

First record of Angola's medicinal animals: A case study on the use of mammals in local medicine in Quiçama National Park

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This study is the first record of the use of animal products in traditional medicine in Angola. Data were obtained by performing interviews with the users of these products who use parts derived from wild mammals to treat 12 diseases. It was found that one or more products that were derived from the same species can be used to treat a variety of diseases, showing the versatility of the species. All the taxa used for animal-derived therapies in the study area are also used in other African countries, often for the treatment of the same illnesses. Four of the medicinal animals used are threatened species, demonstrating that the use of wild mammals in folk medicine should be included in management and conservation plans of these animals.

Keywords: Angola, Ethnozooology, Ethnomedicine, Medicinal animals, Zootherapy

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The use of products derived from animals for zootherapy is widespread throughout the world, and it represents a practice dating from pre-history that continues into modern times¹. The animal products that are used in traditional medicine are in large part derived from wildlife², including some animals that are on threatened species lists. This classification demonstrates the relevance of discussions of medicinal uses to conservation efforts, especially with regard to mammals, which are the most frequently used medicinal animals³⁻⁹ and whose direct exploitation has caused decline of their natural populations^{2,3,10}. The African continent has a rich traditional medicine that employs a variety of products derived from wild animals, including large mammals, and still an estimated 80 % of the populations in some African countries depend on this traditional medicine for basic healthcare¹¹. The studies on this topic have been conducted around the world^{8,12-19}, but in some countries, such as Angola, despite of studies on plants used in traditional medicine has been found^{20,21}, no research on animals used has not been published. In addition, despite of there is a registry of

traditional health practitioners in Angola, it is no official legislative, no system for the official approval of traditional medical practices, and no councils in charge of reviewing any problems concerning traditional medicine²¹.

Thus, the objective of this study, which was conducted with the human populations living in the Quiçama National Park in Angola, was to investigate the local medicinal uses of mammals. This work represents the first study of zootherapy in traditional Angolan medicine.

Methodology

Study location

Quiçama National Park (QNP) occupies an area of 9,960 km² in the province of Luanda, Angola, with the coordinates 9° 09' to 10° 23' S and 13° 09' to 14° 08' E. The park is located in the Zambezian biome, and its vegetation types include alluvial flood plains, dense forests, forested savannahs, grass lands and mangroves²².

Data collection

Data were collected between March and August 2014. Informants were selected using the snowball

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sampling method²³, in which 27 specialists (26 men and one woman) were chosen from the community because they were recognized as possessing the most knowledge about the use of animals for medicinal purposes. The individuals interviewed were natives of the region, varying in age from 30 to 85. The species that were used for medicinal purposes were identified through semi-structured interviews²⁴, which were complemented by a checklist with visual stimuli and the guided tour technique²⁵. Before each interview, the objectives of the study were explained and the interviewees' permission to record data was requested. During the interviews the traditional knowledge was documented in field note book and in audio-recorder. This research was approved by the Ethics Committee of the Federal University of Juiz de Fora and followed all the guidelines of the Articles 11 and 31 about the Rights of Indigenous Peoples (registration number: 5984816300005188). This research was also authorized by the National Institute of Biodiversity and Conservation Areas, in Angola, which manages conservation areas in the country (registration number: FC000083/GABD/2014).

Analyses

The vernacular names of the species were recorded as cited by the interviewees. The animals were identified in the following ways: 1) by their vernacular names, with the help of taxonomists familiar with the fauna in the study site; 2) through the checklist used during the interviews; and 3) by analysing part of the specimens presented by the interviewees.

Results and discussion

Eight species of wild mammals are used in remedies for treating 12 health problems (Table 1), with the most frequently cited problems being body pain, weakness and rheumatism. The parts of the species used here included fat, bones, skin, fur and faeces (Figs. 1 a&b). The mode of application occurs in the form of ashes, cooked to eat, grated to eat and



Fig. 1—Mammal products used for medicinal purposes in traditional Angolan medicine. (a) *Phataginus tricuspis* scales and (b) Faeces from *Loxodonta africana*, 2014. Franciany Braga-Pereira

Table 1 — Species of wild mammals used in remedies for treating 12 health problems

