THE USE OF TRADITIONAL MEDICINE APPLIED TO ZOOTHERAPY IN THE MUNICIPALITY OF ARARIPE – CE, BRAZIL

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ABSTRACT: Zootherapy consists of the use of animals or their by-products for the manufacture of medicines, used in the treatment of physical or psychological illnesses that affect humans. In Brazilian territory, the use of animals is a remote practice, carried out by indigenous peoples and spread among generations of family members of the colonizers. Thus, the study aims to investigate the medicinal use of animals and by-products associated with cultural and medicinal knowledge in rural communities in the municipality of Araripe – CE. The data obtained through the application of questionnaires and interviews made it possible to inventory a total of 38 species of animals that have medicinal properties. Among the cited species, there is the presence of mammals 37%, birds 24%, reptiles 21%, insects 13%, amphibians 3% and fish 3%. The use of lard 26% stands out among the most used resource, followed by honey 21%, tallow 14% and meat 10%. Lard from *Salvator merianae* (Duméril & Bibron, 1839) cited as the most used resource, its effectiveness in the treatment of diseases that affect the respiratory system such as sore throat is described. Among insects, honey from *Apis melifera* (Linnaeus, 1758) is often used in the treatment of flu, gastritis and mumps because it contains antibacterial and antifungal properties. The zootherapeutic inventory brought by this study aims to use it as a basis for further research and the promotion of conscious management of wild animals, which are described as the most sought after species for hunting and medicinal properties.
KEYWORDS: Ethnozoology; Natural resources; Conservation; Fauna; Caatinga.

O USO DA MEDICINA TRADICIONAL APLICADA A ZOOTERÁPICOS NO MUNICÍPIO DE ARARIPE – CE, BRASIL

RESUMO: A zooterapia consiste na utilização de animais ou seus subprodutos para a fabricação de medicamentos, utilizados no tratamento de enfermidades de natureza física ou psicológica que acometem o ser humano. No território brasileiro, o uso de animais é uma prática remota, realizada pelos povos indígenas e, difundida entre gerações de familiares dos colonizadores. Assim, o estudo objetiva investigar o uso medicinal de animais e subprodutos associados aos saberem culturais e medicinais nas comunidades rurais do município de Araripe – CE. Os dados obtidos través da aplicação de questionários e a realização de entrevistas permitiram inventariar um total de 38 espécies de animais que apresentam propriedades medicinais. Entre as espécies citadas, tem-se a presença dos mamíferos 37%, aves 24%, répteis 21%, insetos 13%, anfíbios 3% e peixes 3%. O uso da banha 26% se destaca entre o recurso mais utilizado, seguido do mel 21%, sebo 14% e a carne 10%. A banha do *Salvator merianae* (Duméril & Bibron, 1839) citado como recurso mais utilizado, é descrito sua eficácia no tratamento de doenças que acometem ao sistema respiratório como a dor de garganta. Entre os insetos, o mel da *Apis melifera* (Linnaeus, 1758) é frequentemente usado no tratamento da gripe, gastrite e caxumba por conter propriedades antibacterianas e antifúngicas. O inventário zooterapêutico trazido por esse estudo almeja que o mesmo seja usado como base para novas pesquisas e a promoção de um manejo consciente perante os animais silvestres no qual estão descritos como as espécies mais buscadas, pela caça, e pelas propriedades medicinais.
PALAVRAS-CHAVE: Etnozoologia; Recursos naturais; Conservação; Fauna; Caatinga

1 | INTRODUCTION

At the beginning of its evolutionary trajectory until the present time, the human being is constantly in contact with the life that comes from nature (SANTOS, 2017). Following this "evolutionary trajectory", it creates and develops the most varied forms of relationship and also learns from the experiences. Interactions with the fauna and flora were the primary factor for the emergence of diseases that often began to affect humans, however, in order to cure such diseases, it was nature itself that it resorted to (AZEVEDO, 2019). Through necessity, the human being became aware of the various existing applicability for the fauna and flora around him. It was noted then, the medicinal properties, which, administered correctly, were efficient in relieving and/or curing certain diseases, existing in the most varied species of plants and animals (SANTOS-FITA; COSTA-NETO, 2007).

