

Avanços da pesquisa e inovação e do empreendedorismo em medicina veterinária

Alécio Matos Pereira
Davy Frazão Lima
(Organizadores)



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APRESENTAÇÃO

A produção vegetal e animal supre uma necessidade básica para a sobrevivência da espécie humana, a alimentação. A busca por uma produção sustentável, que vise o bem-estar animal e alta produtividade animal e vegetal requer um desenvolvimento técnico-científico especializado nas áreas zootécnicas, veterinárias e agronômicas.

Essas pesquisas complementam o conhecimento do corpo acadêmico, profissionais e estudantes das ciências agrárias, dando suporte para a tomada de decisões no manejo alimentar, no tratamento e prevenção de doenças e no controle de qualidade desses alimentos.

Este livro demonstra profundamente os diversos assuntos pertinentes a produção animal, bem como doenças que podem afetar seu bem-estar e/ou potencial produtivo da espécie. Os parâmetros produtivos, reprodutivos e comportamentais dos animais são abordados por especialistas renomados nas mais diversas áreas da ciência animal de forma clara e objetiva.

O livro possui 9 capítulos sendo estes baseados de diversos trabalhos científicos, levando sempre em consideração os aspectos pedagógicos, técnicos e científicos com o objetivo de oportunizar uma melhor compreensão dos profissionais das ciências agrárias.

Esse livro vem com intuito é agregar e atualizar os conhecimentos dos estudantes e profissionais dos cursos de Medicina Veterinária e Zootecnia para auxiliar na tomada de decisões na clínica animal e produção animal. Boa leitura!

Alécio Matos Pereira

Davy Frazão Lima

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TRADITIONAL KNOWLEDGE OF MEDICINAL PLANTS IN THE SANITARY MANAGEMENT OF PRODUCTION ANIMALS IN THE AGRESTE REGION OF THE STATE OF PERNAMBUCO, BRAZIL

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ABSTRACT: Taking into account the growth trend regarding the use of medicinal plants and herbal products in different management practices in animal production, the aim of this study was to carry out an ethnoveterinary survey on the use of medicinal plants as a therapeutic resource in animals of zotechnical interest in the city of Itaíba, in the Agreste of Pernambuco, Brazil. A total of 90 rural producers were interviewed from visits to settlements and rural properties, in addition to a free fair, with the application of semi-structured questionnaires, containing objective and subjective questions that involved socioeconomic and productive aspects, and linked to traditional knowledge regarding the use of medicinal plants in health management of animals. It was observed that the vast majority of respondents raised cattle, sheep and poultry and that 90% used or had already used medicinal plants in animal management. There is a strong family influence, especially from parents and grandparents, regarding the use of herbs to the

detriment of allopathic products, with the bark and root fractions of plants being the most used in the treatment of different health problems. 17 plant species were mentioned for the treatment of diseases in animals. It is concluded that the use of medicinal plants is still a practice well explored by breeders of animals of zotechnical interest in the Agreste of Pernambuco. In addition, similar ethnoveterinary studies are opportune for the understanding and conservation of local and popular knowledge in relation to the use of medicinal plants in animal management actions.

KEYWORDS: Animal health; caatinga; ethnoveterinary; medicinal herbs; popular knowledge.

CONHECIMENTO TRADICIONAL DE PLANTAS MEDICINAIS NO MANEJO SANITÁRIO DE ANIMAIS DE PRODUÇÃO NO AGRESTE PERNAMBUCANO

RESUMO: Levando-se em consideração a tendência de crescimento quanto ao uso de plantas medicinais e produtos fitoterápicos em distintas práticas de manejo na produção animal, o presente estudo objetivou realizar um levantamento etnoveterinário sobre a utilização de plantas medicinais como recurso terapêutico em animais de interesse zootécnico da Cidade de Itaíba, Agreste de Pernambuco, Brasil. Foram entrevistados 90 produtores rurais a partir de visitas a assentamentos e propriedades rurais, além de feira livre, com aplicação de questionários semiestruturados, contendo perguntas objetivas e subjetivas sobre aspectos socioeconômicos, produtivos e ligados ao conhecimento tradicional relativo ao emprego de plantas medicinais no

