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Full Length Research

Ethnoveterinary practice used in the treatment of dogs in Ilara-Mokin, Ondo State, Nigeria

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ABSTRACT: Ethnoveterinary practices represent an essential component of indigenous knowledge systems that contribute significantly to animal healthcare in rural communities. However, documented evidence on such practices, particularly those related to the treatment of dogs, remains limited in Ondo State, Nigeria. This study was conducted to identify, document, and analyse the botanical resources and traditional methods employed by local dog owners in Ilara-Mokin, Ondo State. Data were collected through open-ended interviews and structured questionnaires administered to knowledgeable respondents. The study revealed a range of ethnoveterinary practices that utilise various medicinal plants and manual techniques, such as hand-picking of ectoparasites, for the management of canine ailments, including tick infestation, diarrhoea, mastitis, lameness, and intestinal worms. The findings highlight the depth of indigenous knowledge applied to animal healthcare within the community and underscore its continued relevance in the absence of readily available modern veterinary services. Given the threat of cultural erosion and biodiversity loss, there is an urgent need to systematically preserve, validate, and integrate this traditional knowledge into modern veterinary and conservation frameworks to ensure its sustainability and potential contribution to scientific research and rural development.

Keywords: Dog, ethnoveterinary, practice, preserved.

INTRODUCTION

In some centuries back, livestock raisers have developed plant-based remedies, surgical and manipulative techniques, husbandry strategies and associated magico-religious practices in keeping animals healthy and productive (McCorkle *et al*., 1996).

Ethnoveterinary practice refers to the collective, local and traditional knowledge, practices, beliefs and skills that communities use to maintain and restore animal health, often involving herbal remedies, dietary management and other practices passed down through generations. Ethnoveterinary practice in domestic animals has been practised in China, Brazil and India (Xiong and Long, 2020; Ruben, 2021; Eshetu *et al*., 2015; Shrivastava *et al*., 2017). Ethnoveterinary practices in China used to treat livestock diseases using herbal remedies, dietary therapies and other folk methods (Xiong and Long, 2020). Ethnoveterinary practices in India rely on community-based knowledge primarily using local medicinal plants for animal care, treatment, and management, often transmitted orally through generations (Ruben, 2021). Ethnoveterinary practice in Nigeria involves using traditional knowledge, often from local plant-based remedies, to treat livestock diseases, particularly by herdsmen and rural farmers who lack access to modern veterinary services due to cost and availability (Nodza *et al.*, 2022).

The dog was the first species to be domesticated in the time hunter-gatherers (Frantz *et al*., 2020). Ethnoveterinary practice can serve as an alternative to the high price of veterinary drugs and the lack of knowledge of the use of veterinary medicines in animals (Moreki *et al*., 2010). Ethnoveterinary practice is cheap, accessible, partly effective and practicable (Kaikabo *et al*., 2004). Little information had been recorded about medicinal plants

used as ethnoveterinary practice in Nigeria (Aihanuwa *et al.*, 2017). Poverty and illiteracy were significant challenges to the adoption of modern veterinary practices by farmers in most Nigerian communities (Aiyedun *et al*., 2017). There is a need for indigenous knowledge for the conservation and protection of biodiversity (Su *et al*., 2020).

Nicotiana tabacum has been used to treat external and internal parasite disorders, and *Aristolochia clematis* for digestive disorders in dogs (Bahmani and Eftekhari, 2013). Lans *et al*. (2001) also used *N. tabacum* for the treatment of ectoparasites, as well as *Azadirachta indica* and *Carica papaya* as anthelmintics, *Musa sp.* to treat mange, and *Anacardium occidentale* and *Psidium guajava* to treat diarrhoea in pet dogs. Bahmani and Eftekhari (2012) reported that *Salvia deserti* can be used for wound disinfection, and *Citrus limonum* can be used to treat diarrhoea. Female indigenous local breed dogs were more prone to attack by diseases than the exotic breed in Jos plateau in Nigeria, as reported by Karshima *et al.* (2020).

Studies have not shown ethnoveterinary practices in dogs to treat their parasitic diseases in Ilara-Mokin, Ondo State. This study investigated the type of ethnoveterinary practice used in the treatment of dogs' diseases in Ilara-Mokin, Ondo State, Nigeria.

MATERIALS AND METHODS

Description of the study area

Ilara-Mokin is a town located along the Ilesha–Akure motorway, approximately 5 kilometres west of Akure metropolis in Ondo State, Nigeria. Geographically, it lies between latitudes 07°21′16″N and 07°22′20″N, and longitudes 05°05′58″E and 05°07′12″E. In addition to its main access route, several minor roads link Ilara-Mokin to neighbouring rural towns and villages. The surrounding settlements include Igbara-Oke, Ijare, Isharun, Ipogun, Ikota, and Ipinsa (Oladapo *et al.,* 2009).