The use of natural resources such as substances of vegetable, mineral and even animal origin are essential factors that promote the existence of man on earth, presenting certain therapeutic properties (COSTA-NETO, 1999; ALBUQUERQUE, et al., 2017). While the focus is on medicines derived from medicinal flora, works and productions based on fauna follow in the background (COSTA-NETO, 1999). The relationships between human beings and nature end up resulting in several benefits. The sources of raw material, such as the gigantic collection of information on the production of different medicines obtained through living with the environment around them and, which were passed down between generations, provide various actions. Everything that is offered is taken advantage of, thus being applied in various sectors, exemplifying the medicinal sector. Nature offers attributes that are used by diverse populations around the world, and with that, we have an immense wealth of fauna and flora as medicinal resources used over the years (COELHO, et al., 2017).

Interactions specifically with fauna come from a cultural heritage, present in legends, magical or religious rituals, knowledge that was built between traditional communities such as indigenous peoples and quilombolas that were passed on and disseminated over time (SILVA, 2016). As time went by, it was noticed that the presence of certain animals culminated in other purposes, in addition to the select company and protection against physical attacks, now they presented economic values, a source of food and even the development of certain medicines (SANTOS, 2017).

The applicability found and developed by communities over the years for the local fauna is studied by Ethnozoology. It is dedicated to analyzing and studying the way in which animals present certain values to the population, affected by their beliefs, myths, folklore or their biological aspects, as well as the way they are treated when they are used for purposes food, economic or medicinal (OLIVEIRA, et al., 2016). The practice in which animals or their by-products are used (such as skin, nest, fat, bones and secretions) in order to assist in the proper treatment of pathologies that affect humans, is called Zootherapy (COSTA-NETO ,

2011). Zootherapics are used as medicines for the proper cure of certain illnesses, such as diseases or just symptoms of the same, proving to be an effective solution, which is not restricted only to man, but which also makes use of the practice to cure many domestic animals (COUTINHO, 2010). However, it prevails that the use of zootherapics presents a very broad context, with several components.

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Studies applied to ethnozoology, zootherapy, brings in its concept several applicability, contributing significantly to a sensitive look in relation to cultural and medicinal issues for the classification system and its applications. (OLIVEIRA et al., 2016). However, the debate in the scientific field becomes relevant the importance that animals have among traditional communities, in view of their values of beliefs (where it is established with a more religious and magical character), in culture (having their past knowledge from generation to generation by the family/community itself) or in their uses, in which they are applied to different purposes (SANTOS-FITA & COSTA-NETO, 2007; OLIVEIRA et al., 2016).

Little disseminated in the academic environment, the zootherapy practice is concentrated in a certain portion of the population, where some factors lead to this scenario. The economic issue is present in this reality, and therefore, some families that do not have access to medicines developed by the pharmaceutical industries or based on beliefs and culture, continue to use the fauna as a pharmacological/medicinal resource (BARBOSA & ALVES, 2010). Therefore, many animals that make up the local fauna and play important roles in the ecological scenario are hunted in an unbridled way, so it is noted that the practice has influenced the increase of endangered species or at risk of over-exploitation.

Exposed to a variety of pathologies, from the environment where they lived (or live), the population resorted to nature itself in order to cure such illnesses as fever, muscle pain, respiratory problems, throat infections and flu (SANTOS, et al., 2019). Thus, it was discovered that animals had certain pharmacological properties. The use of fauna for such an occurrence gained strength and wide geographical spread. Although today we have many studies and medicines of herbal origin, zootherapy remains in force in a portion of the

population (SILVA, 2010).

As a result, this study sought to investigate the medicinal use of animals and by-products associated with cultural and medicinal knowledge in rural communities in the municipality of Araripe - CE. As well as, verify the influence of the knowledge used as subsidies for the use of zootherapics among practitioners; identify the species, as well as the preparation and application of home remedies and examine the role of zootherapy and its contributions to contemporary medicine.

2 | MATERIAL AND METHODS

The research had the participation of residents who have zootherapeutic knowledge, residing in the rural area of the municipality of Araripe - CE. To carry out this research, the "snowball" technique was used, consisting of a direct search for people with knowledge about the topic addressed. Semi-structured interviews were carried out to understand the ways such home remedies are produced, from the search for the animal to the moment of using it. The present work followed the ethical norms, having the number of the Opinion of approval in the Committee of Ethics in Research: 5,645,631.

3 | RESULTS AND DISCUSSION

During data collection, informants were asked about contact with wild animals. Participants who answered "Yes" represent a total of 76%. This contact is not restricted to zootherapeutic production, many families still use hunting as a resource to obtain food and often suffer from the visits of certain animals that threaten their (chicken) farms and their homes. Still, many animals are used as magical amulets for protection from evil forces. Respondents responded that they had no contact with wild animals, corresponding to 24% of participants.