manejo sanitário de animais. Observou-se que a grande maioria dos entrevistados criava bovinos, ovinos e aves e que 90% faziam ou já fizeram uso de plantas medicinais no manejo animal. Existe forte influência familiar, sobretudo dos pais e avós, quanto ao emprego de ervas em detrimento de produtos alopatícos, sendo as frações casca e raiz das plantas as mais utilizadas no tratamento de diferentes problemas de cunho sanitário. Foram mencionadas 17 espécies vegetais para tratamento de doenças nos animais. Conclui-se que o uso de plantas medicinais ainda é uma prática bem explorada pelos criadores de animais de interesse zootécnico do Agreste Pernambucano. Adicionalmente, estudos etnoveterinários semelhantes são oportunos para o entendimento e a conservação do saber local e popular em relação ao uso de plantas medicinais em ações de manejo animal.

PALAVRAS-CHAVE: Caatinga; ervas medicinais; etnoveterinária; Northeast of Brazil; saúde animal.

INTRODUCTION

Brazil is configured as a country that has high biodiversity, standing out worldwide for presenting many plant species that can be considered medicinal, these being used in the preventive or curative treatment of diseases in humans or animals. Medicinal plants have bioactive compounds in their composition, which gives therapeutic potential to these herbs. According to Catalan et al. (2012), despite these characteristics, the use of natural products is still a little explored practice in veterinary clinic and animal production systems.

In turn, herbal medicine is understood as the medicine produced exclusively from medicinal plants in their different preparations, without the use of isolated active substances, even if from plant (BRASIL, 2009). The herbal medicines, like all remedies, are defined by the perception of the effectiveness and risks of its use, as well as by the indivisibility and durability of its quality (BRASIL, 2014).

Several medicinal plants conventionally explored in popular medicine have been used in natura or in the form of herbal products in livestock, in management practices such as treatment of skin wounds (MARTINS et al., 2003; OLIVEIRA et al., 2010), control of endoparasites and ectoparasites (BRITO-JUNIOR et al., 2011; HOCAYEN and PIMENTA, 2013), treatment of umbilical cord stump (SILVA et al., 2018) and milking hygiene management (AMARO et al., 2011).

Santana et al. (2015) highlighted that ethnoveterinary refers to the science responsible for studying popular practices for the benefit of animal health and well-being, based on the treatment of animal pathologies with use of medicinal plants. Additionally, veterinary herbal medicine has the same applicability as human herbal medicine, based on the use of these products in the form of infusion, decoction, maceration, poultice, teas, baths, compresses, oils, extracts, inhaled products or creams (LIMA et al., 2006).

There is a growing trend regarding the use of herbal medicines by the population, and this tendency can be extrapolated to the management of animals. Among the factors

that may explain this increase, it is possible to point out the advances that have occurred in the scientific area, that have allowed the development of herbal medicines known to be safe and effective, in addition to the growing trend in the search for the population, for therapies that are less aggressive to the environment (BRUNING et al., 2009). Another factor that contributes to the expansion of the use of medicinal plants and herbal medicines is the prevention of microbial resistance through the indiscriminate use of allopathic drugs. However, it is worth emphasizing the relevance of the rational use of medicinal plants and herbal medicines, since if used in a disorderly manner they can also provoke resistance and other problems.

Taking into account the relevance of using natural products to replace allopathic ones in animal production, for economic and environmental reasons, in addition to the growing results that signal the efficacy and safety of using numerous plants with preventive and/or curative properties, it becomes essential to study the use of medicinal plants in regions that have livestock as a prominent economic activity, as is the case of Agreste region of Pernambuco state, which brings together several cities with high production of bovine milk, for example, being considered the state dairy basin.

Bearing in mind that many rural producers have a close relationship with the flora occurring in the region in which they reside and that they have vast popular knowledge, obtained from their ancestors and that may still be rooted in the communities, it is necessary to understand the current situation regarding the use of medicinal plants as therapeutic treatment for several diseases that affect animals of zotechnical interest. Thus, the objective was to investigate the use of medicinal plants as a therapeutic resource in animal production, based on popular knowledge, in rural properties of the municipality of Itaíba, in the Agreste of Pernambuco.

