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Exploring the Zootherapeutic Heritage of Algeria: A Nationwide Ethnographic Study on the Traditional Use of Animals in Folk Healing Practices

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Abstract

Zootherapy, the use of animal-derived products for therapeutic purposes, represents an important component of traditional medicine in Algeria. Despite its widespread practice in several regions of the country, this ancestral knowledge remains poorly documented and scientifically underexplored. The present study aims to investigate the zootherapeutic heritage of Algeria by identifying the main animal species used in traditional remedies, documenting their medicinal applications, and evaluating their biological and nutritional importance.

An ethnopharmacological survey was conducted among local populations, users, hunters, and traditional healers from different Algerian regions. The collected data revealed a rich diversity of animal species employed in folk medicine, including mammals (36.8%), birds (18.7%), reptiles (16.0%), insects (15.3%), and marine organisms and mollusks (13.2%). Various animal-derived products such as meat (29.9%), honey (24.3%), horse meat (17.4%), milk (13.9%), animal fat (13.2%), eggs (11.1%), camel urine (8.3%), and bee venom (9%) were traditionally used for the treatment of respiratory disorders, digestive diseases, skin infections, rheumatism, wounds, infertility, and general weakness. The results showed that mammals represented the most frequently cited animal group, reflecting their abundance and accessibility in local environments. Honey was among the most commonly reported remedies due to its wide therapeutic applications and recognized antimicrobial properties. In contrast, reptiles and certain wild animals were mainly associated with treatments for chronic diseases, respiratory problems, and musculoskeletal pain according to traditional beliefs.

The findings further demonstrated that approximately 91% of respondents reported positive effects after using zootherapeutic remedies, while 96.5% considered these treatments moderately or highly effective. Oral administration represented the predominant method of use (around 58%), followed by topical application (42%), depending on the disease treated. Drying and grinding constituted the most common preparation methods, particularly in Saharan areas where climatic conditions favor long-term preservation of animal products. Moreover, nearly 78% of participants indicated that their knowledge of zootherapy was inherited orally from parents, grandparents, or traditional healers, emphasizing the strong cultural and ethnomedical significance of these practices within Algerian communities.

The study also highlights the methods of preparation and administration adopted in traditional practices, which include drying, cooking, topical application, decoction, and direct consumption. In addition, several biological properties attributed to animal products, including antioxidant, anti-inflammatory, antimicrobial, and nutritional activities, were discussed based on available scientific evidence. The findings indicate that many zootherapeutic resources

possess high nutritional value due to their richness in proteins, vitamins, minerals, and bioactive compounds.

This work contributes to the preservation of Algerian traditional knowledge and emphasizes the importance of integrating ethnobiological heritage with modern scientific research. Furthermore, the study underlines the necessity of evaluating the safety, efficacy, and conservation status of animal species used in zootherapy in order to promote sustainable and evidence-based traditional medicine practices.

Keywords: Zootherapy, Traditional medicine, Algeria, Ethnopharmacology, Animal-based remedies, Biological activities, Medicinal animals.

الملخص:

يمثل العلاج الحيواني (Zootherapy)، أي استخدام المنتجات المشتقة من الحيوانات لأغراض علاجية، أحد المكونات المهمة للطب التقليدي في الجزائر. وعلى الرغم من الانتشار الواسع لهذه الممارسات في عدة مناطق من البلاد، إلا أن هذا التراث العلاجي العريق لا يزال ضعيف التوثيق ولم يحظَ بالقدر الكافي من الدراسات العلمية. تهدف هذه الدراسة إلى استكشاف التراث العلاجي الحيواني في الجزائر من خلال تحديد أهم الأنواع الحيوانية المستخدمة في العلاجات التقليدية، وتوثيق استعمالاتها الطبية، وتقييم أهميتها البيولوجية والغذائية.

أُجريت دراسة إثنوفارماكولوجية (عرقية دوائية) شملت السكان المحليين، ومستعملي العلاجات التقليدية، والصيادين، والمعالجين التقليديين من مختلف المناطق الجزائرية. كشفت البيانات المجمعة عن تنوع كبير في الأنواع الحيوانية المستخدمة في الطب الشعبي، حيث مثّلت الثدييات نسبة (36.8%)، تلتها الطيور (18.7%)، ثم الزواحف (16.0%)، والحشرات (15.3%)، والكانائنات البحرية والرخويات (13.2%). كما تم تسجيل استخدام عدة منتجات حيوانية، مثل اللحوم (29.9%)، والعسل (24.3%)، ولحم الحصان (17.4%)، والحليب (13.9%)، والدهون الحيوانية (13.2%)، والبيض (11.1%)، وبول الإبل (8.3%)، وسم النحل (9%)، في علاج اضطرابات الجهاز التنفسي، والأمراض الهضمية، والالتهابات الجلدية، والروماتيزم، والجروح، والعقم، والضعف العام. وأظهرت النتائج أن الثدييات كانت الفئة الحيوانية الأكثر استخدامًا، وهو ما يعكس وفرتها وسهولة الحصول عليها في البيئة المحلية. كما كان العسل من أكثر العلاجات تداولًا نظرًا لتعدد استخداماته العلاجية وخصائصه المضادة للميكروبات المعترف بها علميًا. في المقابل، ارتبط استخدام الزواحف وبعض الحيوانات البرية بعلاج الأمراض المزمنة، والمشكلات التنفسية، وآلام الجهاز العضلي الهيكلي وفقًا للمعتقدات التقليدية السائدة.

كما أظهرت النتائج أن حوالي 91% من المشاركين أفادوا بوجود تأثيرات إيجابية بعد استخدام العلاجات الحيوانية، في حين اعتبر 96.5% من المستجوبين أن هذه العلاجات فعالة بدرجة متوسطة إلى عالية. وشكل الاستعمال الفموي الطريقة الأكثر شيوعًا في الاستخدام بنسبة تقارب 58%، يليه الاستعمال الموضعي بنسبة 42%، وذلك حسب نوع المرض المعالج. وكانت عمليتا التجفيف والطحن من أكثر طرق التحضير استخدامًا، خاصة في المناطق الصحراوية حيث تساعد الظروف المناخية على حفظ المنتجات الحيوانية لفترات طويلة. إضافة إلى ذلك، صرّح ما يقارب 78% من المشاركين بأن معارفهم المتعلقة بالعلاج الحيواني قد انتقلت شفهيًا عن طريق الآباء والأجداد أو المعالجين التقليديين، مما يؤكد الأهمية الثقافية والإثنوبولوجية الكبيرة لهذه الممارسات داخل المجتمع الجزائري.

كما تسلط الدراسة الضوء على طرق التحضير والاستعمال المعتمدة في الممارسات التقليدية، والتي تشمل التجفيف، والطهي، والاستعمال الموضعي، والغلي، والاستهلاك المباشر. بالإضافة إلى ذلك، تمت مناقشة العديد من الخصائص البيولوجية المنسوبة إلى المنتجات الحيوانية، بما في ذلك الأنشطة المضادة للأكسدة، والمضادة للالتهابات، والمضادة للميكروبات، إضافة إلى قيمتها الغذائية، استنادًا إلى المعطيات العلمية المتوفرة. وتشير النتائج إلى أن العديد من الموارد الحيوانية المستخدمة في العلاج التقليدي تمتلك قيمة غذائية مرتفعة نظرًا لغناها بالبروتينات، والفيتامينات، والمعادن، والمركبات النشطة بيولوجيًا.

تسهم هذه الدراسة في الحفاظ على المعارف التقليدية الجزائرية، كما تؤكد أهمية دمج التراث الإثنوبولوجي مع البحث العلمي الحديث. علاوة على ذلك، تبرز الدراسة ضرورة تقييم سلامة وفعالية وحالة الحفاظ على الأنواع الحيوانية المستخدمة في العلاج الحيواني، بهدف تعزيز ممارسات الطب التقليدي المستدام والقائم على الأدلة العلمية.

الكلمات المفتاحية: العلاج بالحيوانات، الطب التقليدي، الجزائر، علم الأدوية العرقية، العلاجات الحيوانية، الأنشطة

البيولوجية، الحيوانات الطبية.

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General Introduction

Introduction

Throughout human history, natural resources have played a central role in traditional healing practices and disease management. Among these practices, zootherapy represents one of the oldest forms of traditional medicine, involving the use of animals, animal body parts, or animal-derived products for the prevention and treatment of diseases. Zootherapeutic remedies have been widely practiced in many ancient civilizations, including Arab, African, Asian, and Indigenous cultures, where traditional knowledge has been transmitted from one generation to another through oral traditions and cultural practices (Alves & Rosa, 2005).

Animals are considered important sources of biologically active substances because they contain various nutritional and pharmacological compounds, including proteins, lipids, vitamins, minerals, enzymes, and antimicrobial peptides. Consequently, numerous animal-derived products such as honey, milk, fats, bones, skins, meat, and secretions have traditionally been used in the treatment of several human diseases, including respiratory disorders, rheumatism, skin diseases, anemia, infertility, and general weakness (Costa-Neto, 2005).

In Algeria, particularly in Saharan and rural regions, zootherapy continues to occupy an important place in traditional healthcare practices. Local populations rely on a wide variety of domestic and wild animals as therapeutic resources for treating different ailments. These practices are closely associated with cultural beliefs, social traditions, and indigenous knowledge, constituting an important ethnobiological heritage. However, the increasing use of certain animal species may contribute to biodiversity loss and ecological imbalance, in addition to potential public health risks resulting from the lack of scientific evidence concerning the safety and efficacy of some traditional remedies (Mahawar & Jaroli, 2008).

Therefore, the present study aims to explore and document zootherapeutic practices in Algeria by identifying the animal species used, the animal-derived products employed, the diseases treated, and the methods of preparation and administration. Furthermore, this study seeks to highlight the cultural, environmental, and health-related dimensions of these traditional practices while contributing to the preservation of Algeria's ethnobiological heritage and providing a scientific basis for future research in the field of zootherapy.

Chapter I: Zootherapy

I.1. Generality

The use of animals as a source of medicinal remedies has been documented for thousands of years and represents an important component of traditional healthcare systems across different human civilizations. Zootherapy, defined as the use of animals or animal-derived products for the prevention and treatment of diseases, is considered one of the oldest forms of traditional medicine still practiced today (Alves & Rosa, 2005).

In the Mediterranean region, animal-based remedies were widely described in ancient medical literature, including classical pharmacopeias such as *De Materia Medica*. These historical sources show that animals and their derivatives were commonly integrated into early therapeutic practices, reflecting the importance of natural resources in ancient medicine (Alves, 2012).

Ethnobiological research has demonstrated that many of these traditional practices are still present today, particularly in North African countries, where zootherapeutic knowledge continues to be transmitted orally between generations. This continuity highlights the strong link between ancient medical traditions and contemporary folk medicine systems (Alves, 2012).

Animal-derived products have long been valued for their biological properties, including nutritional and pharmacological compounds such as proteins, lipids, vitamins, and bioactive molecules. This explains their continued use in traditional medicine for treating various ailments such as respiratory diseases, skin disorders, and general weakness (Costa-Neto, 2005).

I.2. Definition of Zootherapy

Zootherapy is a branch of traditional and complementary medicine that involves the therapeutic use of animals or animal-derived products for the prevention and treatment of diseases. These biological materials include a wide range of substances such as bones, skin, fats, secretions, meat, milk, and other animal-origin products traditionally used in healing practices (Alves & Rosa, 2005).

From an ethnobiological perspective, zootherapy represents a cultural medical system based on traditional knowledge developed through long-term interactions between human societies and animals in their natural environments, reflecting a strong ecological and cultural relationship with faunal resources (Costa-Neto, 2005).

Within the framework of ethnopharmacology, zootherapy is considered an important component of natural product-based medicine, alongside medicinal plants, where animal-derived substances are studied for their potential therapeutic properties across various traditional medical systems such as Traditional Chinese Medicine, Ayurvedic medicine, and African traditional medicine (Alves & Alves, 2011).

Despite advances in modern biomedical sciences, zootherapeutic practices continue to be widely used in many rural and indigenous communities worldwide, highlighting the persistence and importance of traditional knowledge systems in healthcare (Alves & Rosa, 2005).

I.3. Historical Background of Zootherapy (with reliable citations)

The use of animals as therapeutic agents has been documented since ancient civilizations, reflecting a long-standing relationship between humans and animal-derived medicinal resources (Alves & Rosa, 2005).

In Ancient Greece, snakes were considered symbols of healing and medicine due to their association with Asclepius, the god of medicine, and Hygeia, the goddess of health (Lev, 2003). One of the earliest written records of zootherapy appears in the Ebers Papyrus (circa 1550 BC), which documented the medicinal use of various animal-derived materials such as birds, insects, reptiles, fish, eggs, milk, blood, bones, fats, and organs (Bryan, 1930).

Ancient Mesopotamian civilizations, particularly the Assyrian and Babylonian cultures, also recorded the therapeutic use of animal products including fish oil, honey, beeswax, turtle shell, goat skin, sheep fat, deer products, and animal excreta (Lev, 2003).

In Traditional Chinese Medicine, the Compendium of Materia Medica (1578 AD) described the use of animal-derived substances such as bear bile and bear fat for medicinal purposes (Unschuld, 1986).

In India, Ayurvedic literature such as the Charaka Samhita (900 BC) and Sushruta Samhita (600 BC) reported the use of multiple animal-derived products including honey, milk derivatives, blood, fat, bones, urine, and other tissues for therapeutic applications (Dash & Kashyap, 1987).

Similarly, Dioscorides in *De Materia Medica* described a wide range of zootherapeutic substances derived from domestic and wild animals, including butter, cheese, wool, wax, blood, bile, and insects. Some of these organisms were processed in powdered or poultice forms for medical treatments (Gunther, 1959).

Zootherapy is rooted in indigenous knowledge systems developed over generations through close interaction between humans and nature. These traditional practices continue to influence both indigenous and modern medical systems worldwide (Alves & Rosa, 2005).