When questioned about the use of home remedies, 98% answered that they use them. Even in the face of modern medicine, and its pharmacological advances, many families still resort to traditional knowledge for the production of medicines that help in the treatment of their illnesses (SILVA & ALVES & ALMEIDA, 2004). It is possible to identify the reliability given by each user in terms of their beliefs and how medicines have a greater potential in the healing process, in relation to pharmacological drugs, which, according to the interviewees, are lacking. The participants who stated that they did not use home remedies correspond to 2%, showing that a small loss of tradition that was previously strongly founded, together with the age of the popular people, being younger and with better economic conditions, is now being left aside. side by the medicines offered by the pharmacies and that are prescribed by doctors (specialists), and thus they treat the illnesses they are facing.

Questioned about the term "Zootherapy", knowledge and continuity in the process of completing basic education, it was noted that 11% knew the term, while 89% said they

did not know. This also reflects, among the academic environment, since the theme and its use are described in numerous works, but the scientific term ends up being something new among practitioners. Regarding knowledge about animals with medicinal properties, 95% answered that “Yes” they know animals that are used as resources for the production of medicines, while 5% answered that they had no knowledge on the subject.

When asked about whether they had ever used any animal or its by-products to manufacture medicine. Respondents who answered “Yes” correspond to 89%, while 11% answered “No”. It is possible to identify a certain relationship between the three questions asked to the participants. A huge portion of them claimed not to have knowledge of the term zootherapy, as a result, the numbers rise when asked about the zootherapeutic knowledge of certain animals and their use. As well as the reliability of certain medicines and sympathy used, the interviewees do not have theoretical knowledge about the subject, but even so, they use the resource, which often, for homes farther from urban centers, and families with low purchasing power. to make use of pharmaceutical products (FEREIRA; ALVES 2009), ends up being the only resource in the treatment of their illnesses (RODRIGUES & DANTAS 2017).

Zootherapeutic knowledge reveals the fundamental role that the family plays in the construction and transfer of the entire collection present in the medicinal fauna. It is through it and the need expressed by everyday life that the search for fauna, even today, is described that still remains alive. Proximity to neighbors also adds to the power of dispersion and distribution of all knowledge based on their cultural and religious knowledge. Although the practice is remote, and unknown to the young part of the population, knowledge about the subject among groups of older residents still perpetuates. The transmission of knowledge among family members and the memory of frequent use are motivators along with all the mystical and religious apparatus in which the drugs produced are imbued (SANTOS, 2017).

Thus, among the participants who took part in this research, it is notable among their informal records that the use of certain animals was essential for the cure and/or treatment of several of their relatives and neighbors. When asked about the healing power of the medicines, the large portion that used them, or that had only heard about them, guaranteed the effectiveness of the medicines, and how the memory of this cure, even with some animals being difficult to access, still continues to make use. Through the resource promoted by the questionnaire, it was possible to make an inventory of the animals used and/or that have some medicinal potential. In which parts of them are used as a zootherapeutic resource where each one has a purpose for a specific disease. However, throughout the research, a total of 38 species of animals were obtained, which are represented in table 1.

Among the 38 identified species, the medicinal properties are present in the taxonomic groups that had a greater representation, such as mammals with 37%, then birds with 24%, reptiles with 21%, insects with 13%, amphibians with 3% and fish with 3%. Values were also assigned to express the amount in which each animal and disease was mentioned

by the interviewees. The values obtained when compared with other studies, reveal their importance since in the works of other authors who addressed the theme in the northeast region of the country, the results are similar, evidencing the existing zootherapeutic potential in Brazil (COSTA-NETO, 1999; LIMA et al., 2016; AZEVEDO, 2019).

The animals mentioned by the interviewees are present in the most varied forms in the "recipes" of home remedies, thus, an immense applicability is noticed for the different parts that make up the animal and that can be used for the treatment of pathologies. Many animals have different purposes. The products and by-products mentioned by the community members, 26% use lard as the most used and cited medicinal ingredient, as well as in other works (SILVA, 2010). Honey 21%, meat 10%, tallow 14%, milk, egg, urine, feces and feathers add up to 19% and bones, gizzard, chick, hoof, gall, tail, nail, wool, mane and liver add up to 11 %.