MATERIAL AND METHODS

The research was carried out with residents of different communities and rural settlements in the municipality of Itaíba, located in the mesoregion of Agreste of Pernambuco, Brazil, in the first half of 2020. The municipality of Itaíba has an estimated population of 26,349 inhabitants, presenting the “Caatinga” as the predominant biome (IBGE, 2019).

A field study was carried out with the application of a semi-structured questionnaire, containing 13 questions, to 90 rural producers, of both sexes, who were voluntarily inquired about socioeconomic and productive aspects and related to the use of medicinal plants in animal management practices of zotechnical interest. The research included people who agreed to answer the questionnaire, aged 18 or over and who were willing to participate. The questionnaire contained questions related to the socioeconomic and productive profile and addressed the producers’ knowledge regarding the use of medicinal plants.

The information obtained was analyzed according to the frequency of responses,

through descriptive statistics, using the Microsoft Excel® 2016 program.

RESULTS AND DISCUSSION

The age of the producers ranged between 20 and 68 years old, with the majority of respondents (74%) composed of people under the age of 48. Only 18% were between 48 and 58 years old and the remaining 8% represented those over 58 years old (Figure 1).

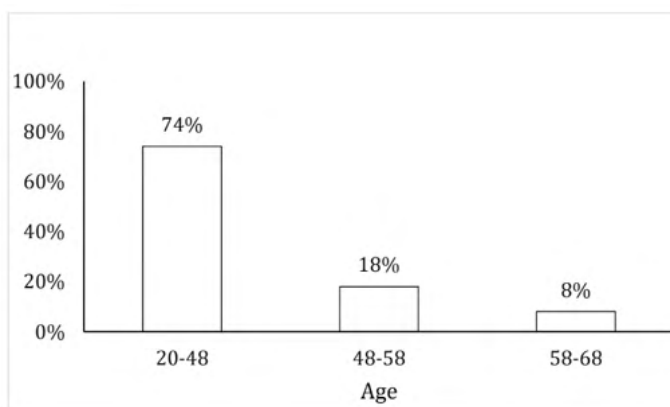


Figure 1. Age range of interviewed producers, residents in the municipality of Itaíba, Pernambuco.

These results may signal a change in reality in the countryside, since the findings of individuals with more advanced age in the rural area are more common, performing activities related to agriculture and livestock, because of the migration of those younger to the urban area of the cities. On the other hand, these data may also reveal that the activities related to animal production (primary sector) have become attractive and profitable to rural people, thus collaborating with their fixation in this environment.

The majority was composed of men (74%) and women represented 26% of the interviewed public, which points out that livestock activities are very centralized in the male figure, in addition to demonstrating that in interview situations, in general, there is an indication of man to answer the questions, maintaining his supremacy as responsible for the issues related to the property. Of the total respondents, 67% lived in rural areas and, of these, 79% were farmers, 13% ranchers, 4% were retirees and 4% mentioned working in different occupations (Figure 2).

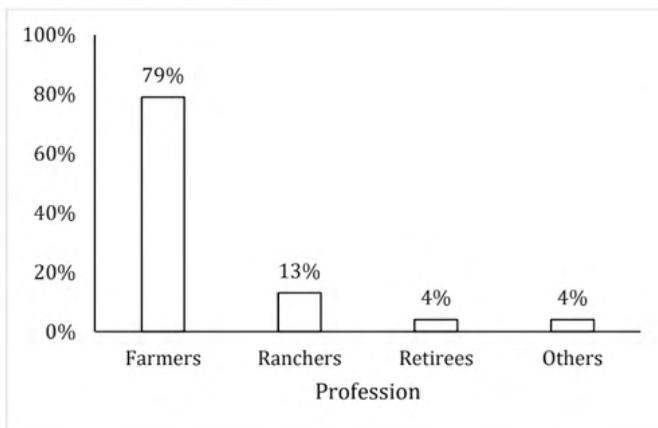


Figure 2. Professions exercised by the interviewees, residents in the municipality of Itaíba, Pernambuco.