I.4. Distribution in Algeria

Algeria is characterized by a remarkable ecological and bioclimatic diversity, ranging from the Mediterranean coastline and the Tell Atlas Mountains to the steppe regions and the vast Sahara Desert. Among these zones, the Algerian steppe represents one of the most extensive semi-arid ecosystems in North Africa, covering more than 20 million hectares and

dominated by typical xerophytic vegetation such as *Stipa tenacissima*, *Artemisia herba-alba*, *Lygeum spartum*, and *Haloxylon scoparium*.

This region is mainly inhabited by pastoral and nomadic populations whose livelihoods depend heavily on livestock breeding, particularly sheep and goats. Their mobility follows seasonal transhumance patterns between northern and southern regions in search of pasture and water resources. Livestock therefore plays a central economic and cultural role in these communities, making animal health a key priority.

In this socio-ecological context, traditional knowledge systems have developed as essential survival strategies. Algerian steppe populations rely on both medicinal plants and animal-derived remedies, forming a rich ethnomedical and zootherapeutic heritage. These practices are strongly influenced by accessibility, low cost, and the close interaction between humans, animals, and the environment. Moreover, traditional veterinary and human medicine often overlap, reflecting a shared empirical understanding of healing practices.

Recent ethnobiological studies have confirmed the persistence of zootherapeutic knowledge in Algerian steppe communities, highlighting the continued use of animal-based remedies alongside plant-based treatments in traditional healthcare systems (Bennacer et al., 2019).

I.5. Description of Zootherapeutic Practices

Zootherapeutic practices represent one of the oldest forms of traditional medicine, in which humans use animals, as well as their products and body parts, for the treatment and prevention of diseases (Lev, 2003; Alves & Rosa, 2005). These practices include the use of bones, skin, horns, and internal organs, in addition to animal-derived products such as milk, fat, and musk. Remedies are prepared through various methods, including boiling, drying, and grinding, and are administered either internally (by ingestion) or externally (as ointments or topical applications). They are used to treat a wide range of health conditions, such as respiratory disorders, joint pain, inflammation, and circulatory diseases. Although these practices are widely documented across different cultures and are based on traditional knowledge passed through generations, their scientific efficacy remains largely unverified (Alves et al., 2007). Furthermore, the overexploitation of certain animal species raises significant concerns regarding biodiversity conservation, while inadequate sanitary conditions during preparation may also pose potential public health risks (Alves et al., 2007; Pieroni et al., 2002).

I.6. Categories of Animals Used in Zootherapy

I.6.1. Mammals

❖ Definition

Mammals are vertebrate animals characterized by the presence of hair or fur and mammary glands that produce milk to nourish their young. Most mammals live on land, while some can fly (e.g., bats) (Campbell et al., 2017).

❖ Medicinal Uses

Different parts of mammals are widely used in traditional medicine, such as meat, milk, fat, urine, and internal organs (Alves & Rosa, 2005).

- **Meat:** A protein-rich source used to enhance strength and support recovery.
- **Milk:** Used for its high nutritional value to boost immunity and support bone health.
- **Fat (Ghee):** Applied topically to relieve joint and muscle pain and improve certain skin conditions.
- **Urine:** Used in traditional practices for its perceived antiseptic properties, though its use is limited and varies culturally.
- **Internal Organs:** Used to support bodily functions and treat certain conditions according to traditional beliefs (Mahawar & Jaroli, 2008).

Ailments Treated

- General weakness and malnutrition
- Muscle pain and rheumatism
- Respiratory diseases (e.g., asthma)
- Blood loss and anemia (Costa-Neto, 1999).

Preparation Methods

- Meat is usually cooked or boiled, often prepared as soup .
- Milk is heated before consumption for safety and digestibility .
- Fat is applied externally or consumed depending on traditional use.
- Other products may be used topically or orally depending on local practices (Alves & Rosa, 2005).



Figure 01. Diversity of mammalian species. Adapted from Animal Diversity Web.(2025)

I.6.2. Birds

❖ Definition

Birds are vertebrate animals covered with feathers, possessing wings and laying eggs. Most birds are capable of flight (Campbell et al., 2017).

❖ Medicinal Uses

Bird products are used in several traditional medicinal practices (Alves & Rosa, 2005).

- Meat: Used to strengthen the body and improve health.
- Feathers: Sometimes used in folk remedies.
- Blood or fecal matter: Used in some traditional practices (limited and culturally specific).

❖ Ailments Treated

- Malnutrition and general weakness
- Respiratory problems (asthma and cough)
- Digestive disorders
- Muscle pain
- Cardiac problems (Mahawar & Jaroli, 2008).



Figure 2. Diversity of avian species. Adapted from National Geographic. (2025)

I.6.3. Reptiles

❖ Definition

Reptiles are cold-blooded vertebrates with dry, scaly skin, including snakes, lizards, turtles, and crocodiles (Campbell et al., 2017).

❖ Medicinal Uses

Reptiles and their body parts are used in traditional medicine in many cultures (Alves & Rosa, 2005).

- Meat: Used to restore strength and recovery.
- Skin: Dried and used externally in folk remedies.
- Fat: Applied topically for various conditions.

❖ Ailments Treated

- Skin diseases and infections
- Joint pain and rheumatism
- Respiratory disorders (Costa-Neto, 1999).

❖ Preparation Methods

Meat is cooked or boiled before consumption. Fat is extracted and applied to affected areas. Skin is dried and used externally (Mahawar & Jaroli, 2008).



Figure 3. Diversity of reptilian specie Adapted from National Geographic.(2025)

I.6.4. Insects

❖ Definition

Insects are small invertebrates with three body parts (head, thorax, abdomen) and six legs (Campbell et al., 2017).

❖ Medicinal Uses

Insects are also used in traditional medicine for nutritional and therapeutic purposes (Meyer-Rochow, 2017).

- Meat / Whole body: Used for strength and recovery.
- Fats or oils: Used externally.
- Other parts: Used depending on species and tradition.

❖ Ailments Treated

- Skin diseases
- Muscle pain and rheumatism
- Respiratory conditions (Meyer-Rochow, 2017).

❖ Preparation Methods

Cooked or boiled before consumption. Extracted oils are applied externally. Dried materials are used in topical remedies.



Figure 4. Diversity of insect species. Adapted from National Geographic.(2025)

I.6.5. Mollusks

❖ Definition

Mollusks are soft-bodied invertebrates, often protected by a shell, such as snails, slugs, and oysters (Campbell et al., 2017).

❖ Medicinal Uses

- Some mollusks and their secretions are traditionally used for therapeutic and skincare purposes (Alves & Rosa, 2005).
- Soft body: Consumed for health benefits.
- Secretions (e.g., snail mucus): Used in skin care and traditional medicine.

❖ Ailments Treated

- Skin diseases and irritations
- Wound healing
- Inflammation (Meyer-Rochow, 2017).

❖ Preparation Methods

Mucus is applied directly to the skin. Mollusks are boiled or cooked before consumption and are also used as natural skincare treatments.



Figure 5. Diversity of molluscan species. Adapted from Encyclopaedia Britannica (2025)

Chapter II: METHODOLOGY

II.1. Characterization by survey

II.1.1. Aim of the survey

The aim of this ethnographic study is to explore and document the zootherapeutic heritage of Algeria by investigating the traditional use of animals in folk healing practices across different regions of the country. This includes identifying animal species used in remedies; recording their modes of preparation and application; understanding the cultural beliefs and knowledge systems associated with these practices; and evaluating their perceived therapeutic value within local communities.

II.1.2. Description and delimitation of the study area

The study area covers several regions across Algeria, selected to represent the country's diverse geographical and cultural settings. This choice aims to explore the diversity of zootherapeutic practices and the traditional use of animals in folk medicine.

The study focuses on different parts of Algeria, including northern, southern, eastern, and western regions, in order to provide a comprehensive overview of animal-based remedies and their variations according to environmental and socio-cultural contexts.

Algeria is characterized by significant geographical and climatic diversity, ranging from Mediterranean coastal areas to semi-arid inland regions and arid Saharan zones. This diversity contributes to the variation in animal species used in traditional medicine, as well as in their modes of use.

Moreover, cultural differences between regions play a key role in shaping ethnomedical practices, particularly in relation to the use of animal-derived materials in traditional healing.



Figure 6: Geographical Distribution of the Study Area Across Algeria Retrieved (from WIKIMEDIA COMMONS (2021).)

II.1.3. Study population

The study population includes different groups within Algerian society, namely users of traditional medicine, as well as hunters and vendors involved in the collection and trade of animal-based remedies.

A structured questionnaire was designed to collect data on the types of animals used, methods of preparation and administration, therapeutic indications, as well as hunting and marketing practices.

Both paper-based and electronic questionnaires were used to reach a wider population across different regions of the country. At the end of the survey, a significant number of responses were collected and will be analyzed in the results and discussion section.

II.1.4. Survey Tools

Our questionnaire (Annex 1) consists of two parts: one for users and another for hunters/sellers. Each part includes a series of questions of different types, namely:

- Closed questions;
- Semi-open questions;
- Open questions.

The questions were formulated in a simple and clear manner in order to reduce the duration of the interview. The questionnaire is filled out by us when it is in paper form, whereas in the case of the electronic version, it is completed by the respondents themselves. To facilitate communication with the participants, the questionnaire was prepared in Arabic.

This section includes a series of 28 questions divided into two groups, covering personal information about the users, as well as information on usage, sources of supply, diseases treated, methods of preparation, and modes of use. The interview designed in this way lasts between 10 and 15 minutes.

II.1.5. Survey Process

Before starting the survey, the finalized questionnaire was tested on about twenty people in order to:

- Ensure that the questions were clear and understandable;
- Improve and enrich the questionnaire;
- Eliminate unnecessary questions;
- Add or remove certain options in multiple-choice questions;
- Rephrase and modify unclear questions.

Chapter II: METHODOLOGY

The field study was conducted from January to April 2026. The online questionnaire (electronic version) was distributed through social media, while the paper questionnaire was administered directly to the targeted individuals.

Servay:

Questionnaire on the Ethnography of Zootherapy (Animal-Based Treatment) in Algeria

Instructions: Please place a checkmark (✓) in the appropriate box or write the answer in the space provided.

1- Wilaya (Province) / Residential Area:

.....

2- Gender: ☐ Male ☐ Female

3- Age Group: ☐ Less than 30 years old ☐ From 30 to 45 years old ☐ From 46 to 60 years old ☐ More than 60 years old

4- Educational Level: ☐ Without formal education ☐ Primary ☐ Intermediate (Middle school) ☐ Secondary (High school) ☐ University or higher

5- Name of the animal used in the treatment: Local / Common name:

.....

6- The animal part used: ☐ Meat ☐ Fat / Tallow ☐ Bones ☐ Horns / Hooves ☐ Honey ☐ Bee venom ☐ Milk ☐ Blood ☐ Horse meat ☐ Camel urine ☐ Beeswax ☐ Eggshells

Internal organs (please specify): By-products (please specify):

7- Disease or health condition treated: Name of the disease in the colloquial language (slang):

8- Method of preparation and use:

.....

How is the treatment prepared?

Method of use:

9- Dosage: What is the dosage?

10- Duration of treatment: ☐ One week ☐ Two weeks ☐ One month ☐ Two months

11- Have you noticed a positive effect after using an animal-based treatment? ☐ Yes ☐ No ☐ Perhaps / Maybe

12- Do you consult a doctor before or after using animal-based treatments? ☐ Yes ☐ No

13- Do you support regulating or prohibiting the use of endangered species in traditional medicine? ☐ Yes ☐ No

14- Have you ever experienced any side effects (allergy, infection, poisoning)? ☐ Yes ☐ No

Explain that:

15- Do you believe that using animal products might transmit diseases? ☐ Yes ☐ No

16- Source of this knowledge: ☐ Another traditional healer ☐ Books or ancient manuscripts
☐ Inherited from ancestors (traditions) ☐ Personal experience

Other:

17- Do you believe that this treatment is effective? ☐ Yes, highly effective ☐ Yes, effective to some extent ☐ I don't know ☐ No, ineffective

18- Are there any known warnings or side effects for this treatment? ☐ Yes (please mention them): ☐ No ☐ Perhaps / Maybe

19- Is the use of this animal linked to specific beliefs or rituals? ☐ Yes (please describe them): ☐ No, it is a purely physical/material treatment

20- Do you believe that the effectiveness of the treatment is linked to: ☐ The natural/physical properties of the animal substance only ☐ The power of faith and belief in the treatment (the spiritual aspect) ☐ Both together

21- Is this treatment used in your area today? ☐ Yes, it is widely used ☐ Yes, but only by the elderly ☐ Rarely used ☐ No longer used at all

22- Do you believe that the demand for animal substances affects wildlife or threatens certain species? ☐ Yes ☐ No ☐ I don't know

23- Do you buy animal substances from the market / herbalists (Attarin), or do you obtain them yourself from domestic / wild animals? (Multiple choices can be selected):
☐ Market ☐ Traditional healer ☐ Domestic animals ☐ Hunting in the wild

Other sources:

24- Do you believe it is important to document this type of knowledge? ☐ Yes ☐ No

Why?

25- Have you ever heard of scientific research and studies confirming the effectiveness of certain animal-based treatments? ☐ Yes ☐ No

Chapter II: METHODOLOGY

26- If the answer is yes, what is the source of these studies? ☐ Doctors / Researchers ☐ Universities / Research centers ☐ Media ☐ Internet

27- Do you think that integrating traditional medicine with scientific research could contribute to developing safe treatments? ☐ Yes ☐ No ☐ Perhaps / Maybe

28- Do you believe that the absence of scientific studies may pose a danger to human health? ☐ Yes ☐ No ☐ Sometimes

Chapter III: RESULTS AND DISCUSSION

III.1. Results of survey

III.1.1. Surveyed population

III.1.1.1. Distribution of users by Wilaya

The results delineated in the table indicate a noticeable variance in the geographical distribution of the study sample, which comprises a total of **200 respondents**. **El Oued** province ranked first, accounting for the highest frequency with **133 respondents**, representing a dominant majority of **66.5%** of the total sample. This was followed at a significant variance by **Algiers** province with **13 respondents (6.5%)**, and **Touggourt** province with **10 respondents (5.0%)**. The remainder of the sample was distributed in minor and varying proportions ranging between (1.0% and 4.5%) across 10 other provinces, with the lowest frequencies recorded in Oran and Ouargla, with only two respondents each (1.0%).