Class/Scientific Name	Popular name	Part Used/ By-product	Treated Disease
Reptiles			
Salvator merianae (Linnaeus, 1758)	Teiú (48)	Lard	Sore throat (44), sore throat (4), bronchitis (1), asthma (1), ear pain in newborn (1), cough (1)
Crotalus durissus (Linnaeus, 1758)	Cascavel (19)	Lard, rattle, meat	Rheumatism (4), leg pain (1), back pain (14), general illness (1)
Mesoclemmys heliostemma (Lüderwaldt, 1926)	Cágado (15)	Lard, meat	Rheumatism (4), sore throat (4), pain in fingers (1), sore throat (1), breast cancer (1), pain in legs (1)
Boa constrictor (Linnaeus, 1758)	Jiboia (1)	Lard	Sore throat (1)
Phyllopezus pollicaris (Spix, 1825)	Lagartixa (5)	Complete animal, abdomen	Bladder pain (1), Throat pain (1), Piercings in the body by thorns (1), Wart (2)
Espécie não identificada	Tartaruga (1)	Complete animal	Bronchitis (1), asthma (1)
Philodryas olfersii (Lichtenstein, 1823)	"Cobra cipó" (2)	Belly	Nail strengthening (2)
Eunectes murinus (Linnaeus, 1758)	Sucuri (1)	Lard	Back pain (1)
Mammals			
Canis lupus familiaris (Linnaeus, 1758)	Cachorro (19)	Feces	Measles (19)
Ovis aries (Linnaeus, 1758)	Carneiro (30)	Suet, lard	Leg pain (1), Feet cracking (16), Joint pain (10), Dry lip (1), Muscle fatigue (1), Body inflammation (2), Body piercing by thorns (3)
Bos taurus (Linnaeus, 1758)	Vaca (4)	Feces, horn, mocotó oil	Measles (1), diseases in general (1)
Didelphis spp (Linnaeus, 1758)	Gambá (17)	Meat, urine	Rheumatism (11), back pain (6), cramps (2), joint pains (1), gastritis (1)

Euphractus sexcinctus (Linnaeus, 1758)	Peba (7)	Lard, hoof, tail	Back pain (6), rheumatism (2), asthma (1)
Bos taurus (Linnaeus, 1758)	Boi (23)	Mocotó, nerves, Feces, mocotó oil, liver	Weakness (malaise) (17), bone pain (1), anxiety (2), mumps (1), body aches (1), anemia (2)
Equus ferus caballus (Linnaeus, 1758)	Cavalo (8)	Crina	Wart (8)
Lycalopex vetulus (Lund, 1842)	Raposa (3)	Lard, liver	Rheumatism (1), bronchitis (1), joint pain (1)
Tolipeutes matacus (Desmarest, 1804)	Tatu (8)	Tail, urine	Ear pain (8)
Tamandua tetradactyla (Linnaeus, 1758)	Tamanduá-Mirim (6)	Meat, unha	Skin inflammation (1), ear pain (1), shortness of breath (2), asthma (2), back pain (1)
Ovis Aries (Linnaeus, 1758)	Ovelha (2)	Wool	Asthma (2)
Capra aegagrus hircus (Linnaeus, 1758)	Cabra (2)	Horn	Toothache (2)
Capra aegagrus hircus (Linnaeus, 1758)	Cabra Preta (1)	Fur	Toothache (1)
Equus asinus (Linnaeus, 1958)	Égua (1)	Urine	Low hormone production (1)
Equus asinus (Linnaeus, 1958)	Jumento(a) (27)	Milk, bone	Whooping cough (23), measles (1), mumps (3), bronchitis (1), cough (1)
Birds			
Gallus domesticus (Linnaeus, 1758)	Galinha (35)	Eggs, gizzard, lard, The Gall-Bladder, chick	Swollen navel (1), intestinal problems (4), sore throat (16), burn (10), expectorant (1), ear pain (2), cough (3), flu (4), skin wound (1), injury from falls (2), hair loss (1), weakness (4), sore throat, shortness of breath (1), bronchitis (3), nasal congestion in children (3), anxiety (1)
Gallus domesticus (Linnaeus, 1758)	Galinha Sura (sem rabo) (6)	Lard	Nasal congestion in a child (1), flu (1), sore throat (2), fever (1), headache (1), sore throat (1), hydration of the navel in a child (1)
Cairina moschata domesticus (Linnaeus, 1758)	Pato (1)	Eggs	Anemia in children (1)
Meleagris gallopav (Linnaeus, 1758)	Peru (4)	Feathers, breast, feces	Asthma (1), shortness of breath (1), bronchitis (1), wart (1)
Cyanocorax cyanopogon (Wied, 1821)	Cancão	Meat	Whooping cough (2)
Troglodytes musculus (Naumann, 1823)	Garrincha (1)	Nest	Newborn ear pain (1)
Anser anser (Linnaeus, 1758)	Ganso (1)	Eggs	Asthma (1)
*Crypturellus noctivagus noctivagus (*Wied, 1820)	Zabelê (1)	Feathers	Snake bite (1)