The fact that the majority of respondents affirm that they live in the rural area has a lot to do with the profile of the region and city involved in the present study. According to Araújo et al. (2013), the municipality of Itaíba, which is located in the Microregion of Vale do Ipanema, is characterized by its strong agricultural potential, with the creation of cattle, especially for dairy production. In addition, one can associate the great expansion of rural settlements, totaling five, with significant territorial extensions. According to Bergamasco and Norder (1997), rural settlements can be defined as important units of production and agricultural and livestock exploitation.

When asked about their level of education, 13% of respondents indicated that they had higher education, 49% had completed high school, 9% had completed elementary school II, 21% had completed elementary school I, and 8% considered themselves to be illiterate (Figure 3).

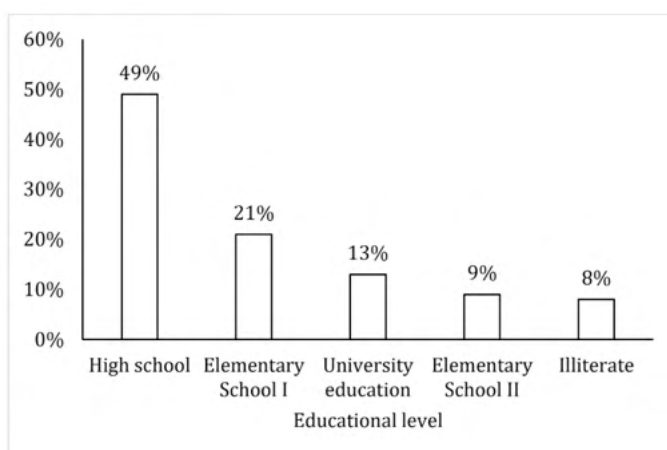


Figure 3. Education level of interviewed producers, residents in the municipality of Itaíba, Pernambuco.

The Illiteracy is still a problem faced by rural populations, due to the difficulties of access to school and the long time dedicated to work in the field, confirming the study carried out by Oliveira and Menini Neto (2012), who observed low level of education of the inhabitants of the village of “Manejo” in Lima Duarte city, Minas Gerais state, a fact that has a strong relationship with working hours, making the continuity of studies impossible. However, the increase in public policies has enabled access to school, whether with the arrival of school transport or the qualification of effective teachers (BONMANN, 2015). Also, possibly the percentage of respondents who completed higher education is associated with the creation of academic units from public higher education institutions in the interior of the state of Pernambuco, such as the municipalities of Caruaru, Garanhuns, Arcoverde and Serra Talhada.

The interviews made it possible to identify that 100% of the interviewees raised more than one animal species, highlighting the production of cattle (63%), poultry (18%), sheep (13%), goats (4%) and horses (2%) (Figure 4).

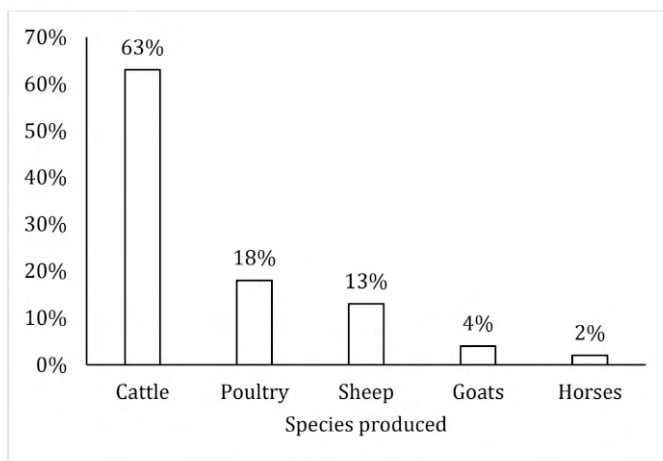


Figure 4. Species of farm animals created by the interviewees, residents in the municipality of Itaíba, Pernambuco.