This heavy concentration of responses in El Oued province is primarily attributed to objective and methodological considerations related to the immediate environment of the study and its primary geographical scope, which facilitated greater local engagement with the population, particularly regarding the **46 paper-based questionnaires (23.0%)** distributed via fieldwork. Conversely, the high reliance on the digital survey, which yielded **154 electronic responses (77.0%)**, explains the researcher's capability to transcend the geographical boundaries of the primary province and reach 12 other provinces across various regions of the country (East, West, Center, and South). This expansion was facilitated by academic and professional virtual communities that shared the survey link, generating a "snowball effect" among peers and acquaintances.

Table 01: Distribution of the surveyed population according to the Wilaya.

PLACE	USER NUMBER	PLACE	USER NUMBER
EL OUED	133	Oran	2
Algeria	13	Djelfa	3
Touggourt	10	Ilizi	4
Annaba	6	DJamaa	7
El meghaier	9	Mostaghanem	3
Ouargla	2	Tipaza	5
Adrar	3	/	/

III.1.1.2. Description of the Study Population

The statistical data delineated in the table above regarding the demographic characteristics of the study sample indicates a distinct dominance of the youth cohort. Respondents **under 30 years old** constituted the overwhelming majority at ,%**77.2** followed by the age group spanning **30 to 45 years** at ,%**22.1** while participation for categories exceeding 45 years dwindled significantly, not exceeding .%**0.7** This age distribution aligns directly with the "gender" and "educational level" profiles of the sample ;**women** recorded a benchmark participation rate of %**86.7** compared to a mere %**13.3** for **men** ,while individuals with a **university education** held the lion's share at ,%**86.0** followed by secondary education at ,%**14.0**with an almost total absence of primary and middle school levels.

This demographic concentration (predominantly young, female, and university-educated) is attributed to objective and methodological considerations. The primary reliance on electronic questionnaires (77%) directly explains the high responsiveness of young, university-level individuals, as they represent the demographic most actively engaged with social networks and virtual academic environments. Furthermore, the substantial numerical superiority of females reflects the nature of the academic disciplines or professional sectors targeted within the study's scope (such as humanities, social sciences, or language departments at El Oued University and neighboring regional campuses), which typically attract a higher female enrollment. Methodologically, these homogenous characteristics provide a distinct advantage; the respondents' intellectual and cognitive capacity (as university students/graduates) ensures a thorough comprehension of the questionnaire items, thereby enhancing the reliability and objectivity of the findings in the subsequent empirical sections of the study.

Table 2: Sociodemographic characteristics of the study population

CHARACTERS	STUDY POPILATION	
AGE	Under 30 years	%77.2
	30 to 45 years old	%22.1
	46 to 60 years	%0.7
	Over 60 years	%0
SEX	MEN	%13.3
	WOMAN	%86.7
STUDY LEVEL	PRIMARY	%2.9
	MIDDLE	%0.7
	SCONDARY	%14
	UNIVERSITY	%86

III.1.1.3. The part used by the animal

The statistical data presented in the chart reveals a significant variance and distinct preferences among the study respondents toward specific animal products. **Meat** topped the list of most frequented products with **62 responses** ,(%**31.0**) closely followed by **Honey** in second place with **53 responses** ,(%**26.5**) and **Horse meat** in third place with **48 responses** ,(%**24.0**) followed by **Milk** with **32 responses** .(%**16.0**) Conversely, secondary or derivative animal by-products recorded the lowest levels of interest or utilization among respondents; Eggshells and Horns/Hooves anchored the lower end of the scale with only two responses each (1.0%), alongside Blood with three responses.(%1.5)

This descriptive statistical hierarchy is primarily attributed to the prevailing dietary, cultural, and consumption patterns within Algerian society in general, and the targeted study region in particular. The heavy concentration on meat, milk, and fats reflects their staple status as vital components of the daily diet. Furthermore, the prominent selection of Honey, Bee venom, and Camel wool/products correlates with the heightened awareness among the respondents—86% of whom are university-educated, as established in prior indicators—regarding the therapeutic and alternative medicinal values of these products. This is especially relevant in arid and pastoral environments (such as El Oued and neighboring regions), which are historically renowned for camel herding and apiculture as traditional economic pillars. Conversely, the statistical avoidance of products like "Blood" is firmly explained by religious and cultural prohibitions, along with the lack of popular awareness regarding the industrial or medical applications of eggshells and hooves. This alignment demonstrates that the sample's responses are heavily consistent with the socio-cultural and economic determinants of the study environment.

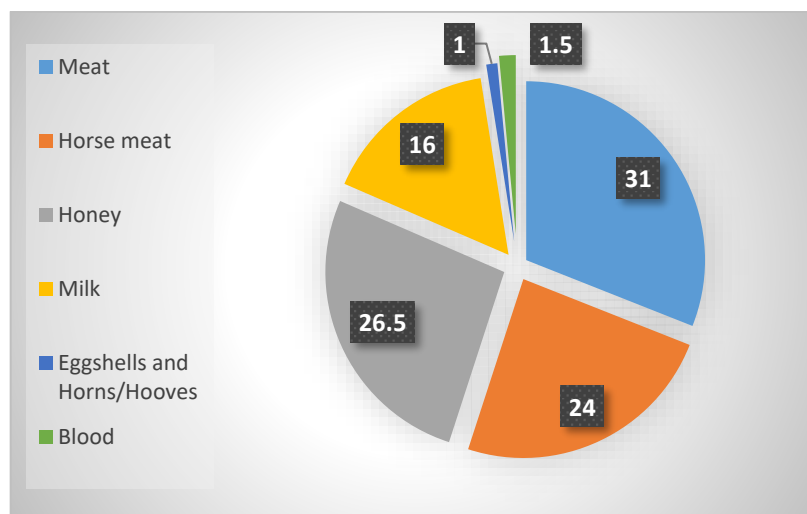


Figure 7: Animal Parts and Products Used in Zootherapy

III.1.1.4. Duration of treatment

The statistical outputs illustrated in the chart indicate a noticeable variance in the temporal frequency rates adopted by the study respondents. The " **Weekly**" (**Week**) interval ranked first, yielding the highest frequency with **69 responses** ,(**%43**) followed in second place by the "**Monthly**" (**Month**) choice with **33 responses** ,(**%15.0**) and the "**Two months** "interval in third place with **58 responses** .(**%22**) Conversely, the "**Two weeks** "option recorded the lowest frequency within this variable, securing only **40 responses**.(**%20.0**)

From an interpretive standpoint, this consumption behavior is primarily attributed to the alignment of the top-ranking frequencies (weekly and monthly) with the income patterns and purchasing power linked to monthly stipends or weekly allowances prevalent among the dominant sample demographic (youth and university students exceeding 77%). This cohort exhibits a preference for acquiring their needs or executing consumption behaviors in a structured, periodic manner that fits their academic or domestic schedules. Furthermore, the distribution toward more extended intervals, such as "Two months," is explained by the inherent characteristics of the products under investigation. Consumers typically tend to procure animal derivatives with preservable, therapeutic, or alternative medicinal properties (such as honey, animal fats, or bee derivatives identified in previous indicators) at staggered, regulated intervals corresponding to actual seasonal or health needs. This correlation reinforces the scientific consistency and economic logic behind the respondents' choices.

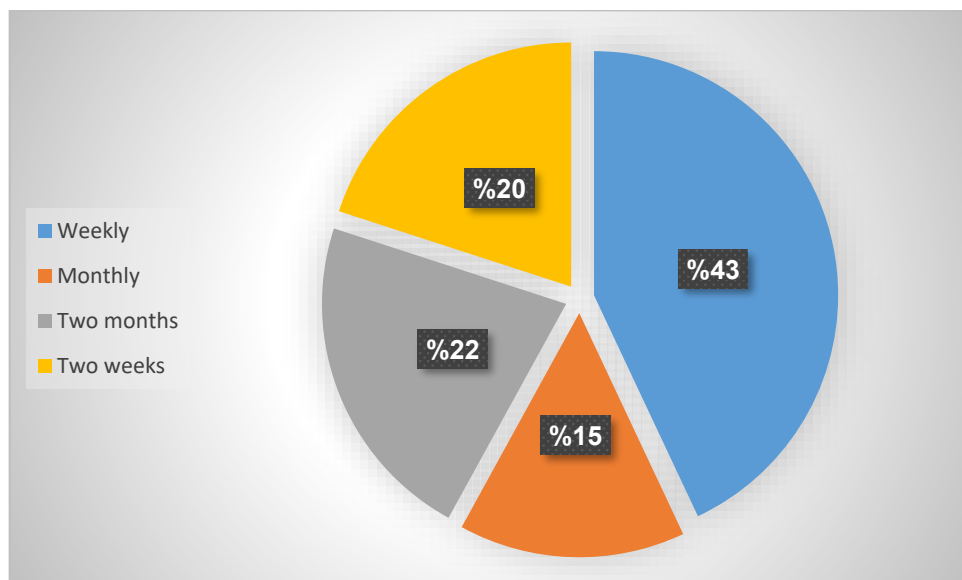


Figure 8: Treatment Duration

III.1.1.5. Have you noticed a positive effect after using animal therapy?

The statistical data presented in the pie chart above reveals an almost absolute consensus and decisive affirmation among the study respondents regarding the investigated variable. The overwhelming majority selected the " Yes "option, yielding a frequency of **182 respondents** and representing a dominant **%91.0** of the total sample. Conversely, negative or neutral responses contracted significantly; the " No "option secured a minimal **%6.0** (12 respondents), followed by the " **Maybe** "cohort in the final position, accounting for a mere **%3.0** with only 6 respondents.

This high statistical convergence and sharp inclination toward positive responses (91.0%) are primarily attributed to the cognitive and educational profile of the targeted cohort. As established in prior demographic indicators, university-educated individuals constitute the vast majority of the sample (86.0%). This advanced educational background directly explains the respondents' heightened academic, health, or environmental awareness, alongside a solid recognition of the investigated phenomenon's significance (whether pertaining to the therapeutic values of the previously noted animal derivatives or the necessity of their utilization). Furthermore, the substantial contraction of the "No" and "Maybe" responses demonstrates a high degree of clarity among the participants, signifying an absence of ambiguity or hesitation in their stances. Methodologically, this confirms that the survey was addressed to a population thoroughly cognizant of the research dimensions, thereby endowing the empirical findings with strong scientific validity and probative weight that substantiates the study's hypotheses.

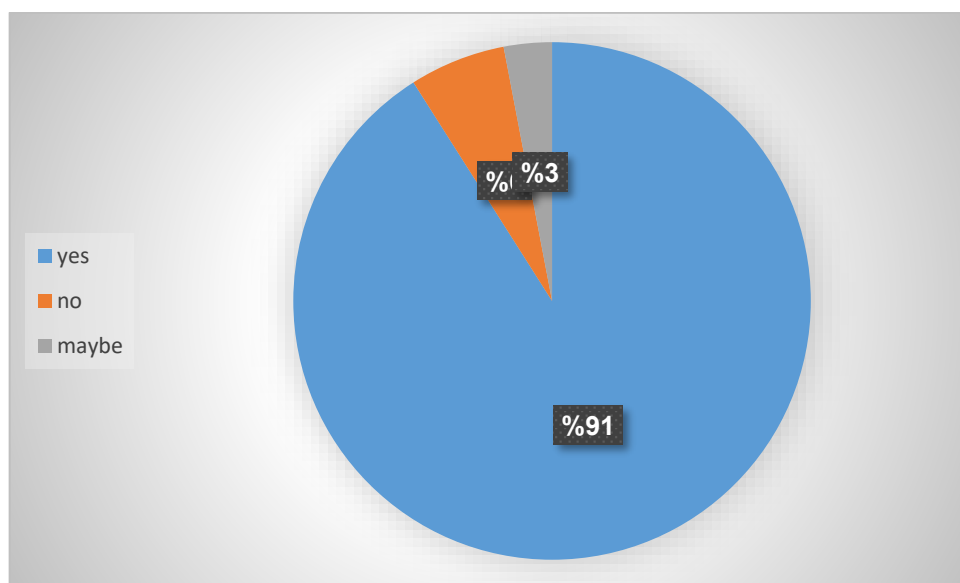


Figure 9: Perceived Therapeutic Effects of Zootherapy

III.1.1.6. Do you consult a doctor before or after using animal remedies?

The statistical data presented in the pie chart above demonstrates a sharp binary division and a highly close convergence in the opinions and stances of the study respondents regarding the investigated variable, with the gap between the two choices not exceeding .%2.0 The affirmative option" **Yes** "recorded a marginal majority with **102 respondents** ,representing **%51.0**of the total sample. This was followed closely by the negative option" **No** "with an extremely narrow variance, yielding **98 responses** and accounting for.**%49.0**

From an interpretive perspective, this statistical equilibrium and slight variance between the two response blocs are attributed to a state of polarization or lack of consensus within the study population's public opinion concerning the raised issue. This near-total convergence reflects balanced, objective justifications supporting each stance. Methodologically, the affirmative response of the (51.0%) cohort can be explained by their direct positive experiences or firm convictions reinforced by their academic background (86.0% university-educated). Conversely, the negative stance of the opposing cohort (49.0%) may be attributed to practical constraints or personal and economic considerations (such as product unavailability, high costs, or a preference for common conventional or industrial alternatives). Consequently, this finding holds significant scientific value as it confirms the realism of the fieldwork and the absence of response bias, thereby providing the researcher with a solid foundation in subsequent sections to discuss the underlying motivations driving this critical balance between affirmation and negation.