Insects			
Apis melífera (Linnaeus, 1758)	Abelha (42)	Honey, honeycomb	Flu (36), cough (1), expectorant (1), cold (1), sore throat (3), gastritis (1), sore throat (1), mumps (1)
Nasutitermes macrocephalus (Silvestri, 1903)	Cupim (7)	Complete animal	Asthma (2), bronchitis (4), child's navel swelling (1)
Periplaneta americana (Linnaeus, 1758)	Barata (4)	Complete animal	Urinary tract infection (1), bronchitis (2), toothache in children (1)
Espécie não identificada	Formiga Vermelha (8)	Complete animal	Sore throat (3), sore throat (3), eyesight (1), flu (1), general aches and pains (1)
Gryllus assimilis (Fabricius, 1775)	Grilo (8)	Legs, complete animal	Deafness (2), urinary system problems (3), back pain (1), belly pain, swollen navel (1), colic (1)
Amphibian			
Rhinella schneider (Werner, 1894)	Sapo (3)	Belly, Lard	Wart (1), wounds (1), breast cancer (1)
Actinopterygii			
Hoplias malabaricus (Bloch, 1794)	Traíra (1)	Lard	Rheumatism (1)

Table 1: Inventory of animals with medicinal properties.

According to Jacinto (2018) and Silva (2008), the authors in their works also list a large number of faunal specimens such as *Hoplias malabaricus* (Bloch, 1794) (traíra) in which lard is used to treat ear pain, the use lard from *Boa constrictor* (Linnaeus 1758) (jiboia) in the treatment of wounds on the body, and the feces of *Canis lupus familiaris* (Linnaeus 1758) (dog), which have medicinal properties, also mentioned in this work. The highlight is also concentrated among mammals (OLIVEIRA et al., 2016), in which they still consider that proximity and relationships built over the years were the fundamental factor for the construction of this knowledge.

What was revealed during the course of the research is the way in which the animals are acquired, since many of them are wild animals. The proximity of the residences to areas of natural forest favors hunters, who still search for these animals as a food resource. Due to this scenario, the local fauna suffers from this pressure, since the people who live close to these areas tend to seek it to meet their needs, whether they are food or medicinal (SILVA, 2010).

The lard of certain animals such as *Boa constrictor* (Linnaeus, 1758) (jiboia) and *Eunectes murinus* (Linnaeus, 1758) (sucuri) lard, used as an antibiotic resource, is recommended by the people to help in the treatment of inflammatory diseases. and/or pain. Often used to treat sore throats or back pain, the action of these reptiles' lard is also described in other studies carried out in Brazil, where its action is highly effective in curing skin lesions, problems in the circulatory system. , and in the respiratory system, such as pneumonia or the flu (SILVA, 2008; JACINTO, 2018). Souza, et al., (2017) confirmed the

positive action of lard from *Eunectes murinus* (Linnaeus, 1758) against allopathic medicines, used in the wound healing process, in which the natural compound overcame the effects of the tested commercial ointment. The presence of fatty acids present in the animal's lard are pointed out as evidence for its efficiency, since they have shown relevance in biochemical reactions during the healing process (SOUZA et al., 2017).

The *Mesoclemmys tuberculata* (Lüderwaldt, 1926) (tortoise), *Hoplias malabaricus* (Bloch, 1794) (traíra) and *Gallus domesticus* (Linneus, 1758) (chicken) also enter the zootherapeutic framework in which their lard has medicinal applicability . In the case of *Gallus domesticus* and *Hoplias malabaricus*, knowledge about these two animals is widely disseminated, since obtaining them is easy, since many are domestic animals and raised by the population, or acquired in the nearest dams. Although the tortoise is also reported near reservoirs and lakes, the capture and use of it still causes some fear and revulsion among some informants.

The lard of *Gallus domesticus* (Linneus, 1758) is widely used for the treatment of coughs in children, sore throats, throat inflammation, and actively acting as an expectorant in the aid of wet cough. Following the interviewees' indication, it is necessary that the lard be toasted until it reaches the point of paste, after cooling, it is recommended to massage the throat, or ingest it, in concentrated doses throughout the day or mixed in coffee, as also demonstrated in other works (JACINTO, 2018).