Regarding the number of farm animals, Itaíba is mentioned in the report by the Brazilian Institute of Geography and Statistics - IBGE (2018) with a number of 49,336; 18,000; 10,000; 5,400; 2,200 and 1,750 heads of cattle, sheep, poultry, goats, horses and pigs, respectively. Thus, the data obtained in the present research corroborate with the survey of the IBGE (2018), showing the bovine, sheep and poultry species as the most explored in the municipality.

With regard to the use of medicinal plants, 90% of respondents stated that they have already made and make use of medicinal plants for the treatment of their animals,

with multiple purposes. The other 10% replied that they never used the plants and/or their extracts to treat or prevent any health problem. Of the latter, 56% stated that they never used medicinal plants because they do not have access, do not know and/or did not have information about the benefits; the other 44% reported that they prefer to administer allopathic medications. Given this scenario, it is clear that the use of medicinal plants is a common practice in different management actions, thus signaling the close relationship between producers and plants.

The informants who mentioned the use, confirmed that they learned to use and obtained information about the benefits of medicinal plants with their families and other producers. In this context and as shown in figure 5, 49% reported that they learned from their respective grandparents, 45% from their parents and 6% from other producers, who had already reported the possibility and benefits of use.

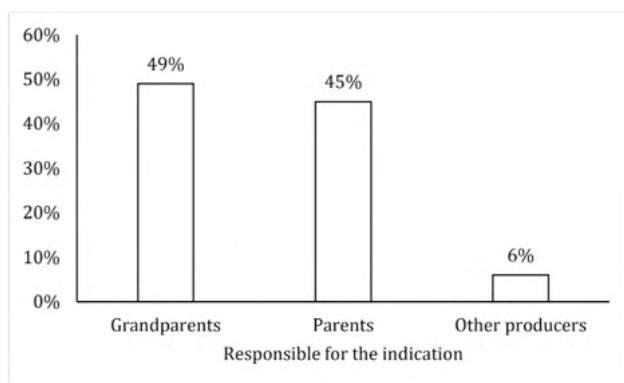


Figure 5. Responsible for the indication regarding the use of medicinal plants in animal production.

It was observed that knowledge is predominantly passed on from teachings that span the generations, in addition to the exchange of knowledge between members of the communities. According to Cunha and Bortolotto (2011), this process of learning and transmitting knowledge based on socialization among family members, friends and neighbors makes it possible to enrich people's knowledge about the use and applications of available natural resources.

Another fact that draws attention is the absence of interviewees indicating the learning about the use of medicinal plants when participating in actions (courses, workshops and other forms of training) promoted by entities that work with assistance to farmers and ranchers, who are also responsible for improving the quality of life of these communities.

Most medicinal plants (54%) come from cultivation. According to Amorozo (2002), the backyards of the communities are of great relevance, as they are places of immediate access. Then, those who collected plants in the "Caatinga" (25%) and, in turn, those who

bought plant species in free fairs (21%).

All fractions of the plants were indicated for use in the sanitary management of the creations, with the bark being the part of the vegetable with the highest frequency of responses (34%). In sequence, the roots, leaves, “buchá”, whole plant, potato (tuber), fruits and flowers were mentioned (Figure 6).

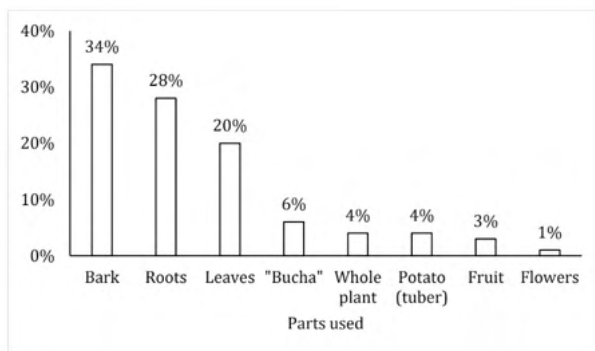


Figure 6. Parts of medicinal plants used in livestock, by rural producers residing in the municipality of Itaíba, Pernambuco.