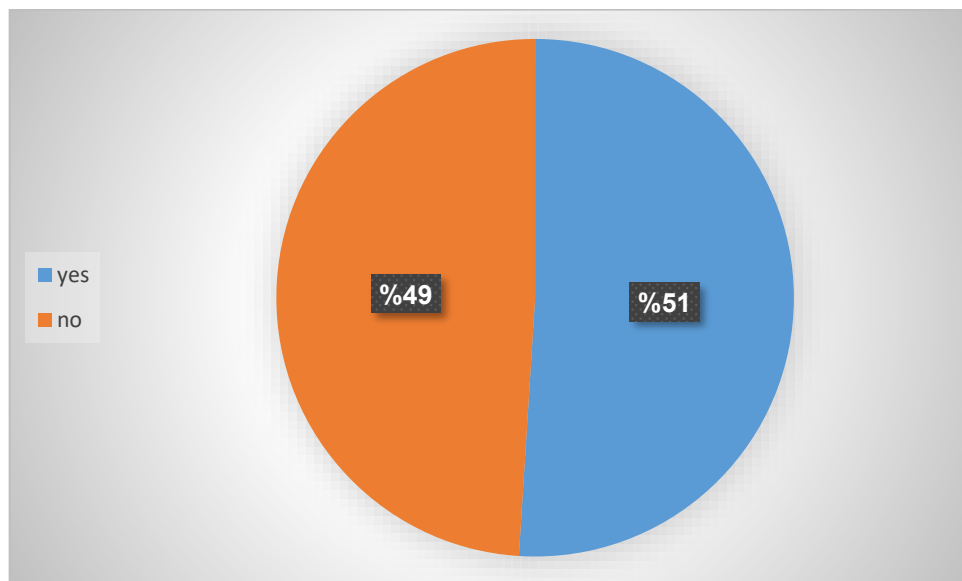


Figure 10: Medical Consultation in Zootherapeutic Practices

III.1.1.7. Do you support the regulation or prohibition of the use of endangered species in traditional medicine?

The statistical data presented in the pie chart above demonstrates a sharp binary division and a highly close convergence in the opinions and stances of the study respondents regarding the investigated variable, with the gap between the two choices not exceeding .%2.0 The affirmative option " Yes "recorded a marginal majority with **102 respondents** ,representing **%51.0**of the total sample. This was followed closely by the negative option " No "with an extremely narrow variance, yielding **98 responses** and accounting for.%49.0

From an interpretive perspective, this statistical equilibrium and slight variance between the two response blocs are attributed to a state of polarization or lack of consensus within the study population's public opinion concerning the raised issue. This near-total convergence reflects balanced, objective justifications supporting each stance. Methodologically, the affirmative response of the (51.0%) cohort can be explained by their direct positive experiences or firm convictions reinforced by their academic background (86.0% university-educated). Conversely, the negative stance of the opposing cohort (49.0%) may be attributed to practical constraints or personal and economic considerations (such as product unavailability, high costs, or a preference for common conventional or industrial alternatives). Consequently, this finding holds significant scientific value as it confirms the realism of the fieldwork and the absence of response bias, thereby providing the researcher with a solid foundation in subsequent sections to discuss the underlying motivations driving this critical balance between affirmation and negation.

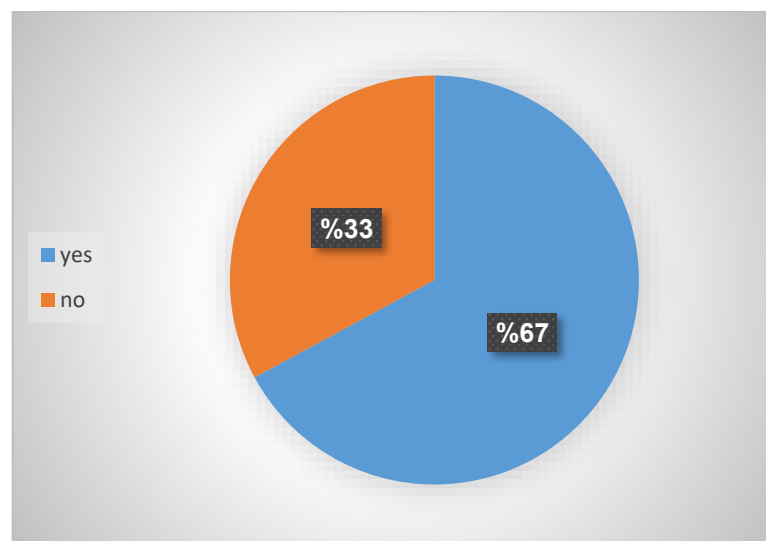


Figure 11: Attitudes Toward Regulation of Endangered Species Use in Traditional Medicine

III.1.1.8. Have you ever experienced side effects (allergies, infections, poisoning)

The statistical outputs illustrated in the pie chart above reveal a tangible positive trend and general acceptance among the majority of the study respondents regarding the investigated variable. The affirmative option "Yes" led the distribution with a clear majority of **142 respondents**, accounting for **%71.0** of the total sample. Conversely, a substantial segment opposed this trend by selecting "No", yielding **56 respondents**, (**%28.0**) while the remaining options collapsed into hesitation "Maybe" or a sensory/psychological aversion represented by the option "It may be disgusting", collectively not exceeding **%1.0**.

This distribution, significantly leaning toward acceptance (71.0%), is primarily attributed to the cognitive development and scientific openness characterizing the sample (86.0% university-educated, as previously noted). This advanced educational status enables respondents to transcend traditional barriers and accept the dimensions of the phenomenon based on objective facts and utility (such as the medical or economic acceptance of unfamiliar animal derivatives). In contrast, the dissenting percentage (28.0%) finds its sociological and psychological explanation in ingrained consumption habits and cultural backgrounds that maintain a natural reservation or skepticism toward non-conventional ideas and products. Furthermore, the emergence of the "It may be disgusting" option holds an important anthropological significance; it demonstrates that human consumption behavior and cognitive acceptance remain regulated by emotional responses and instinctive aversion, despite high academic awareness. Methodologically, this endows the study with empirical realism in capturing the multi-dimensional facets of human responsiveness.

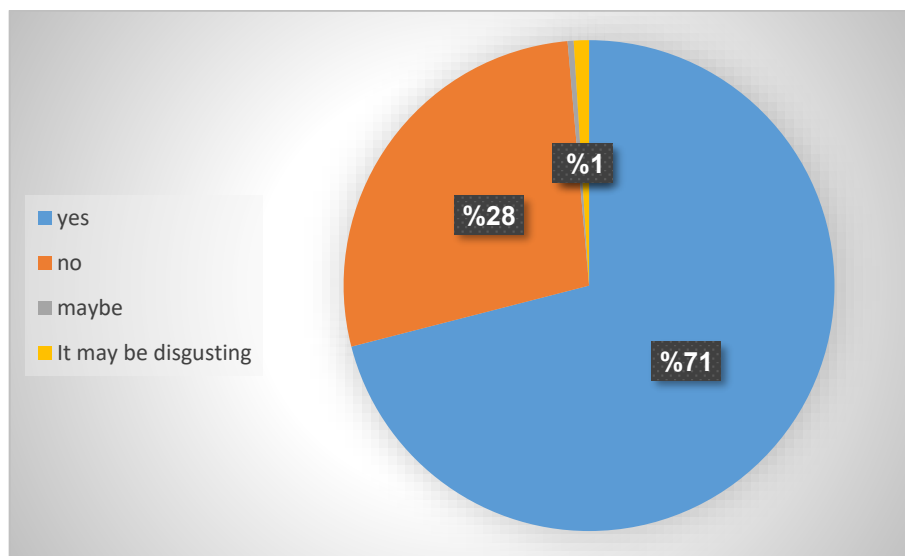


Figure 12: Side Effects Associated with Zootherapy

III.1.1.9. Do you think that the use of animal products may transmit diseases?

The statistical outputs illustrated in the pie chart above indicate a persistent state of close convergence and balanced division in the opinions and stances of the study respondents regarding the investigated variable, with a narrow gap of **%6.0** tipping the scale toward the affirmative. The option " **Yes** "secured a simple majority with **106 respondents** ,representing **%53.0**of the total sample, closely followed by the negative or dissenting option " **No** "with **94 responses** ,accounting for.**%47.0**

From an interpretive standpoint, this statistical equilibrium and slight variance between the two blocs suggest that the investigated variable lies in a gray area, prompting equally justifiable viewpoints logically and practically within the study population. The affirmative response of the supporting cohort (53.0%) is methodologically justified by the scientific openness and cognitive capacity of the sample, or the presence of prior positive experiences that encourage the adoption of this choice. Conversely, the reservation or dissent represented by the (47.0%) cohort is explained by socio-economic determinants and practical constraints (such as supply chain deficiencies, lack of commercial guarantees, or a preference for safer, more established alternatives). This critical balance between acceptance and rejection reflects a high level of objectivity and credibility in the respondents' feedback, signaling to the researcher that the issue under investigation remains a matter of active debate in the field and has not yet achieved collective consensus.

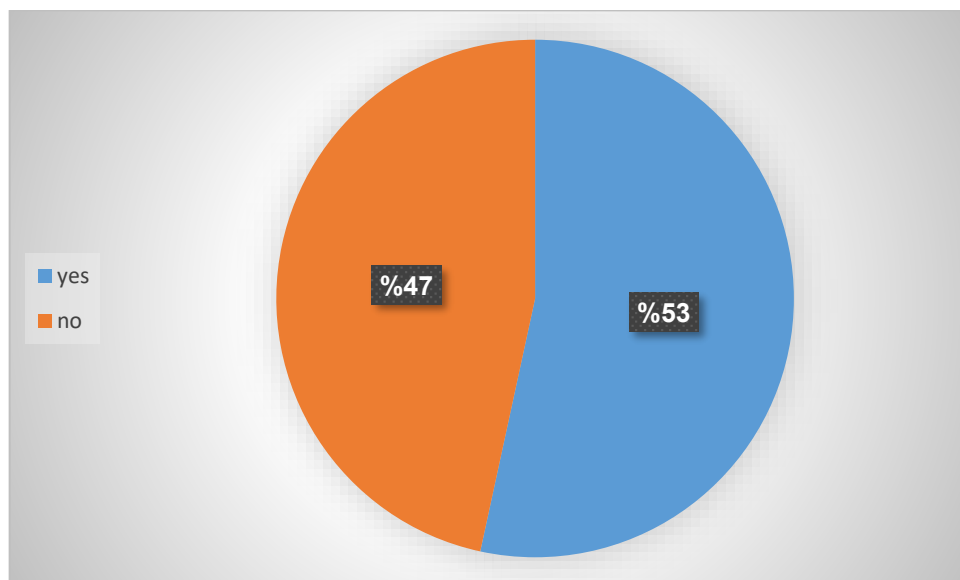


Figure 13: Perceived Risk of Disease Transmission Through Animal Products

III.1.1.10. The source of this knowledge

The horizontal graph in the attached file shows the distribution of the sources of knowledge or practices of the study sample, and the academic comment can be drafted as follows:

The statistical data shown in the attached figure highlight the dominance of traditional and oral sources over the knowledge of the study sample, with the option of "Inherited from Ancestors (Traditions)" ranked first with **50.7%** (75 responses), indicating the essential role that generational frequency plays in the transfer of knowledge. In second place was "Another Traditional Therapist" with **23.4%**, followed by "Personal Experience" with **21%**. In contrast, "Ancient Books or Manuscripts" recorded the lowest percentage of contribution to **the Only 4.9%**, which reflects the decline in the role of written documentary sources in contrast to the dominance of inherited traditions and direct field practice among the respondents.

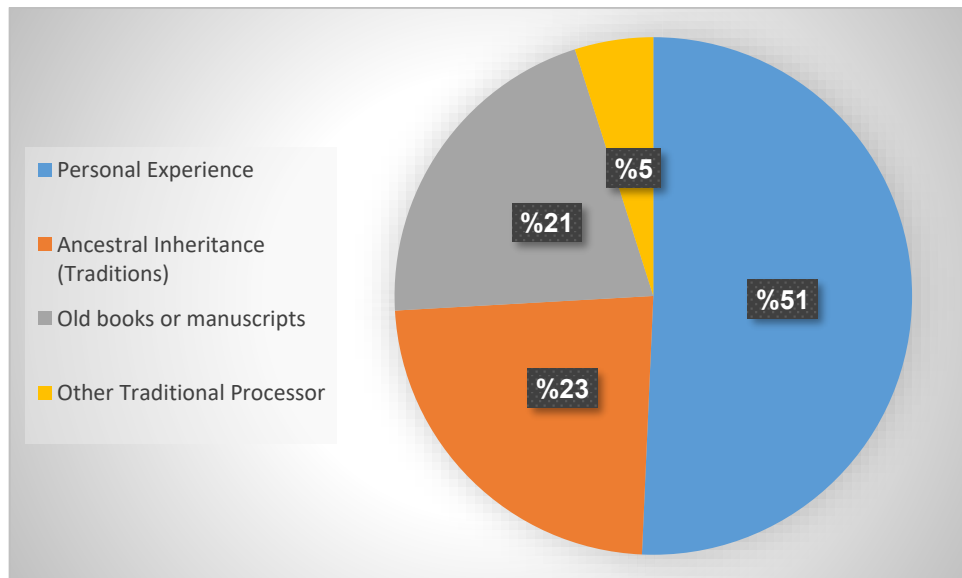


Figure 14: Sources of Zootherapeutic Knowledge

III.1.1.11. Do you think this treatment is effective?

The statistical outputs illustrated in the chart above indicate a distinct prominence of oral and communal channels in transmitting traditional knowledge. The option of " **Ancestral Inheritance (Traditions)** "ranked first, capturing the highest frequency with **85 responses** ,(%42.0)followed in second place by referencing" **Other Traditional Processors** "with **47 responses** ,(%29) and" **Personal Experience** "in third place with **43 responses** .(%18) Conversely, reliance on" **Old books or manuscripts** "anchored the lower end of the distribution, recording the lowest frequency with only **25 responses**.(%11.0)

From an interpretive perspective, this frequency distribution is fundamentally attributed to the intrinsic nature of "Traditional Knowledge," which is characteristically unwritten and experiential, expanding primarily through socialization and direct imitation within domestic and communal frameworks. This directly explains the absolute dominance of ancestral legacy and interaction with expert local practitioners within the study's scope (particularly in regional environments like El Oued and adjacent southern provinces that actively preserve folk heritage regarding animal product utilization and traditional remedies). Moreover, the (16.5%) proportion attributed to personal experience reflects empirical attempts by the younger sample cohort to cultivate practical skills through trial and error. In contrast, the minimal role of manuscripts and ancient books (7.0%) is explained by the historical deficiency in written documentation of such folk practices or the lack of accessibility to these academic archives. Methodologically, this highlights a critical imperative for academic documentation to preserve this intangible heritage from extinction.