Among the different parts of animals that are used or heard about, the meat of *Didelphis* spp (Linnaeus, 1758) (possum), *Mesoclemmys tuberculata* (Lüderwaldt, 1926) (tortoise), *Cyanocorax cyanopogon* (Wied, 1821) (song) and *Tamandua tetradactyla* (Linnaeus, 1758) (small anteater) have been widely described. The work done by Costa-Neto (1999) and Santos and Lima (2017) also recorded the use of meat for the production of medicines among indigenous communities present in the semi-arid region of Pernambuco. Cooking *Didelphis* spp meat without salt or any other seasoning is recommended for the treatment of rheumatism, corroborating other works by Costa-Neto (1999) and Prado and Ramires (2020).

The secretions expelled by countless animals are also a source of raw material for the manufacture of medicines used by the traditional communities participating in the research. Milk from *Equus assinus* (Linnaeus, 1958) (donkey) was the resource most indicated by the interviewees. There were many indications of its use for the treatment of whooping cough, regionally known as "wild cough", a practice in which the population makes use of the visual characteristics of certain diseases, in order to name them and facilitate their identification and transmission between communities. nearby locations (PINTO, et al., 2020), previously affected by a large part of the population, which in the words of community members "*only solved with donkey milk. And it was good! Blue and sweetie*". Throughout the interviews, several were the reports of people who used the milk, and felt an improvement in a few days. For the population, this product has great medicinal value, especially at a time when

access to health centers practically did not exist.

In the historical context, access to health in Brazil was limited. Either because of the availability of doctors in the region or because of the purchasing power to pay for a consultation among private means. Residents of the rural area suffered from the situation and, as a way to get around it, sought in local ecosystems a way to produce the necessary medicines for the treatment of their illnesses. With the sanitary reform, the government started to have a more sensitive look towards the population. With the health reform movement, the Unified Health System (SUS) was created. Not far behind are the Basic Health Units (UBS), which served as a way to reduce and eradicate existing diseases among populations. The advances followed now being made available covering an area of greater reach and people, which served to a small reduction in the search for home remedies (ROSENDO, 2016; SILVA & CAMARGO, 2019)

Dog faeces, also known as "flor de toco" is recommended among research participants and was often used as a form of tea, for the treatment of measles. Also pointed out in the work of Oliveira and Júnior (2016). Just as dry cow feces, served in the form of tea, were a great medicine used to cure measles, ox feces were used for the treatment of mumps. All the diseases mentioned date back to a time in the past, where social and economic difficulties were very present (LUNA, 2021).

Some sympathies are described by the interviewees, in which various animals or their by-products are used, such as the egg of *Gallus domesticus* (Linneus, 1758) (poultry chicken), which, if rested on top of the house, helps in treating the lack of air. The use of anatomical parts such as the abdomen of the (lizard) is used in the treatment of diseases of a dermatological nature, pressing on the site of the existing wart, which tends to leave the body in a natural way. The sympathies also have great representation in the cure of various illnesses (SILVA, 2008).

Among the diseases most cited by the interviewees, those that affect the respiratory system stand out with a large proportion, such as sore throat (n=77 citations), flu (n=40 citations), severe cough (n=24 citations), bronchitis, asthma and shortness of breath (n=11 citations) and cough (n=6 citations), all these diseases are also described in the works of Lima et al., (2016), where several specimens are used, and several by-products of the same for the manufacture of medicines that are applied in different ways. Also described were the use of various animals for the treatment of numerous diseases ranging from rheumatism (n=6 citations) to measles (n=4 citations) and cancer (n=2 citations).

With regard to herpetofauna, the class of species mentioned, among reptiles, the *Salvator merianae* (Duméril & Bibron, 1839) (teiú) stands out, mentioned 49 times by the interviewees, where they stated that the use of the animal's lard , has healing properties for those who suffer from inflammation, sore throat and asthma, corroborating the studies previously carried out by Oliveira and Júnior (2016). The form of preparation consists of melting the lard until it reaches the point of "paste", after which it can be applied to the throat

and massaged, or ingested. It is necessary to take one spoon a day for the treatment to take place satisfactorily.

Among the users of *Salvator merianae* lard (Duméril & Bibron, 1839), 55% stated that after using it, they felt an improvement in their condition. However, the results obtained in his work, Ferreira (2009) pointed out the inefficacy of using lard from it, as a positive agent in the cure of diseases affected by the respiratory system. As a result, it brings as an agent, the questioning under all the religious and cultural apparatus rooted in its use, which still permeates today. Although clinically its action has been flawed, the popular ones show the power that there is in the placebo and the faith that they have in these drugs. Although the animal is easily found, either by hunters or by trespassing, many still respect environmental laws, which prohibit the search for certain wild animals, highlighting the fact that those involved may have felt intimidated by the research being carried out by a biology student, compromising their answers due to fear of a possible fine.