Faraj et al. (2015), when investigating the knowledge of goat and sheep producers regarding the use of medicinal plants in the umbilical treatment of small ruminants in rural communities in Mossoró, Rio Grande do Norte, reported that the bark was the most used part, being cited by 48% of the interviewees. These results converge with those found in the present study and can be justified by the preference of using bark in “Caatinga” areas, given that many plants in this biome are deciduous, that is, they lose their leaves during drought, which makes it easier the use of bark, which are available throughout the year (FRANCO and BARROS, 2006).

According to Ribeiro et al. (2014), the bark of native plants are the most used plant organs. One of the main constituents of the bark of several plants occurring in the Northeast of Brazil, such as “Aroeira” (*Schinus terebinthifolius Raddi*), are the tannins. According to Paes et al. (2006), the tannins present in the plant have great antimicrobial activity.

Five ways of using the plants or forms of preparation were observed (Figure 7), with emphasis on the use of fresh plants (44%) and preparations in the form of teas (32%), infusions (11%), dust (7%) and tincture (6%), which can be explained by the fact that they are simpler or easier forms of preparation, when compared to the preparation of soaps and ointments, for example.

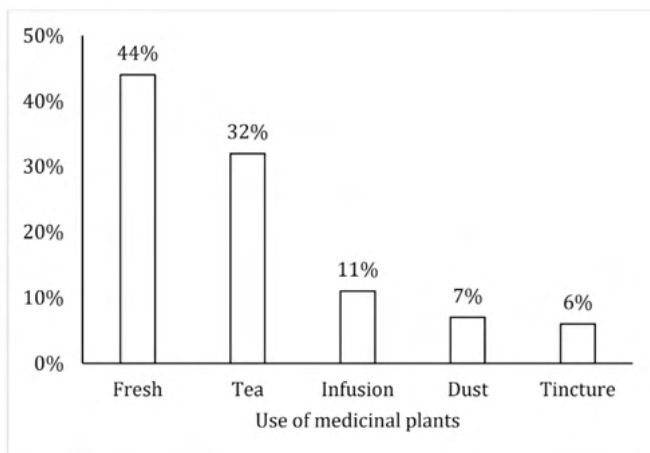


Figure 7. Preparations of medicinal plants used in animal production.

As expected, due to the greater presence of cattle on the properties in the region studied, 62% of respondents reported that they use medicinal plants in natura or in the different forms already reported, in the management of cattle. Other animal species were also treated using medicinal plants: sheep (16%), goats (13%) and horses (9%), in that order.

When asked if they knew the concept of an herbal product, 64% stated that they did not have this knowledge and 36% reported that they did. Of these, 50% defined herbal medicine as a product extracted from nature, 47% described it as a product derived from natural plants and 3% said that herbal medicine is a natural product.

As for the therapeutic applications of medicinal plants, it was found that 35% of producers used in cases of retained placenta, 17% in umbilical treatment, 17% used to heal skin wounds, 8% in the treatment of clinical mastitis, 8% when the animals have clinical anemia, 5% in the control of worms, 4% against diseases in the respiratory system, 3% against scabies, 2% in the control of flies and 1% in tympanic situations (Figure 8).

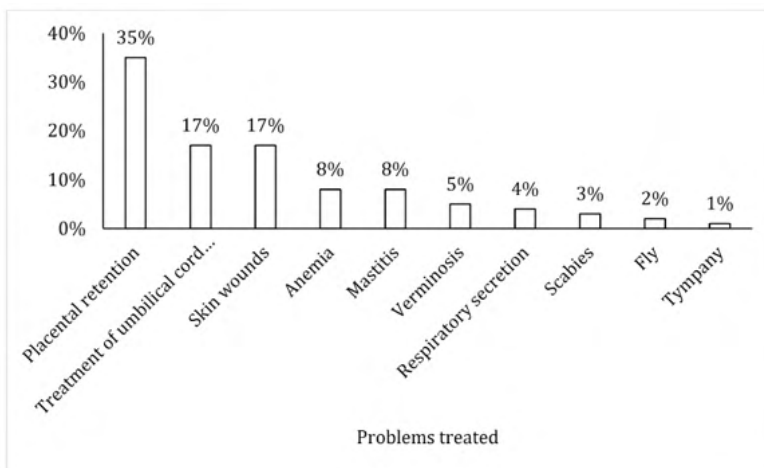


Figure 8. Diseases prevented or treated with the use of medicinal plants.