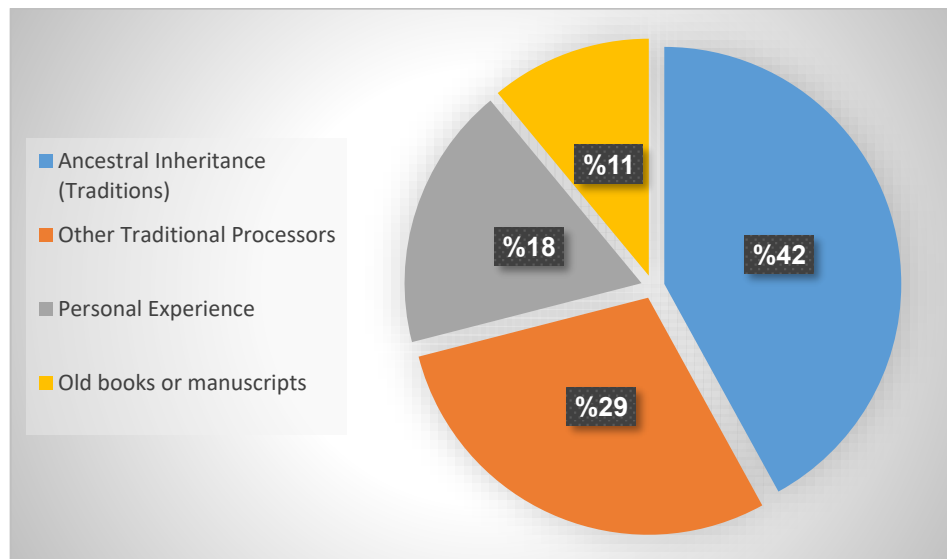


Figure 15: Perceived Effectiveness of Zootherapy

III.1.1.12. Is the use of this animal related to special beliefs or rituals?

The statistical data presented in the pie chart above reveals a sharp negative trend and an overwhelming majority rejecting or negating the investigated variable among the study respondents. The vast majority selected the "No" option, yielding a benchmark frequency of **174 respondents** and representing a dominant **%87.0** of the total sample. Conversely, affirmative responses captured by the "Yes" option contracted noticeably, securing only **26 responses** and accounting for a minimal proportion of **%13.0**.

From an interpretive and sociological perspective, this heavy statistical avoidance and collective dissent (87.0%) are primarily attributed to crucial behavioral considerations related to the respondents' practical environment. This steep decline in affirmative responses signals that the investigated variable faces decisive objective barriers preventing its adoption within the community. Such constraints may include a lack of conviction regarding its utility, a deficiency in practical awareness, or the behavior being uncommon and unfamiliar within the daily practices of the study population (such as the absence of a consumption culture for specific animal derivatives or the rejection of novel techniques). Furthermore, this decisive stance demonstrates a complete absence of hesitation or randomness in the feedback, confirming the homogeneity and cohesion of the sample's perspective. Methodologically, this finding endows the researcher with a robust scientific foundation and a strong empirical indicator to reject certain subsequent hypotheses, opening vital analytical pathways to investigate the socio-cultural or economic impediments driving this absolute avoidance.

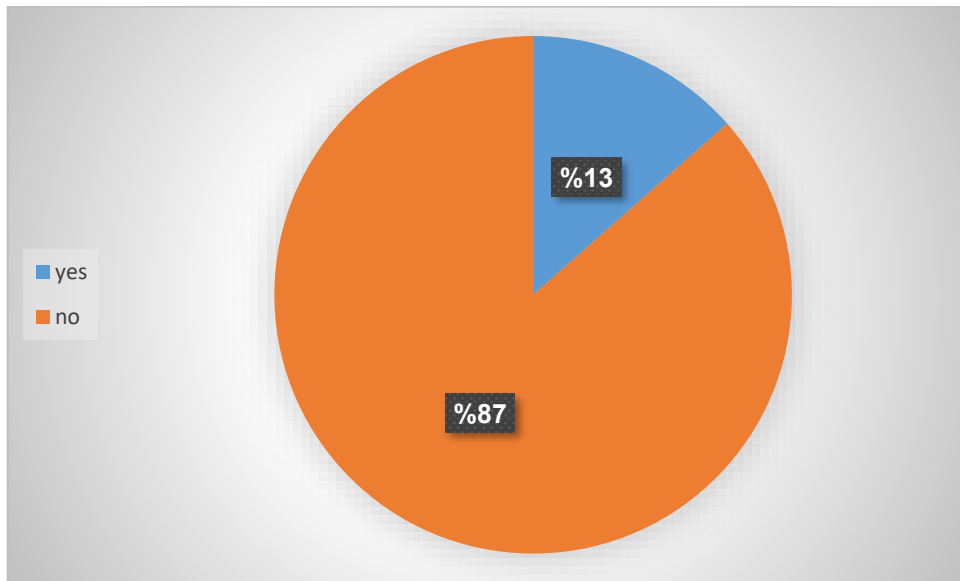


Figure 16: Transmission of Traditional Zootherapeutic Knowledge

III.1.1.13. Do you think the effectiveness of treatment is related to:

The statistical outputs illustrated in the chart demonstrate a notable variance in the respondents' perceptions regarding the underlying basis of therapeutic effectiveness. The option "Natural properties of animal matter only" topped the distribution, capturing the highest frequency with 100 responses (%60) of the total sample. This was followed in second place by the integrative option "Both together" with 65 responses (%25) while reliance strictly on "The Power of Faith and Belief in Therapy - The Spiritual Aspect" collapsed into the final position, recording a minimal frequency of only 35 responses (%15).

From an interpretive and methodological perspective, this statistical inclination toward empirical reasoning is primarily attributed to the dominant scientific and academic profile of the sample. The high proportion of university-educated respondents (86.0%) directly explains their direct tendency toward rational and strictly physical justifications, linking healing to the biochemical composition, organic attributes, and active natural properties of animal materials (such as the antimicrobial properties of bee venom or the nutritional and therapeutic values of honey). Concurrently, the (25.5%) segment opting for "Both together" reflects an integrative view deeply rooted in the socio-cultural and religious fabric of the studied society, which perceives no contradiction between material scientific causes and spiritual-psychological convictions in healing. Conversely, the extreme contraction of the isolated spiritual aspect (3.5%) demonstrates the respondents' heightened awareness and their dismissal of practices based on superstition or scientifically unfounded metaphysical explanations. Methodologically, this endows the study population's health culture and awareness with distinct rationality and empirical credibility.

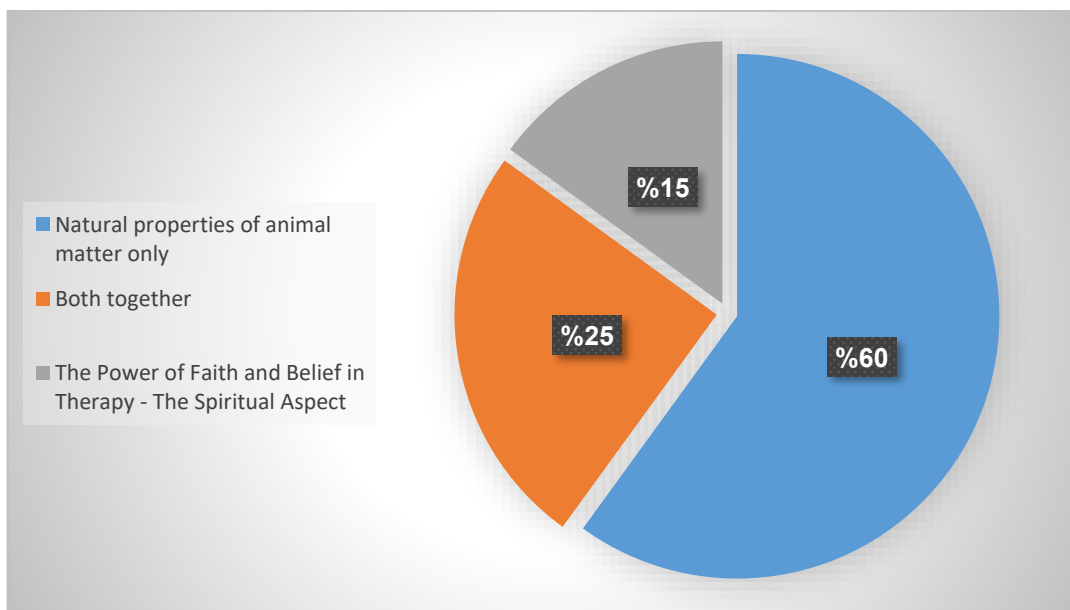


Figure 17: Relationship Between Zootherapy and Ritual/Spiritual Beliefs

III.1.1.14. Is this treatment used in your area today?

The statistical outputs illustrated in the chart demonstrate a clear prevalence of indicators supporting the continuity of folk heritage within the study environment. The option affirming that these treatments and practices are " **widely used** "led the distribution, capturing **118 responses (%59.0)** of the total sample. This was followed in second place by the option of " **Rare use** "with **48 responses ,(%24.0)** and then the choice restricting this practice to a specific demographic, namely " **Support, but only by the elderly** ",which secured **28**

responses .(%14.0) Conversely, the segment perceiving the complete disappearance of these practices was nearly non-existent, with only two responses recorded for the option" **Never used again.(%3.0) "**

From an interpretive standpoint, this substantial recognition of widespread usage (43.5%) is primarily attributed to the deeply rooted social and medical value that animal-derived treatments continue to hold within Algerian folk culture. This is particularly evident in pastoral and Saharan regions (such as the El Oued region), which possess significant livestock wealth and view these remedies as a vital component of traditional alternative healthcare. Furthermore, the (13.0%) segment restricting usage to "the elderly" finds its sociological explanation in the nature of generational dynamics; such knowledge is inherently linked to older generations as the primary custodians of cultural memory, which aligns with prior findings establishing "Ancestral Inheritance" as the leading source of knowledge (37.0%). In contrast, the minimal regression of the total obsolescence choice (1.0%) proves the resilience and vitality of these folk practices, highlighting their capacity to persist and transition across generations despite medical modernization and technological shifts. Methodologically, this reinforces the significance of investigating this phenomenon as a living, contemporary reality rather than an obsolete historical artifact.

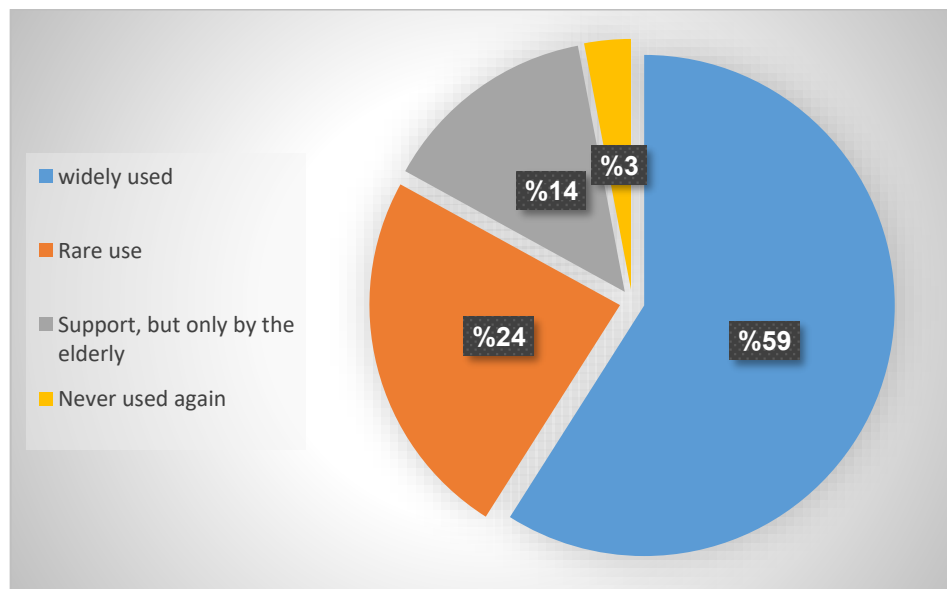


Figure 18: Factors Influencing Zootherapeutic Effectiveness

III.1.1.15. Do you think that the demand for animal materials is affecting wildlife or threatening some species?

The attached line chart reveals a distinct upward trend and a prevalent positive inclination among the larger segment of the study sample regarding the investigated variable. The

Chapter III: RESULTS AND DISCUSSION

affirmative option" **Yes** "marked the peak of the linear trajectory, capturing the highest frequency with **92 responses (%47.0)** of the total sample. Conversely, the baseline of the curve demonstrated an almost flat horizontal stability and tight convergence between the negative and neutral stances; the option" **I don't know** "ranked second with **54 responses ,(%27.0)** closely trailed by the dissenting option" **No** , "which secured **52 responses.(%26.0)**

From an interpretive perspective, this substantial ascent of the affirmative choice (47.0%) is primarily attributed to the heightened cognitive awareness and conceptual acceptance characterizing the dominant sample demographic (86.0% university-educated). This background encourages them to endorse the empirical or practical advancements proposed within this research axis. Concurrently, the remarkable numerical equilibrium between the "I don't know" (27.0%) and "No" (26.0%) categories carries significant psychometric and methodological implications. The horizontal plateau between these two options reflects highly objective respondent behavior. The selection of "I don't know" is explained by a segment of younger respondents who lack direct empirical exposure to traditional processing or fields, leaving them in a state of cognitive neutrality. Meanwhile, the negative stance (26.0%) represents practical reservations or economic constraints that impede approval. This balanced linear distribution endows the data with strong scientific validity, confirming the absence of response bias or randomness, thereby reinforcing the instrument's internal consistency and reliability.