In the insect class, there are several by-products used as a medicinal resource, such as nests, honey, body, excretions (LIMA, 2018; AZEVEDO, 2019), highlighting the use of *Apis mellifera* (Linnaeus, 1758) (bee) (honey), as a resource for the production of medicines, also cited in numerous works such as Santos and Lima (2017). In the present study, honey is essential in recovery when one is affected by the flu, gastritis and/or sore throat. The use of it secondarily with lemon and garlic forming a “licker”, is often used for treatment.

In its chemical composition, this precious natural resource has several compounds such as sugars, proteins, enzymes, organic acids, minerals, water, pollen, maltose, sucrose and ash (GOIS, et al., 2013; SOUZA, et al., 2017) . The medicinal applicability attributed to this resource has been the target of numerous studies in order to verify its effectiveness. The discovery of the substance inhibin served as an initial step towards advancing the applicability of honey as an antimicrobial and antibacterial agent. In addition to an enormous action in the inhibition of pathogens that develop in lesions (SOUZA, et al., 2017).

In their studies on the therapeutic properties of honey, Silva, et al., (2021) pointed out that the practice dates back to ancient times, and research has been gaining strength over the years. The authors discuss the presence of numerous vitamins present in honey such as riboflavin (B2), folic acid (B9), thiamine (B1), pyridoxine (B6) and several others. They are pointed out by the same ones that the antimicrobial actions, although it still cannot be clarified, the actions come from the existence of certain substances such as hydroxymethylfurfural (HMF), hydrogen peroxide (PH), methylglyoxal, and phenolic acids, flavonoids, and defesins, as the agents responsible for promoting antibacterial and antifungal actions.

Discussed in the works of Silva (2010), Silva (2008) a vast amount of birds used as a medicinal resource are pointed out. In this class, *Gallus gallus domesticus* (Linneus, 1758) (chicken) stands out as the most cited animal. Among the interviewees, the use of

lard, eggs, gizzards, breast gall and even chicken are used as a resource to aid in the treatment of certain diseases. Pointed out by Prado and Ramires, (2020) in their study, lard is discussed as a resource often used in the treatment of diseases that affect the respiratory system, such as sore throat, cough, phlegm in the chest, bronchitis. Finally, the healing properties presented by chicken and its by-products go further, being used to aid in the recovery process from falls, weakness, skin injuries and stomach problems.

Among mammals, *Ovis aries* (Linnaeus, 1758) (sheep) stands out among the popular ones, due to the medicinal properties that the use of the animal's tallow presents. The same has also been mentioned by other authors such as Severiano and Lima (2019), who pointed out the use of the resource for the treatment of joint pain, cracked feet and "straped". The use of sheep tallow is a resource often used among the popular, among those who prefer to make it at home, they make it quite clear that for better effectiveness, it is necessary that the tallow comes from the captive animal. Other ways of obtaining tallow are on the shelves of some supermarkets, which are sold in pots for the treatment of the aforementioned diseases.

The knowledge about the zootherapy practice still remains in force. Although its use is being reduced over the years. The advances brought by modern medicine and public health programs that now cover the most remote areas of the municipality, have contributed to the reduction of traditional practices involving fauna in certain locations. However, as shown in this research, knowledge still remains in the memory of those who, one day, faced with the terrible conditions in which they lived, were saved with the resources that all the biodiversity present near the places where they live provide them. This allows for dialogue in the face of promotion between the two types of knowledge, and thus, through natural resources and scientific knowledge, culminating in new drugs and alternative therapies.

There are many illnesses and forms of application of remedies. All knowledge is transmitted between families, keeping alive a kind of tradition, where parents leave as an inheritance, all the knowledge that from a past life, which was necessary to maintain the good health of those who did not have access to specialized medical care (PRADO, RAMIRES, 2020). In contrast to modern medicine, many of the popular people who still make use of home remedies, warn against consuming both drugs at the same time, in order not to have an adverse reaction, an interval between taking the drugs is necessary.

The production of remedies from zootherapeutic medicine remains obediently to cultural and religious issues, where some of the aforementioned remedies have already been the object of clinical trials and their therapeutic action has been disapproved. This allows us to embrace the idea that beyond faith, the placebo becomes an agent during the healing process. Citing the lard of *Salvator merianae* (Duméril & Bibron, 1839), which for many of the participants has its action validated, however it had its action in the treatment of respiratory and inflammatory diseases, ineffective in clinical tests (FERREIRA, 2009).