Regarding the plants mentioned, 17 species appeared at least once in the responses (Table 1).

Scientific name	Popular name	Form of use	Treatment	Number of citations
<i>Wodyetia bifurcata</i>	Rabo de raposa	Tea	Retained placenta	14
<i>Aloe vera</i>	Babosa	Fresh	Healing of skin wounds and myiasis	14
<i>Sideroxylon obtusifolium</i>	Quixabeira	Bark/Tea	Umbilical treatment	14
<i>Schinus terebinthifolia</i>	Aroeira	Bark/Tea	Umbilical treatment	14
<i>Luffa operculata</i> L.	Cabacinho	“Bucha”	Mastitis and retained placenta	9
<i>Commiphora leptophloes</i>	Umburana	Bark/Tea	Retained placenta	6
<i>Annona coriacea</i> Mart.	Cabeça de negro	Fresh/Grind	Diseases in the respiratory system	6
<i>Anacardium occidentale</i>	Cajueiro roxo	Bark/Tea	Inflammation	4
<i>Senna Alexandrina</i> Miller.	Sene	Tea	Retained placenta	4
<i>Maytenus rigida</i>	Bom nome	Bark/Tea	Clinical anemia	4
<i>Pygocentrus piraya</i>	Piranha	Bark/Tea	Fever and mastitis	4
<i>Jatropha curcas</i> L.	Pião bravo	Tea	Scabies	3
<i>Ricinus communis</i>	Mamona	Fruit/Tea	Tympany	3
<i>Mormodica charantia</i>	Melão de São Caetano	Tea	Scabies and fever	2
<i>Azadirachta indica</i> A.	Ninho	Fresh	Ectoparasites	2
<i>Morinda citrifolia</i> L.	Noni	Fresh	Inflammation in the uterus	2
<i>Achyrocline satureioides</i>	Marcela	Tea	Diarrhea	1

Table 1. Medicinal plants used by the interviewees, form of use and therapeutic indication.

It was noted the use of different plant species, distributed in different genus and botanical families. An important point is that the common names of the plants can vary from region to region, being able to signal different plants. Thus, it is important to emphasize the relevance of the correct identification of the plant species before any application for any disease to be treated/alleviated or form of use.

Carvalho et al. (2013), in studies carried out in the “Várzea” community, in the city of Garanhuns, located in the Agreste of Pernambuco, found that 90% of the interviewees used medicinal plants for therapeutic purposes, and 80% of them stated that they obtain satisfactory results with the treatment, thus confirming the statements collected in this study. In addition, these same authors realized that 82.45% of the interviewees used teas more frequently, similar to the results obtained in the present study and shown in figure 7.

When asked why they used those plants, 33% of respondents claimed they used them for their effectiveness in the healing process, 27% mentioned anti-inflammatory action, 22% associated it with previous recommendations, 11% reported the rapid effect in solving the problem and 7% indicated that they had easier access.

Teixeira and Melo (2006), in an ethnobotanical survey on the plants used in the Municipality of “Jupi”, in the Agreste of Pernambuco, identified the plants used in urban and rural spaces. In this study, a large number of species used (106 species) was found, with emphasis on plant species from the following families: *Lamiaceae*, *Asteraceae*, *Cucurbitaceae*, *Caesalpinaceae*, *Myrtaceae*, *Anacardiaceae* e *Mimosaceae*, that were used to cure diseases of the most diverse natures.

CONCLUSIONS

The rural producers of the Agreste of Pernambuco, more specifically from rural communities in the city of Itaíba, have been maintaining the tradition and customs passed down by their ancestors and obtained from the community dialogue regarding the use of medicinal plants, which is evidenced by the significant participation of various plant species, in different forms, in different management practices for farm animals.

In general, the application of medicinal plants to the detriment of conventional drugs is related to greater ease of access, reduced or zero cost, in addition to the empirically observed efficacy. Similar ethnoveterinary studies are relevant to the understanding and conservation of local and popular knowledge in relation to the use of medicinal plants in animal management actions.

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