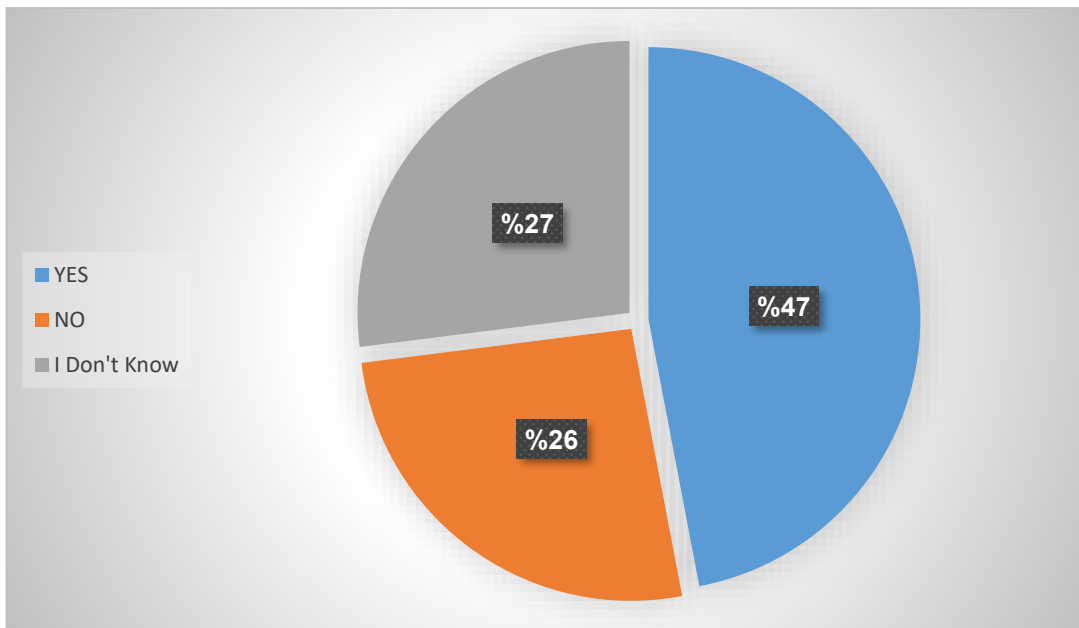


Figure 19: Current Use of Zootherapy in the Study Area

III.1.1.16. Do you buy animal items from the market/perfumers or get them yourself from pets/wild animals? (More than one option can be selected)

The statistical data presented in the chart above indicates a clear dominance of specialized traditional channels in procuring the animal-derived products under investigation. The option of purchasing from a **"Traditional Processor"** ranked first by a substantial margin, securing **104 responses (52.0%)** of the total sample. This was followed in second place by reliance on **"Pets / Domestic Breeding"** with **52 responses (26.0%)**. Concurrently, both **"Exhibitions/Markets" (From the jam)** and **"Hunting in the wild"** shared the third position equally, registering **40 responses (20.0%)** each, while the remaining alternative sources (such as relatives, butchers, or rewards) exhibited minimal frequencies that nearly collapsed at the lower end of the spectrum.

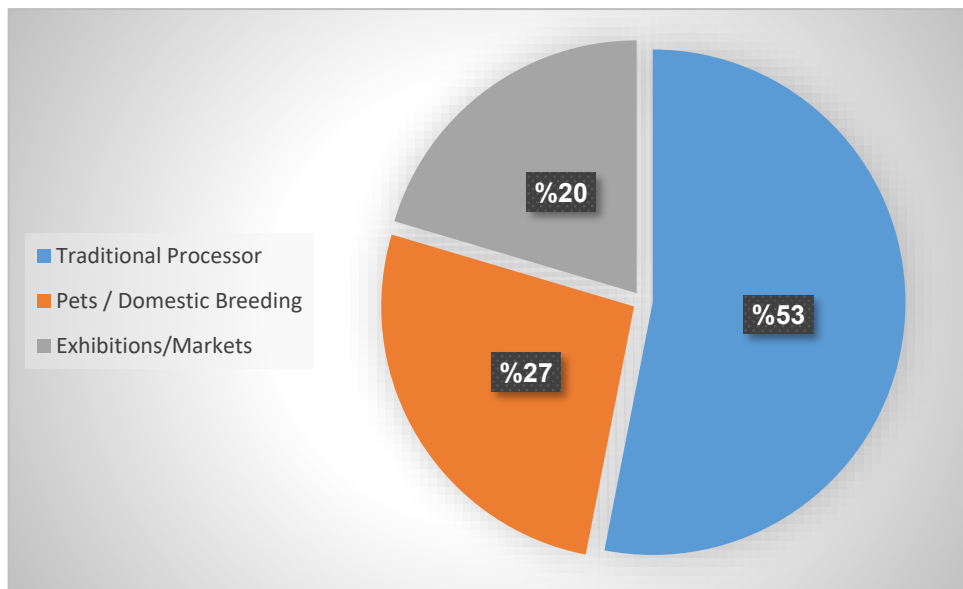


Figure 20: Perceived Impact of Animal Demand on Wildlife and Endangered Species

III.1.1.17. Do you think it is important to document this type of knowledge?

The statistical outputs illustrated in the attached chart reveal broad endorsement and clear acceptance among the majority of the sample respondents regarding the investigated variable. The affirmative option **"Yes"** dominated the distribution by a benchmark margin, capturing **160 responses (80.0%)** of the total sample, followed in second place by the general negative option **"No"** with **38 responses (19.0%)**. Conversely, the remaining detailed opinions and justifications fragmented in minimal proportions at **1.0%** each near the chart's baseline (including choices such as: "According to her needs," "I don't know," and reservations regarding medicinal confusion or the preservation of endangered species).

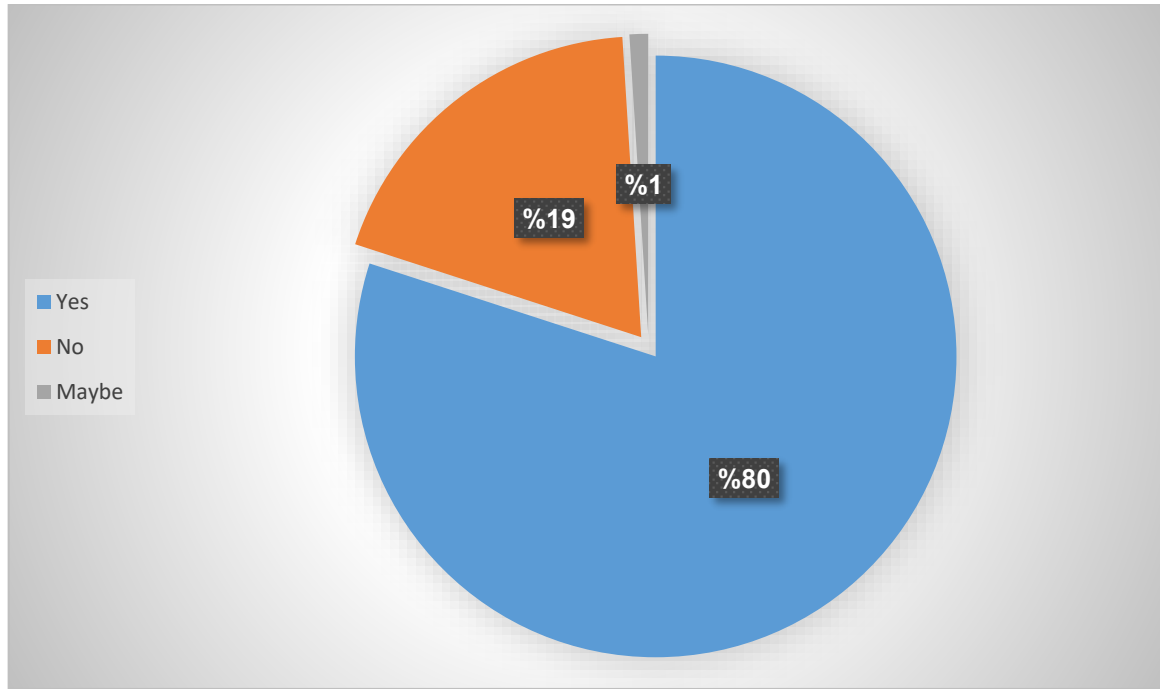


Figure 21: Sources of Animal Products Used in Zootherapy

III.1.1.19. If the answer is "yes", what is the source of these studies?

The statistical data illustrated in the chart above indicates a clear and structured hierarchy regarding the agencies or sources that respondents deem foundational to the research context. The option of " **Physicians / Researchers** "ranked first, capturing the highest frequency with **82 responses** .(%41.0) This was followed in second place by reliance on the " **Internet** "with **48 responses** ,(%24.0) and closely trailed in third place by " **Universities / Research Centers** " with **44 responses** .(%22.0) Conversely, traditional " **Media** "anchored the lower end of the spectrum, registering the lowest frequency with only **26 responses**.(%13.0)

From an interpretive and methodological perspective, this frequency distribution is primarily attributed to the rational orientation and advanced academic profile of the sample (86.0% university-educated). The heavy emphasis on positioning "Physicians/Researchers" alongside "Universities/Research Centers" at the forefront (collectively exceeding 55% of the response volume) reflects an acute awareness of the imperative to subject traditional animal-derived remedies to modern clinical and laboratory scrutiny, thereby transitioning them from oral folk traditions into standardized and validated medical practices. Conversely, the prominent position of the "Internet" (23.0%) is explained by the digital behavioral patterns of the younger cohort dominating the sample (77.0% under 30 years old), who instinctively tend to acquire information and exchange knowledge via virtual platforms. Finally, the regression of conventional "Media" (13.0%) demonstrates a diminished trust among the university-

educated elite in classical mass media channels, showing a clear preference for specialized professional and academic sources. Methodologically, this alignment endows the empirical findings with strong scientific validity and sociological consistency.

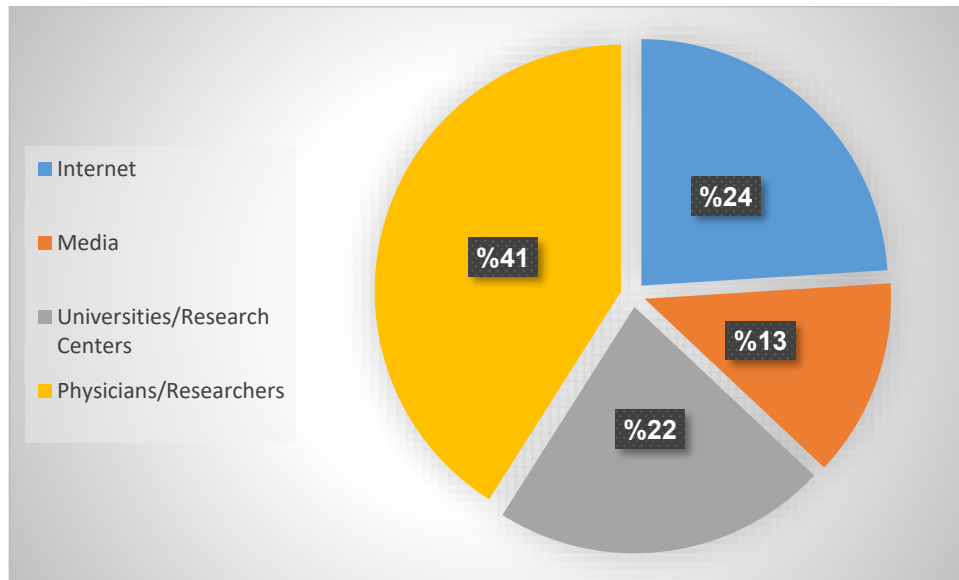


Figure 23: Awareness of Scientific Research on Zootherapy

III.1.1.18. Have you ever heard of scientific research and studies that confirm the effectiveness of some animal treatments?

The statistical data presented in the pie chart above reveals a broad endorsement and a highly positive trend among the study respondents regarding the investigated variable. The overwhelming majority selected the affirmative option "Yes", yielding a frequency of **162 respondents** and representing a dominant **%81.0** of the total sample. Conversely, the negative or dissenting responses captured by the "No" option contracted significantly, securing only **38 responses** and accounting for a minor proportion of **%19.0**.

From an interpretive standpoint, this high statistical consensus (81.0%) is primarily attributed to the firm intellectual and practical conviction within the study population regarding the significance and utility of this variable. This finding correlates directly with the sample's advanced cognitive profile, dominated by university-educated individuals (86.0%). This academic background endows respondents with the capacity to comprehend the dimensions of the phenomenon and validate its objectives (whether pertaining to the necessity of advancing traditional practices or the willingness to adopt novel mechanisms for their documentation and preservation). Meanwhile, the reservation or dissent recorded among the (19.0%) cohort is explained by subjective constraints or socio-economic considerations (such as resistance to altering established patterns, lack of resources, or deficiencies in practical guarantees).

Methodologically, this decisive and clear outcome endows the researcher with a robust scientific foundation that validates the hypotheses associated with this research axis, confirming a collective propensity within the study population toward positive adjustment and empirical development.

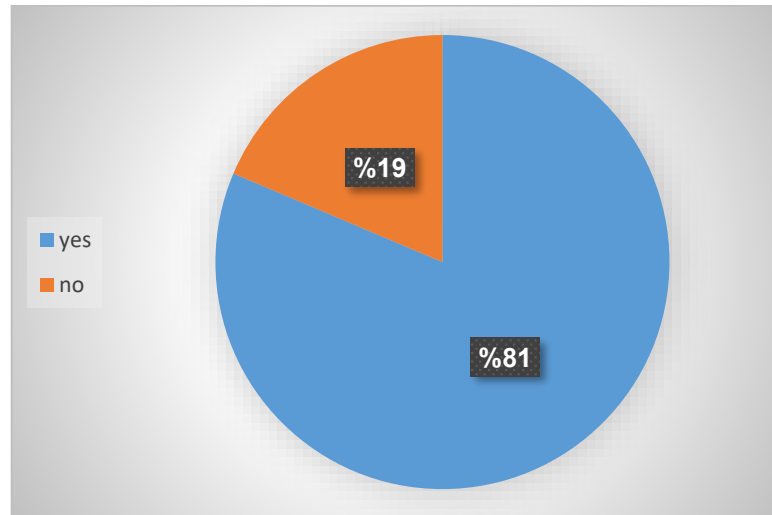


Figure 22: Importance of Documenting Zootherapeutic Knowledge

III.1.1.20. Do you think that combining traditional medicine with scientific research can contribute to the development of safe treatments?

The statistical outputs illustrated in the attached chart reveal broad endorsement and clear acceptance among the majority of the sample respondents regarding the investigated variable. The affirmative option **"Yes"** dominated the distribution by a benchmark margin, capturing **148 responses (69.0%)** of the total sample. The option of hesitation or probability **"Maybe"** ranked second with **58 responses (29.0%)**, while the absolute negative option **"No"** anchored the baseline of the chart, registering the lowest frequency with only **4 responses (2.0%)**.

