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# Ethnoveterinary knowledge and practices at Colares island, Pará state, eastern Amazon, Brazil

Rhuan Amorim Ritter [a], Maria Vivina Barros Monteiro [a,*], Frederico Ozanan Barros Monteiro [b], Silvane Tavares Rodrigues [c], Marina Lira Soares [b], Jean Carlos Ramos Silva [d,e], Maria das Dores Correia Palha [b], Germano Francisco Biondi [f], Sheila Canevese Rahal [f], Manoel Malheiros Tourinho [b]

[a] Universidade Federal do Pará (UFPA), Faculdade de Medicina Veterinária, Castanhal, Pará, Brazil
[b] Universidade Federal Rural da Amazônia (UFRA), Programa de Pós-graduação em Saúde e Produção Animal na Amazônia. Belém, Pará, Brazil
[c] Embrapa Amazônia Oriental. Belém, Pará, Brazil
[d] Programa de Pós-graduação em Ciências Veterinárias, Universidade Federal Rural de Pernambuco (UFRPE). Recife, Pernambuco, Brazil
[e] Instituto de Medicina da Conservação—Tríade. Recife, Pernambuco, Brazil
[f] Universidade Estadual Paulista (UNESP), Faculdade de Medicina Veterinária e Zootecnia (FMVZ), Botucatu, SP, Brazil

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ABSTRACT

*Ethnopharmacological relevance:* The lack of ethnoveterinary surveys in Brazil, especially in the Amazon region, results in losses in the veterinary phytopharmacology field and in scientific documentation of the cultural traditions of plant use in the treatment of animal diseases.
*Aim of the study:* To catalog, analyze and disseminate the ethnoveterinary knowledge of the inhabitants of Colares Island, Pará state, eastern Amazon, Brazil.
*Materials and methods:* A total of 72 interviews were conducted, and semi-structured questionnaires were answered by 18 men and 54 women. The data obtained were quantitatively analyzed using the informant consensus factor (ICF) and use value (UV). The plants with a reported medicinal use for domestic animals were harvested, herbalized and botanically identified.
*Results:* Fifty-six plants, distributed in 49 genera and 35 families, were indicated to have 23 different medicinal uses, divided into six categories of use. The highest ICF (0.80) was obtained for the antiparasitic class. The Euphorbiaceae family exhibited the highest number of citations, and the species with the highest UVs were *Caladium* cf. *bicolor*, *Bixa orellana*, *Carapa guianensis*, *Jatropha curcas* and *Cymbopogon citratus*. The parts of the 56 plants that were most frequently used to prepare ethnoveterinary medications were the leaves (46%), bark (15%), roots and fruit (10%). The use of the macerated leaves was the most common method of application, used by 43% of the interviewees, and the majority of the preparations (87.3%) used a single plant. In addition to medicinal plants, the interviewees reported the use of products of animal and mineral origin.
*Conclusion:* The present study contributed to the establishment of an inventory of plants used in ethnoveterinary practices in this region of the Brazilian eastern Amazon. Future phytochemical and pharmacological studies are needed to confirm the efficacy and safety of the identified plants, enabling communities to use them in a more economic, effective and safe manner.


## 1. Introduction

Ethnoveterinary medicine is the science that studies the beliefs, knowledge, techniques, methods and practices used in the care and promotion of animal health (Barboza et al., 2007). Some factors, such as the increased cost of veterinary services and difficulty of acquiring synthetic drugs, have contributed to the interest in developing this science, especially with regard to the use of phytotherapy (Monteiro et al., 2011a).

Ethnoveterinary knowledge is acquired by communities over many years and passed between generations through oral tradition. Today, with rapid cultural changes, this knowledge is being lost, necessitating its scientific documentation (Mathias, 2001). There have been many ethnoveterinary surveys from around the world regarding the use of plants in therapeutic protocols (McGaw and Eloff, 2008; Farooq et al., 2008; Benitez et al., 2012; Sharma et al., 2012). According to Barboza et al. (2007), in Brazil this type of study is still scarce, particularly in Amazonia. As one of the most biologically diverse regions of the planet, the

* Corresponding author. Tel.: +55 91 32265208; fax: +55 91 32105139.
*E-mail addresses:* vivinabm@gmail.com, vivinabm@hotmail.com (M.V.B. Monteiro).

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Amazon encompasses a large number of plants with medicinal properties and others whose therapeutic effects are still unknown (Pimentel, 1994). In addition to plant diversity, which is estimated at 25,000 to 30,000 endemic plant species (Cunningham, 1996), the Amazon is home to several cultures, including those of indigenous and quilombola peoples, and people with mixed ethnicities. The numerous possibilities arising from the interactions between the biome and various Amazonian cultures give this region a rich and complex knowledge of the therapeutic potential of the Brazilian flora (Rodrigues, 2006).

