the richness and diversity of the taxa sold by traders and to assess the trade in species of conservation concern (Whiting et al., 2011). A subsidiary component of that study included recording the uses for the animals on sale. Thus, since this paper considers ethnozoological medicines only, the indigenous knowledge is biased towards ailments that can only (or partially) be treated with animals in a more symbolic rather than strictly medically therapeutic context. Hence, these uses may not necessarily be indicative of the entire suite of conditions and concerns treated by traditional healers, nor the spectrum of the health requirements and priorities of urban consumers as would generally be treated by the more dominant plant-based therapeutic sector of the market. Nevertheless, these uses do illuminate one facet of the public's health needs and the taxa that are mostly illegally acquired and traded to service these needs.

2. Survey area

The Faraday traditional medicine (*umuthi*) market is in Johannesburg, the largest city in South Africa and located in the wealthiest province (Gauteng) (Statistics South Africa, 2011). Over the last decade, Faraday has grown to be the biggest market for traditional medicine in South Africa, if not southern Africa and Africa. The market ultimately services the urban population from the city and the province of Gauteng, as well as rural and urban healers and consumers from neighbouring provinces seeking to purchase products they are unable to source from where they live. There are currently (as of October 2015) about 220 dedicated *umuthi* traders in Faraday (which is down from > 300 traders

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