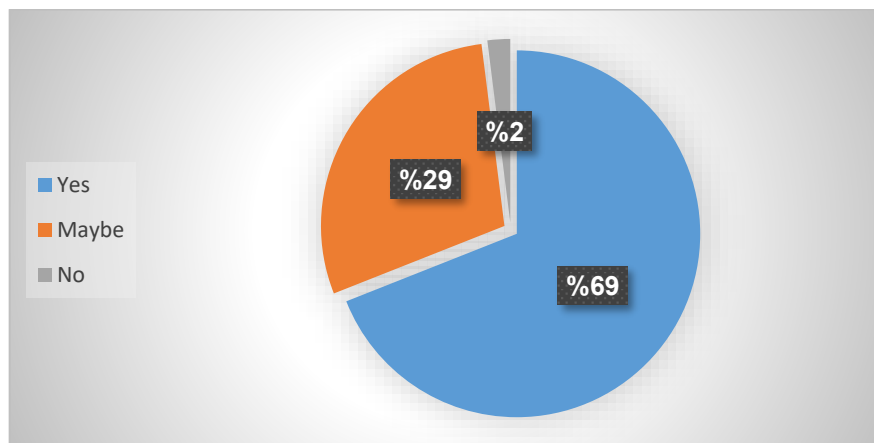


Figure 24: Sources of Scientific Information on Zootherapy

III.1.1.21. Do you think that the absence of scientific studies may pose a risk to human health?

Statistical data show a state of broad public acceptance, with the "sometimes" option recording a large majority of **76.0%** with **152 responses**, statistically indicating the existence of a firm conviction or stereotypical practice among almost two-thirds of the sample. In second place, the "sometimes" option came in with **21.0%** reflecting the presence of a group that practices or supports the variable inconsistently or conditionally, while the current of absolute opposition to the "no" option has receded by a meagre **3.0%** (responses 6). Just These results academically confirm a positive and resilient trend, as the weighted mass (permanent and temporary approval) together makes up **97.0%** of the total sample, reducing the rejection space to its lowest levels in the context studied.

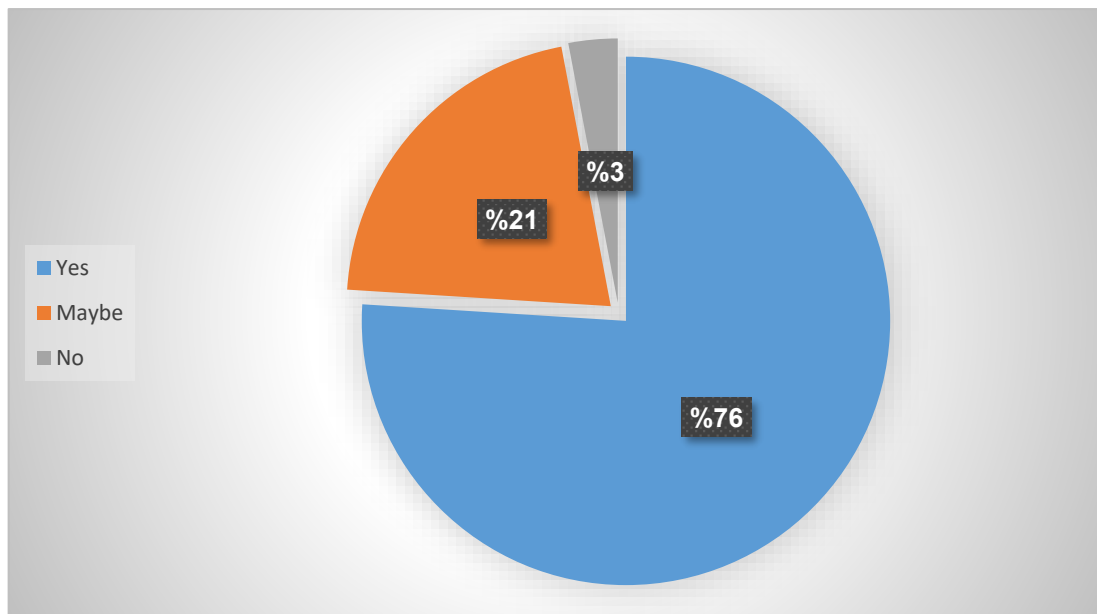


Figure 25: Integration of Traditional Medicine and Scientific Research

In Algeria, zootherapy represents an important part of traditional heritage; however, it remains insufficiently documented and scientifically studied. Therefore, this study, entitled “Exploring the Zootherapeutic Heritage of Algeria”, aims to highlight the diversity of animal-based therapeutic practices across different regions of the country.

To achieve this objective, a field study was conducted using a questionnaire to assess public knowledge, attitudes, and practices regarding the use of animals for therapeutic purposes. The study focuses on identifying the animal species used, the conditions treated, the methods of application (traditional or modern), as well as the level of social acceptance of these practices.

Through this questionnaire, several animals commonly involved in zootherapeutic practices were explored and analyzed in order to better understand their therapeutic uses and their significance within Algerian traditional medicine.

III.2. APIS MELLIFERA

❖ Definition of APIS MELLIFERA:

It is a type of flying insect that belongs to the order of Hydapaceae, and it is considered one of the most important living organisms in nature due to its great role in pollinating plants and producing honey.

❖ Part Used:

Honey

❖ How to use honey in treatment :

The method of using honey varies according to the disease condition, as it can be taken orally or applied topically depending on the nature of the disease, as follows:

1. Tonsillitis

Honey is used by taking it orally, by adding a teaspoon to a glass of warm water or herbal tea (such as thyme or chamomile), and drinking it two to three times daily. A spoonful of honey can also be taken directly to soothe the throat and reduce inflammation.

2. Wound Treatment

Honey is used topically, where a thin layer of honey is applied to the wound after it has been cleaned thoroughly, and then covered with a sterile bandage. Repeat the process daily until the wound heals, making sure to change the dressing regularly.

3. Chest allergies

Honey is taken orally, at the rate of one teaspoon to one tablespoon per day, and can be mixed with warm milk or lemon. This helps to soothe cough and relieve respiratory irritation.

4. Acne

Honey is applied topically to the skin, applied directly to the affected areas and left on for 15–20 minutes, then washed off with lukewarm water. Repeat the process daily or several times a week as needed.

5. Infertility

Honey is consumed orally regularly, at a rate of one to two tablespoons per day, and can be mixed with other natural ingredients such as nigella seed or nuts. It is preferable to continue this system for a period of time, taking into account the advice of the specialist doctor.



Figure 27. Apis mellifera – Part used: honey and its therapeutic applications

III.2.1. The horse:

❖ Definition of horse:

It is a pet mammal belonging to the horse family, and it is considered one of the oldest animals domesticated by man, as it has been used throughout history in transportation, agriculture, wars, and sports

❖ Part Used:

Horse meat

1. Nutritional value

Horse meat contains heme iron, a type that is easier to absorb in the body than iron found in plant sources, making it effective in supporting hemoglobin production in the blood.

2. Its role in anemia

:Horse meat consumption contributes to

- Raising the level of iron in the body
- Boosting erythrocyte production
- Reduce anemia symptoms such as fatigue and weakness

3. Method of consumption

Horse meat is consumed cooked in healthy ways (such as grilling or steaming), and is best eaten in a balanced diet that contains other sources of vitamins, especially vitamin C, which helps improve iron absorption



Figure 28.: Traditional therapeutic uses of horse meat in Algerian zootherapy

III.2.2. Camel :

❖ Definition of Camel :

It is a mammal that belongs to the aesthetic family, and is considered one of the most adaptable animals to harsh desert environments, so it is nicknamed the "Desert Ship"

Uses of some camel and camel products in treatment:

First: Camel fat and bone marrow

1. Chest allergies and asthma

In traditional medicine, camel lard is believed to contribute to alleviating symptoms of chest allergies and asthma, due to its moisturizing and soothing properties.

❖ How to use:

The lard is used after it has been melted (heated indirectly) and then massaged into the chest before bed, and may sometimes be used in combination with natural herbs. Bone marrow is also consumed cooked in food to promote overall nutrition.

2. Joint pain

Camel lard is used topically to relieve joint pain, as it is believed to help improve local blood circulation and reduce inflammation.

❖ How to use:

Heat the grease slightly, then massage the pain area (such as the knees or other joints) one to two times a day.

Second: The Urine of the Camel

1. Alzheimer's disease

In some traditional practices, camel urine may be used to improve memory or alleviate symptoms of the disease, but this claim lacks sufficient scientific evidence.

❖ How to use (traditionally):

It is taken in very small and diluted amounts, but it is not recommended for medical use.

2. Diabetes

Some popular beliefs point to a possible role for camel urine in regulating blood sugar level.

❖ How to use (traditionally):

It is consumed in limited and diluted doses, but this use is not scientifically proven.

3. Hepatitis

It is used in traditional medicine based on the belief of its antiseptic properties.

How to use (traditionally):

It is taken in very small amounts, but there are no medical recommendations to support this.

4. Kidney stones

It is thought that it may help break up the stones or make it easier for them to come out.

How to use (traditionally):

Drink in limited and diluted amounts, without sufficient scientific evidence.



Figure 29.: Camel milk and urine used as traditional remedies

III.2.3. *Scincus scincus* (Shershman):

❖ Definition of *Scincus scincus*

It is a local name given in some desert areas to a living organism that lives in the sand, and is characterized by its ability to move and slide under its surface very quickly. Although commonly called the "desert fish", it is not scientifically a real fish, but often resembles a species of reptile known as a sand lizard

Therapeutic uses attributed to "Chershman":

1. Joint pain

It is believed to be used to relieve joint pain and rheumatism, due to its association with the desert environment and its endurance.

How to use (traditionally):

Extract a fat from it or use it after drying, then apply topically to the pain site with massage.

2. Chest allergies and asthma

Some popular beliefs suggest that it is used to alleviate the symptoms of respiratory diseases.

How to use (traditionally):

Dried, ground and mixed with other natural ingredients (such as honey), and consumed in small quantities.

3. General weakness

It is believed to be used as a general tonic for the body and to increase energy.

❖ How to use (traditionally):

Consume after drying and grinding, or mixed with traditional foods



Figure 30.: Scincus scincus and its traditional method of use

III.2.4. The fox:

❖ Definition of fox

It is a predatory mammal that belongs to the canine family, and is characterized by its great intelligence and great ability to adapt to various environments, especially desert and forest

The use of fox's hoof in the treatment of vitiligo :

How to use (traditionally):

The fox's hoof is placed in hot ash or sand until exposed to high heat, then extracted and ground to obtain a fine powder. Then, apply this powder topically to the affected areas of the skin.

❖ Traditional Interpretation:

Exposure to heat on the hoof is thought to give it certain properties that help affect the skin and restore its natural color, but this explanation is not based on a proven scientific basis.



Figure 31. Fox hoof used in traditional treatment practices

III.2.5. CAPRA HIRCUS:

❖ Definition of CAPRA HIRCUS:

It is a pet mammal that belongs to the cow family, and it is considered one of the oldest animals domesticated by man, as it is raised for meat, milk, and skins

❖ Part Used :

Fat or butter

❖ Uses of some goat derivatives in treatment :

First: Goat Dye and Cough

Goat fat is used in some traditional practices to relieve coughs, due to its warm properties that may help to soothe the chest.

❖ **How to use (traditionally):**

Heat the goat fat slightly, then massage it into the chest and back before bed, and the body may be covered with a cloth to keep warm and enhance the effect.

Second: Goat Butter and Skin Infections

Goat butter is used topically to treat some skin infections, due to its moisturizing properties that help soothe the skin.

❖ **How to use (traditionally):**

Apply a thin layer of goat butter to the affected area one to two times daily, continuing until the condition improves.

III.2.6. Goat Butter and Sunstroke

Goat butter is believed to help alleviate the effects of sunstroke on the skin, by moisturizing it and reducing irritation.

❖ **How to use (traditionally):**

Apply goat butter to sun-affected areas, and leave for a certain period of time before washing them, repeating use as needed.



Figure 32: Capra hircus – milk and goat fat used for traditional treatment

III.2.7. Scorpion:

❖ Definition of Scorpion

It is an invertebrate animal belonging to the arachnid family, and is known to have a venomous tail that ends with a needle used for defense and attack

❖ Part Used :

Scorpion venom

The use of scorpion venom in the treatment of scorpion stings:

1. Therapeutic principle

Treatment of scorpion sting in modern medicine is based on the use of an anti-scorpion venom serum, which is prepared in the laboratory by extracting and purifying the venom, and then using it to stimulate the production of antibodies capable of neutralizing it within the body.

2. How to use

- The anti-serum is given by injection (Mostly intravenously) Under medical supervision
- Use in moderate to severe cases of poisoning
- It may be accompanied by supportive treatment such as analgesics and vital function monitoring



Figure 33: Scorpion venom used in treatment

III.2.8. gazella:

❖ Definition of gazella:

It is a herbivorous mammal that belongs to the bovine family, and is characterized by its agile body and great speed, and it is considered one of the most beautiful and light wild animals

❖ Part Used:

meat

Therapeutic uses of venison :

1. Anemia

Venison contributes to alleviating anemia, as it contains a significant percentage of iron that is easily absorbed, which helps to promote the production of hemoglobin in the blood.

❖ How to use:

Consumed cooked in a balanced diet, best consumed with foods rich in vitamin C to improve iron absorption.

3. Heart Health

Venetian meat has a lower saturated fat content compared to some other meats, which may make it a better option for supporting heart health.

❖ How to use:

Prepare in healthy ways such as grilling or steaming, avoiding excess fat.



Figure 34: Gazella meat used for traditional treatment

III.2.9. Ostriches:

❖ Definition of Ostriches

It is a large bird belonging to the ostrich family, and it is considered the largest living bird on earth, and it is characterized by its inability to fly, but it is known for its great speed in running

The use of ostrich fat in the treatment of joint pain :

1. Therapeutic use

:Ostrich lard is thought to contribute to

- Joint pain relief
- Reduce stiffness and stiffness
- Improved motor comfort

❖ How to use (traditionally):

Heat the ostrich fat slightly, then massage the pain area (such as the knees or other joints) in circular motions, preferably repeating the process once to twice a day, especially before bedtime.