In this context, it is important to conduct studies that document the ethnoveterinary knowledge of Amazonian communities, as rapid urbanization, the dominance of allopathic medicine and the acculturation of the population may contribute to the disappearance of such knowledge. In addition, popular knowledge can provide important information for the selection of natural alternatives for treating animal diseases and contribute to the discovery of new drugs. Therefore, the purpose of this study was to document and analyze the ethnoveterinary knowledge of the inhabitants of Colares Island, Pará state, eastern Amazon.

## 2. Materials and methods

### 2.1. Study area

The town of Colares is located at latitude 00°55′38″ south and longitude 48°17′04″ west of Greenwich (Fig. 1) and is situated 100 km from Belém, the capital of the state of Pará, Brazil. Colares is an island of approximately 609.8 km$^2$ on the shores of the Marajó bay, in the Salgado region, separated by "Furo da Laura" and the Guajará-Mirim river (Lima da Silva et al., 2001).

The area has forest fragments, mangrove, secondary vegetation and flooded forests. Currently, the predominant type of vegetation is secondary forests, which is the result of severe deforestation for the cultivation of short-cycle agricultural species (Acevedo, 2004). The population of the municipality is estimated at 11,381 inhabitants, with approximately 67.83% (IBGE, 2010) distributed in 22 communities located in rural areas.

The economy of the municipality is predominantly based in governmental services, and agriculture accounts for 25% of the economic activity. Extractive activities are intensive, especially related to subsistence fishing and harvesting of açaí (*Euterpe oleracea*) and other native fruits. The health status of the municipality is revealed by the absence of hospitals. There are a total of 2.36 community health agents (CHA) per 1,000 inhabitants/year.

There are no stores that sell veterinary products or technical veterinary care in the municipality. The main species of domestically raised animals are dogs, cats, cattle, buffaloes, horses, pigs and poultry.

### 2.2. Data collection

Data collection was conducted from November 2011 to March 2012, and 20 rural communities and the town were visited. Before the fieldwork was conducted, a meeting was held with the Community Health Agents (CHAs) of the town of Colares to explain the objectives and work methodology. The CHAs are part of the National Family Health Program of the Brazilian Department of Health (Brasil, 2002) and are people chosen within the community to work with the population on individual, collective and environmental health maintenance. Furthermore, CHAs identify, in every sense, with their community, especially in terms of culture, language and customs (Silva and Dalmaso, 2002). Because they have direct and permanent contact with communities, CHAs were chosen to designate the first interviewees, who were required to have experience in animal breeding and use of medicinal plants. In the selection of interviewees, non-random sampling was used, using the snowball method (Albuquerque et al., 2008), after the initial contact with the community, the first interviewee is identified and suggests another one and so forth, until all the people with the desired knowledge are interviewed.

The interviews and application of semi-structured questionnaires only began after explaining the objectives of the study to the subjects and obtaining verbal consent and a signature of the informed consent form. The questionnaires were divided into three parts covering the following areas: (1) data on the personal characterization of the interviewed subject; (2) data on animal

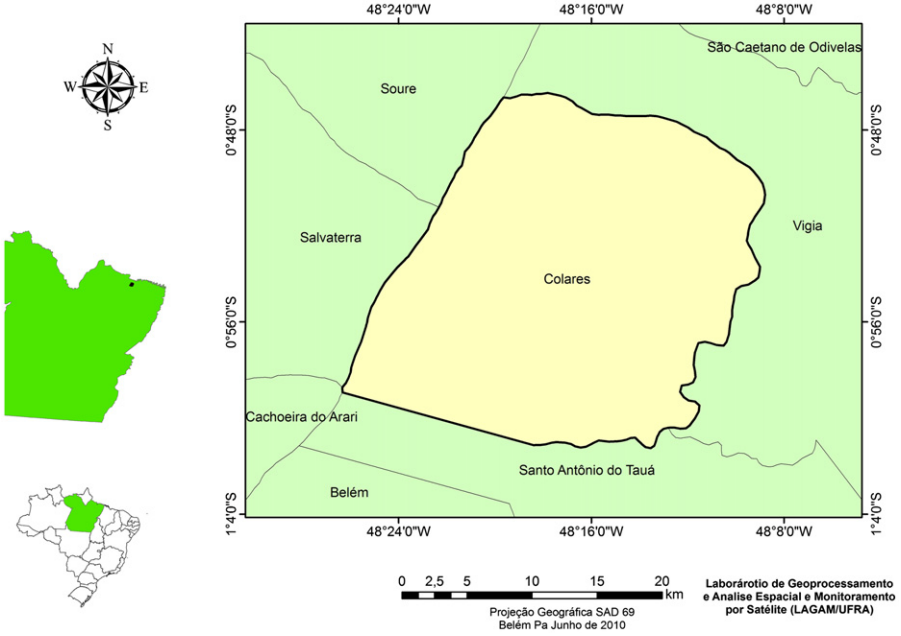


**Fig. 1.** The town of Colares is located at latitude 00°55′38″ south and longitude 48°17′04″ west of Greenwich and is situated 100 km from Belém, the capital of the state of Pará, Brazil.