Species/Vernacular name	Treated diseases	Animal body parts used	Mode of application	Status
<i>Trichechus senegalensis</i> (Link, 1795), <i>Dikunji</i>	Body pain	Fat	Topical application	VU
<i>Panthera leo</i> (Linnaeus, 1758), <i>Hoji</i>	Asthma	Fat	Ingested raw	VU
<i>Panthera pardus</i> (Linnaeus, 1758), <i>Ongo</i>	Ward off envy	Skin	Used as blanket	VU
<i>Mellivora capensis</i> (Thomas & Wroughton, 1907), <i>Canganga</i>	Weakness	Bone	Burnt, ground and added to soups	LC
<i>Loxodonta africana</i> (Blumenbach, 1797), <i>Nzamba</i>	Rheumatism	Faeces	Smear on affected part	VU
	Difficult births	Faeces	Decocted	
	Treat sick animals	Faeces	Mixed with water to drink	
<i>Crocota crocota</i> (Erxleben, 1777), <i>Kubungo</i>	Epilepsy	Faeces	Mixed with water to drink	LC
	Malaria	Faeces	Mixed with water to drink	
	Excessive nervousness	Scales	Grinded and added to water to drink	
<i>Phataginus tricuspis</i> (Rafinesque, 1821), <i>Ofilambomba</i>	Fever	Scales	Grinded and added to water to drink	VU
<i>Tragelaphus scriptus</i> (Pallas, 1766), <i>Golungo</i>	Enmities	Skin	A piece is offered to a person	LC

Legend: LC = Least Concern; NT = Near Threatened; VU = Vulnerable.

paste, cooked to eat, decoction, paste, oil for massage and used to cover the place where the people sleep. Among the eight species recorded, five are under categories of concern in the Red List of Threatened species of International Union for Conservation of Nature (IUCN) (2016), namely: *Panthera pardus* (Linnaeus, 1758), *Panthera leo* (Linnaeus, 1758), *Trichechus senegalensis* (Link, 1795), *Phataginus tricuspis* (Rafinesque, 1821) and *Loxodonta africana* (Blumenbach, 1797). Records of the use of all the mammals identified in the zootherapy at the study site were limited to their parts, as expected. These records were limited to the parts because the mammals are usually hunted for use as sources of protein²⁷⁻³⁶, and inedible parts such as those recorded in our study are used in traditional medicine. For *Loxodonta africana*, *Crocuta crocuta* and *Phataginus tricuspis* it was also found that one or more products derived from the same species could be used to treat two or more diseases and illnesses, demonstrating the species' versatility. Traditional medicine contains examples in which the therapeutic use of medicinal animals appears to be based on the animal's morphology or some specific feature of the animal's behaviour⁴. This also seems to be the case with *Mellivora capensis*; this study found that the products derived from this species were used to fortify and lend strength to the user, similar to their use in the traditional medical systems of other countries in which this species is found³⁷. According to the literature, *M. capensis* has dense bones and a strong body³⁸, in addition to very aggressive behaviour during foraging and defence³⁹, which could account for its use as a strength-giving fortifier in traditional medicine in different countries. It was also found that all the species used for medicinal purposes at the study site are also used in other African and/or European countries^{2,40-42}, often to treat the same therapeutic targets, indicating that the use of these species is widely disseminated and important in the local medicinal practices of a variety of countries. However, it has not been verified if the combinations, method of preparation and mode of administration are the same.

This was the first record of animals that are used in Angolan traditional medicine in which eight species of mammals used in this way were identified. In light of the fact that this list includes threatened species, it is evident that these uses should be taken into consideration when creating management and

conservation plans because in some cases, the exploitation of the species increased the pressure on them. By contrast, there are cases in which the medicinal exploitation of these animals does no direct harm to the species because their use does not involve the animal's death, as in the case in which the animal's faeces is the principal object sought for medicinal use.

This research has raised which species of wild mammals are used in folk medicine of an area which is insufficiently studied, mainly because Angola has gone through 30 yrs of civil war (1975–2002). In this period because of the bombing noises and intensification of hunting, the wild animals migrated to safer areas. As a consequence to access, for example, elephant faeces, Quiçama dwellers had to travel farther distances and thus expose themselves to the conflict risks higher.

In this way, we emphasize that studies in places that have experienced or are experiencing for civil war are rare⁴³, because of the difficulty of access to the place by the researcher. However, this study has shown that despite the wars, cultural memory regarding the use of medicinal animals may remain.

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