Survey

A total of twenty-one open-ended questionnaires were administered to respondents within the Ilara-Mokin community to obtain detailed qualitative information on indigenous ethnoveterinary practices. The study adopted a purposive-random sampling technique, targeting rural dwellers who owned or managed dogs, thereby ensuring adequate representation of individuals with relevant experiential knowledge. The questionnaire instrument was structured to elicit data on the socioeconomic characteristics of respondents, the types of medicinal plants utilised in the treatment of canine diseases, their perceived therapeutic properties, and the local methods of preparation and administration. Additional sections captured information on the prevalence of common dog ailments, traditional treatment procedures, and the underlying indigenous knowledge guiding these practices. Emphasis was placed on documenting the transmission and application of ethnoveterinary knowledge within the community context. Data obtained from the field survey were organised and analysed using Microsoft Excel (version 10). Descriptive statistics such as means and percentages were employed to summarise the findings and present a clear picture of the ethnoveterinary practices and the demographic profile of respondents in the study area.

RESULTS AND DISCUSSION

Socioeconomic characteristics of respondents

A total of twenty-one respondents participated in the study. The majority of dog owners were between the ages of 36 and 50 years (52.38%), followed by those aged 51–65 years (42.86%), while only 4.16% were above 66 years. This indicates that middle-aged individuals were the most actively involved in dog rearing and traditional animal healthcare practices within the community. Most respondents were female (71.43%), suggesting that women play a significant role in the care and management of domestic animals, particularly dogs, in Ilara-Mokin. In terms of marital status, 47.62% were married, 33.33% were widowed, and 19.05% were single (Table 1). With respect to dog ownership, the majority (57.14%) of respondents owned between 0–5 dogs per household, 28.57% kept 5–10 dogs, and only 14.29% owned between 10–15 dogs. The educational background of respondents revealed a predominance of individuals without formal education (47.62%), while 42.86% had attained primary education and 9.52% had secondary education; none possessed tertiary qualifications. Occupation-wise, two-thirds (66.67%) of respondents were traders, while 33.33% were farmers, highlighting the dominance of informal and agrarian livelihoods in the community (Table 1). The socioeconomic characteristics were similar to those obtained by Bada and Adewole (2024) in poultry birds. It was also similar to the work of Metawi *et al.* (2019) in age and educational status for ruminants in Egypt, and similar to that of Adesehinwa *et al*. (2004) in educational status in southwestern Nigeria.

Medicinal plants used in the treatment of dog diseases

Eight plant species were identified as being commonly employed in ethnoveterinary practices for treating various canine ailments (Table 2). The most frequently used plants included *Nicotiana tabacum* (Taba), *Vernonia amygdalina* (Ewuro), *Chromolaena odorata* (Akintola), *Ocimum gratissimum* (Efinrin nla), *Elaeis guineensis* (Ope), *Carica*

Table 1. Socioeconomic characteristics (n = 21).

Socioeconomic characteristics	Frequency	Percentage
Age		
<20	0	0
21-35	0	0
36-50	11	52.38
51-65	9	42.86
>66	1	4.16
Sex		
Female	15	71.43
Male	6	28.57
Marital Status		
Married	10	47.62
Single	4	19.05
Divorced	0	0
Widow	7	33.33
Dogs owned by the household		
0-5	12	57.14
5-10	6	28.57
10-15	3	14.29
15-20	0	0
Educational status		
No formal education	10	47.62
1-6 (primary education)	9	42.86
7-12 (Secondary education)	2	9.52
13-18 (Tertiary education)	0	0
Occupation		
Trading	14	66.67
Farming	7	33.33
Professional teaching	0	0

papaya (Ibepe), *Azadirachta indica* (Dogoyaro), and *Psidium guajava* (Guava). The leaves were the predominant plant parts utilised for therapeutic purposes, followed by the seeds in the case of *Elaeis guineensis*. The identified species could be due to the actual geographical location that favours this type of botanical, as reported by Ojo *et al.* (2014).

Ethnoveterinary practices for dog treatment

The study documented a variety of indigenous therapeutic approaches for managing common dog ailments (Table 3). For tick infestation and mange, respondents reported rubbing fresh leaves of *Nicotiana tabacum* directly on the dog's skin or washing the body with water infused with the leaves, followed by sun drying. In some cases, the shaft of the palm kernel was used to rub the skin to remove ticks. Emaciation was treated by improving the dog's nutrition, while wounds and black spots on the body were also managed using *Nicotiana tabacum* leaves. For lameness or broken limbs, morning dew collected in water was applied to the affected area, often complemented with the fresh leaves of *Vernonia amygdalina* and *Chromolaena odorata*. Mastitis (swollen breast) was treated with the leaves of *Nicotiana tabacum*, while palm kernel oil (*Adin*) was used to manage vomiting, diarrhoea, and worm infestations in young dogs. Cold in puppies was addressed by closing openings in their sleeping area to prevent exposure. For malaria-like symptoms, leaves of *Carica papaya*, *Azadirachta indica*, and *Psidium guajava* were commonly employed. These botanicals were primarily administered topically or orally, depending on the nature of the ailment being treated. The medicinal values of the

Table 2. Identification of Medicinal plants used for treating dog diseases.