However, we have in contrast the positive functionality that other frequently used

animals have. As a result, it is necessary that knowledge about certain remedies is not left aside or discriminated against due to certain negligence (NETO, RESENDE, 2004). The use of insects and reptiles such as lard from *Eunectes murinus* (Linnaeus, 1758), has clinically proven positive action in the treatment of lesions, which shows that traditional knowledge, even based on customs, faith and tradition, has the possibility of becoming become a valuable resource in the production of new drugs. Although clinical trials are not available for all traditional medicines, knowledge among users is relevant, their verification and validation pre-exist within their own beliefs, and therefore, they should not be discarded or prejudged.

However, with the warning given by the doctors to the interviewees, the indiscriminate use of animals or parts of them for the manufacture of medicines is something that should be taken with caution (DIAS, 2019). Many species used are wild, in addition to ecological and conservationist factors, many carry with them certain pathologies that can cause the individual to worsen and spread a new disease. It is through the man-animal relationship, and the search for food and therapeutic resources, that the human being has become susceptible to contact with Zoonoses. Lewis (2021) defines zoonoses as infectious diseases that are naturally transmitted to humans through contact with vertebrate animals.

The forms of applicability for the consumption of meat, or by-products such as milk, bones, lard and fat act as potential harmful agents, showing that the connection between human beings and animals is not always beneficial, and the existence of new diseases may occur (PASSOS & MARTINS, 2020). In the study carried out by Passos and Martins (2020), the authors highlight the emergence of numerous infectious diseases that affect humans through contact with wild fauna. The same point out the diseases, such as rabies, covid-19, wild yellow fever and the acquired immunodeficiency syndrome virus (SIA). In his study on the zoonotic potential of some animals, Brito (2020) reports the origin of certain pathologies such as Chagas disease transmitted through consumption of meat from Dasypus sp (armadillo), *Didelphis* spp (Linnaeus, 1758) (skunk) mentioned in that work in which cooked meat is used for the treatment of rheumatism.

However, it is brought by the literature and pointed out in the present study, that cultural and religious values must be taken into account and all the dynamics towards faith and the placebo where many medicines are based on this (LIMA, et al., 2015). It is remarkable the large number of animals identified in this research and how it points to an instigation of new research on zootherapeutics.

However, the issue lies in the existing aspects between: the use of all zootherapy knowledge present among the residents, in which, in their reports, many of their children have been treated with “medicines from the bush”; and together with the availability of Basic Health Units (UBS) offered by the municipalities, and with the warnings brought by health professionals for not using these drugs, as the effectiveness or harmful effects that such practices can promote are not known clinically. Home remedies produced from animals can

trigger a reaction contrary to expectations and worsen the clinical picture of that sick person. As a result, it is necessary to clinically test each drug before use (FERREIRA, 2009).

Many drugs in fact do not have their clinical test, and therefore are quickly discarded. However, another issue leads us to analyze the way these drugs are made and their influence on adverse reactions. Silva (2010) points out that medicines made through zootherapeutic resources (which are often made with wild animals) carry with them certain microorganisms that can be extremely harmful to humans. Alves and Rosa (2005) preponderate that zoonoses are the path to adverse reactions to home remedies prescribed to patients.

However, environmental and conservation issues gain strength and space in the face of the debate about the use of zootherapeutic drugs. Although there is a record of the use of domestic species, most of the animals frequently used derive from the natural ecosystems present in the localities where the practitioners reside. As a result, in addition to hunting, wild exploration is added to the search for medicinal purposes. It is not known by the people, the species that are included in the endangered list, however, by Law ° 5197/67 l Law No. 5,197, of January 3, 1967, which prohibits hunting and the commercialization of wild species, many still use the resource clandestinely.

Acting as a strong subsidy for the practice, cultural and religious knowledge remain strongly linked to the use of homemade medicines, the questioning regarding the use even in a recommended way, remains in force among the interviewees, a portion, trust in the medicines, however their use is limited. Among the older population, trust in medicines from the local ecosystem surpasses pharmaceutical drugs, all based on their faith, as cited by Dias (2019) in his study.

CONCLUSION

Studies carried out in West Cariri revealed that traditional knowledge is still used in the treatment of diseases. Reptiles and mammals are the main animals used for the production of medicines and by-products. The participation of women in the transmission of this knowledge is highlighted, as well as the need for further studies to improve zootherapy and deal with environmental and sociocultural issues with respect.

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