Botanical species	Family Name	Vernacular Name	Part of the plant used
Nicotiana tabacum	Solanaceae	Taba	Leaves
Vernonia amygdalina	Asteraceae	Ewuro	Leaves
Chromolaena odorata	Asteraceae	Akintola	Leaves
Ocimum grattissimum	Lamiaceae	Efinrin nla	Leaves
Elaeis guinessis	Portulaceae	Ope	Seed
Carica papaya	Caricaceae	Ibepe	Leaves
Azadirachata indica	Meliaceae	Dogoyaro	Leaves
Psidium guajava	Myrtaceae	guava	Leaves

Table 3. Ethnoveterinary practice is used to treat diseases in dogs.

Diseases	Ethnoveterinary practice
Tick	Rub fresh leaves of *Nicotiana tabacum* or wash the body and let the sun dry the water on the body, then use the shaft of palm kernel to rub the body.
Mange	Fresh leaves of Nicotiana tabacum
Emaciation of dogs	Good food
Black spots on the bodies of dogs	Fresh leaves of Nicotiana tabacum
Wound on the two ears and body	Fresh leaves of Nicotiana tabacum
Lameness (broken leg)	Put water outside early in the morning and let the dew enter it, then rub the affected area. Also use *Vernonia amydalina, Chromolaena odorata (*fresh leaves)
Swollen breast (Mastitis)	Fresh leaves of Nicotiana tabacum
Vomiting because of worms in young dogs	Palm kernel oil (Adin)
Cold in small dogs	Close the place of habitation to prevent cold
Worms/Diarrhoea	Palm kernel oil (Adin)
Rubbing the stomach on the ground	Fresh leaves of *Ocimum grattissimum*
Malaria	Leaves of *Carica papaya, Azadirachta* indica and *Psidium guajava*

Table 4. Indigenous knowledge used for dogs

Indigenous Knowledge	Diagnosis (English)	Diagnosis (Yoruba)
Pest		
Body hair removing	Mange	Ekiku
Kokoro lara	Tick	Egban
Microbial diseases		
Worm	Worm	Aran
Loss of blood	Anaemia	Eje ti osi
Persistent watery stooling	Diarrhea	Igbe-guru
Wound in the breast	Mastitis	Egbo ni omu
Environmental diseases		
Broken leg	Lameness	Ese kikan
Feeling Cold	Cold	Otutu

medicinal plants in this study were similar to those used for ruminants in Ekiti State and Ilara-Mokin, as Ojo *et al.* (2014) and Bada *et al.* (2020). However, the use of medicinal plants in the town is diminishing because they are switching to modern medicine to treat dog diseases. This indicates that indigenous knowledge is going extinct. This study agrees with Lan *et al*. (2001) on the use of *Nicotiana tabacum* to treat ectoparasites in dogs in Canada and in treating skin diseases in humans in Ethiopia (Harikpso *et al.,* 2024).

Indigenous knowledge of dog ailments

The indigenous knowledge system of the Ilara-Mokin community demonstrated a detailed understanding of canine diseases and their local diagnoses (Table 4). Respondents recognised pest-related conditions such as mange (*Ekiku*, *Kokoro lara*) and tick infestation (*Egban*), as well as microbial infections, including worm infestation (*Aran*), anaemia (*Eje ti osi*), diarrhoea (*Igbe-guru*), and mastitis (*Egbo ni omu*). Environmental or physical conditions such as lameness (*Ese kikan*) and cold (*Otutu*) were also identified and treated using indigenous approaches. This classification underscores the depth of local diagnostic knowledge and its practical application in the treatment of domestic animals (Ojo *et al*., 2014). The ethnoveterinary practice discovered in this study can serve as an alternative medicine to orthodox medicine in rural areas of Nigeria, because they are cheap and readily available within the community (Lawal et al., 2015; Alawa *et al.,* 2002).

Conclusion

This study revealed that ethnoveterinary practices remain an important aspect of animal healthcare among rural dwellers in Ilara-Mokin, Ondo State. Eight medicinal plant species were identified for treating common canine ailments such as tick infestation, mange, diarrhoea, and lameness, with *Nicotiana tabacum*, *Vernonia amygdalina*, and *Chromolaena odorata* being the most frequently used. Most respondents were middle-aged women with limited formal education, indicating that indigenous veterinary knowledge is primarily preserved within informal community networks. However, the gradual shift toward modern veterinary medicine suggests that such traditional knowledge is at risk of extinction. The study underscores the need for proper documentation and preservation of these indigenous practices as part of Nigeria's rural animal healthcare heritage.

Recommendation

Based on the findings of this study, the following were recommended.

1. Indigenous ethnoveterinary knowledge and medicinal plants used in dog treatment should be properly documented and preserved.
2. Identified plants should be subjected to scientific validation to confirm their therapeutic properties and safety.
3. Awareness and training programmes should be introduced to promote the safe and sustainable use of traditional remedies among rural dog owners.

CONFLICT OF INTEREST

The authors declare that they have no conflict of interest.

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