❖ Traditional interpretation

Its effect is attributed to its ability to warm the affected area and improve local blood circulation, which helps relieve the sensation of pain.



Figure 35: Therapeutic uses of ostrich meat

III.2.10. Chicken:

❖ Definition of Chicken

It is a pet bird belonging to the family of chickens, and it is one of the most widespread animals in the world, as it is mainly bred for meat and eggs

❖ Part Used :

Muscle gizzards (muscular giblets for chickens)

Nutritional and therapeutic value of chicken gizzards:

1. Anemia

Chicken gizzards contribute to alleviating anemia, as they contain iron, which helps in the formation of hemoglobin.

❖ How to use:

Gizzards are thoroughly cooked (boiled or stewed) and consumed within a balanced diet.

2. General weakness

It helps strengthen the body and increase energy, thanks to its high protein content that supports muscle building and cell regeneration.

❖ How to use:

Eat regularly within meals, taking into account dietary diversity.

3. Immune System Support

It contains minerals such as zinc that play a role in boosting the body's immunity.

❖ How to use:

Include in a moderately healthy diet.



Figure 36: Chicken gizzards (muscular gizzard) used for treatment

III.2.11. The serpent or the snake:

❖ Definition of snake

It is a reptile animal belonging to the order Squamous, characterized by its long, cylindrical body and the absence of limbs (legs), and lives in diverse environments

❖ Part Used :

Serpent skin

1. Therapeutic use (traditionally)

It is thought that the use of a snake may help stimulate hair growth in areas affected by alopecia areata.

2. How to use (traditionally):

The snake is dried and then ground to form a powder, after which this powder is mixed with oil (such as olive oil), then the mixture is applied topically to the hair loss areas with a massage, and left for a period of time before washing it.

3. Traditional interpretation

This use is attributed to the belief that the ingredients of the snake may activate the scalp and help hair regrow, but this explanation is not scientifically proven



Figure 37: Snake and its oil used in traditional treatment

III.2.12. Cow:

❖ Definition of bos taurus:

It is a pet mammal that belongs to the cow family, and it is one of the most important animals that humans rely on for food and agriculture

❖ Part Used:

Cow's milk and meat

The Therapeutic Value of Milk and Beef (Academic Formulation)

First: Cow's milk

1. Strengthen bones

Cow's milk contributes to strengthening bones and teeth, as it contains a high percentage of calcium and vitamin D.

❖ How to use:

Drink daily (one to two cups) in a balanced diet.

2. General weakness

It helps improve energy and growth, especially in children, thanks to its protein and vitamin content.

❖ How to use:

Consume regularly, preferably fresh or pasteurized.

3. Nervous System Support

It contains B vitamins that contribute to improving the functions of the nervous system.

❖ How to use:

Include in your daily diet.

Second: Beef

1. Anemia

Beef contributes to alleviating anemia, as it contains iron, which helps in the production of red blood cells.

❖ How to use:

.Cook well (grilled or stewed) and consume sparingly

2. Muscle Building

It contains high-quality proteins that help strengthen muscles and regenerate tissues.

❖ How to use:

Consume in balanced meals, especially for active people.

3. Weakness and lack of energy

It helps reduce fatigue thanks to its iron and vitamin content.

❖ How to use:

Eaten regularly with diet variation

4. Nervous System Support

It contains B vitamins that contribute to improving the functions of the nervous system.

❖ How to use:

Include in your daily diet.

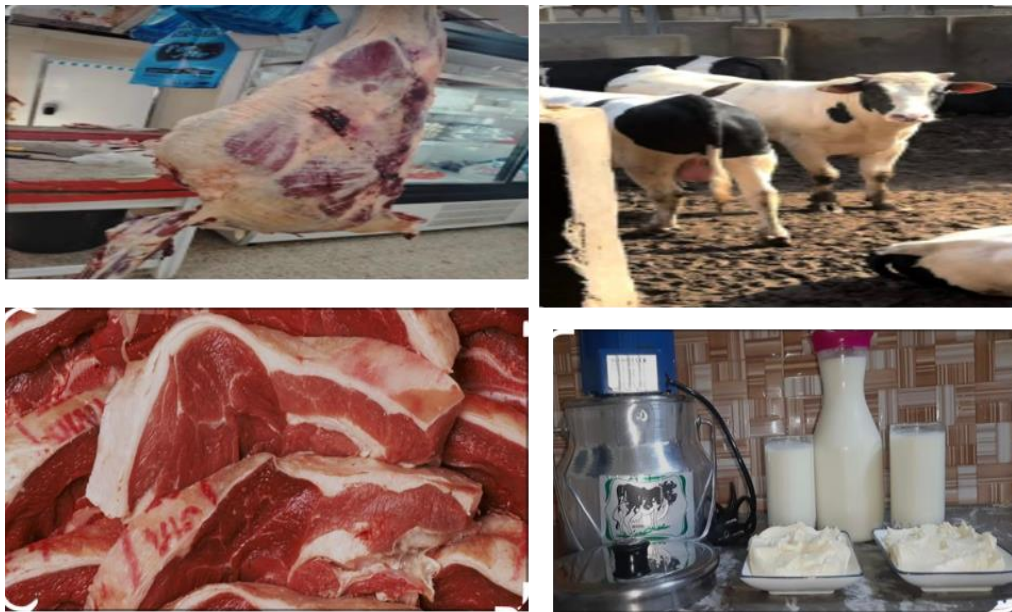


Figure 38: Bos taurus meat used for

III.2.13. Quail:

❖ Definition of Quail

It is a small bird belonging to the family of chickens, and is known for its speed, lightness, and ability to fly short distances, and it is also considered a migratory bird in some species

❖ Part Used :

Eggs or meat

First: Quail meat

1. Anemia

Quail meat contributes to alleviating anemia, as it contains iron, which supports the production of red blood cells.

❖ **How to use:**

Thoroughly cooked (grilled or stewed) and consumed on a balanced diet.

2. General weakness

It helps strengthen the body and increase energy thanks to its richness in protein.

❖ **How to use:**

Eat regularly in moderation within meals.

Second: Quail eggs

1. Strengthen immunity

Quail eggs contain vitamins and minerals (such as zinc) that support the immune system.

❖ **How to use:**

Consume boiled (3–5 small eggs daily as needed).

2. Growth Support

It contributes to the growth of children because it contains important nutrients.

❖ **How to use:**

Include in the children's diet in moderation.

3. Improve overall activity

Helps reduce fatigue and increase vitality.

❖ **How to use:**

Eat regularly in a balanced diet.



Figure 39: Quail meat and eggs used for treatment treatment

III.2.14. The Sheep:

❖ Definition of Sheep

It is a pet mammal belonging to the cattle family, and has been bred since ancient times for meat, wool and milk

❖ Part Used :

Fat and meat

Uses of sheep in traditional medicine :

1. Joint pain

Use lamb fat to relieve joint pain and rheumatism, due to its warm effect on the body.

❖ How to use (traditionally):

Heat the lamb fat slightly, then massage the pain area (such as the knees), and repeat daily.

2. Coughs and colds

Lamb fat is believed to help relieve coughing and soothe the chest.

❖ How to use (traditionally):

Massage into the chest and back before bedtime, or add small amounts to food.

3. Cuts and cracks

Use lamb fat to moisturize the skin and help heal cracks.

❖ How to use (traditionally):

Apply topically to dry or cracked skin



Figure 40: Sheep meat used for treatment

III.2.15. gas:

❖ Definition of gas:

It is an invertebrate animal belonging to the phylum of mollusks, and is characterized by having a spiral shell that protects its soft body

❖ Part Used :

Spiral mucus

Use of snail mucus in cosmetics and treatment:

1. Beauty and Skin Care

:Snail mucus is used to improve the appearance of the skin, as it helps to

- Deeply moisturize the skin
- Reduce wrinkles and fine lines
- Improve skin elasticity and freshness

How to use :

Apply to the face in the form of creams or lotions containing snail mucus extract, and use regularly as directed.

2. Wound Treatment

Snail mucus accelerates wound healing and cell regeneration, thanks to its moisturizing and rejuvenating properties.

❖ How to use:

Use topically on the skin in the form of medical or cosmetic preparations, where it is applied to the affected area after cleansing



Figure 41: Snail mucus used for treatment

III.2.16. *Varanus griseus* (Desert monitor):

❖ Definition of *Varanus griseus*

It is a reptile animal belonging to the Urliats family, and is one of the largest species of lizards, and often lives in desert and hot areas

❖ Part Used:

Grease and meat

Uses of Url in Traditional Medicine in Desert Areas :

1. Joint pain

Url fat is used to relieve joint pain and rheumatism, due to its oily properties that are believed to help with local heating.

❖ How to use (traditionally):

Heat the worl fat slightly, and then massage the pain area (such as the knees and joints) once or twice a day.

2. Dermatology

It is used in some cases to treat skin problems such as dryness or certain infections.

❖ How to use (traditionally):

Apply the application topically to the affected area with massage.

3. General weakness

Consumption of wolverine meat is believed to help strengthen the body and increase energy.

❖ How to use (traditionally):

The meat is cooked and consumed as a meal.

4. Hemorrhoids:

It is believed that the urinary fat treats hemorrhoids due to the fat extracted from it naturally treating.

❖ How to use :

A treatment fat is applied to a cracked area every day at night



Figure 42: Varanus griseus used in traditional treatment

III.2.17. Chameleon:

❖ Definition of Chameleon

The chameleon is a reptile belonging to the family Chamaeleonidae. It is for its ability to change the color of its skin depending on environmental conditions or physiological state. It also has a long tongue used to capture prey and typically lives in hot and arid regions.

❖ Part used:

Meat (usually after drying)

Therapeutic uses of the chameleon in traditional medicine:

1. Sore throat (tonsillitis):

It is believed in traditional medicine that the use of chameleon may help relieve throat infections and tonsillitis due to properties attributed to it in folk practices.

❖ Method of use (traditionally):

The chameleon is thoroughly dried under sunlight until all moisture is removed, then ground into a fine powder. This powder is mixed with honey and taken in small amounts once or twice daily.

2. Thyroid disorders:

In some traditional beliefs, chameleon is used to treat thyroid-related conditions, although there is no confirmed scientific evidence supporting this claim.

Method of use (traditionally):

After drying and grinding, the powder is mixed with honey or dissolved in warm water and consumed in small doses for a limited period.

3. Vitiligo:

It is believed that chameleon may help improve skin pigmentation in cases of vitiligo according to traditional medicine.

❖ Method of use (traditionally):

The animal is dried and ground into powder, then mixed with oil (such as olive oil) and applied topically to the affected areas with regular massage.



Figure 43: Chameleon used in traditional treatment

III.2.18. Pigeon

❖ Definition of Pigeon

The pigeon is a domesticated bird belonging to the Columbidae family. Since ancient times, humans have used pigeons for food, decoration, and message delivery, and they have also been involved in some traditional medicinal practices. Pigeons are characterized by their small bodies, soft feathers, and ability to adapt to different environments.

❖ Part Used

The meat of the pigeon is mainly used in traditional medicine. Sometimes pigeon broth or soup is also prepared because it is rich in proteins, iron, and vitamins.

Diseases Treated

In traditional medicine, pigeon is believed to help treat general weakness, anemia, and fatigue. It is also considered useful for strengthening the immune system and helping the body recover after illness.

❖ Method of Use

Pigeon meat is usually cooked or prepared as a nutritious soup and consumed as a natural strengthening food to restore energy and improve health.



Figure 44: Columba livia (Columbidae) used in traditional treatment

III.2.19. Garra rufa

❖ Definition of Garra rufa

Garra rufa, commonly known as Doctor Fish, is a small freshwater fish used in traditional and modern therapy. It is mainly used for skin treatment because it gently removes dead skin cells and helps improve blood circulation.

❖ Part Used:

- The live fish itself

Diseases Treated:

• Psoriasis:

A chronic skin condition that causes red, scaly patches. Certain treatments are used to soothe the skin and reduce flare-ups

• Eczema:

A condition that leads to itchy, inflamed skin. Treatments help calm irritation and keep the skin moisturized

• Dry skin:

Occurs when the skin lacks moisture, leading to roughness and tightness. Remedies aim to hydrate and soften the skin

• Skin irritation and scaling:

Includes redness, discomfort, and flaking of the skin. Treatments are used to relieve irritation and restore skin balance

❖ Method of Use:

The fish are placed in warm water tanks, and the patient puts the affected skin area into the water. The fish gently feed on dead skin cells without harming healthy skin.



Figure 45: Fish used for traditional treatment

III.2.20. *Hirudo medicinalis*

❖ Definition of *Hirudo medicinalis*

Leech therapy

Hirudotherapy) is a traditional medical treatment that uses medicinal leeches to improve blood circulation and release therapeutic substances such as hirudin, which has anticoagulant and anti-inflammatory effects. This therapy is practiced in some cupping and physiotherapy centers in Algeria, such as:

- Ayoub Center for Hijama, Chinese acupuncture, moxibustion, bee venom therapy, and chiropractic in Algiers
- Al-Waqar Center for Hijama and Body Care in Bir El Djir, Oran
- Al-Shifa Center for Physiotherapy and Motor Rehabilitation in El Oued
- Oum Ayoub Hijama Center in Setif

❖ Used part:

- Salivary secretions of medicinal leeches
- The live medicinal leech itself

❖ Diseases Treated:

- **Venous congestion:**

The accumulation of blood in the veins causes swelling and heaviness, and treatments are used to relieve it and improve blood flow.

- **Inflammation:**

A natural response that appears as pain or swelling, and substances are used to reduce symptoms.

- **Blood circulation disorders:**

Poor blood flow leads to fatigue and cold extremities, and treatment aims to stimulate circulation.

- **Pain and swelling after surgery:**

Common symptoms after operations, and methods are used to relieve pain and speed up healing.

- ❖ **Method of Use**

Medicinal leeches are placed directly on the affected area of the skin. They attach to the skin, suck blood, and release therapeutic substances during feeding

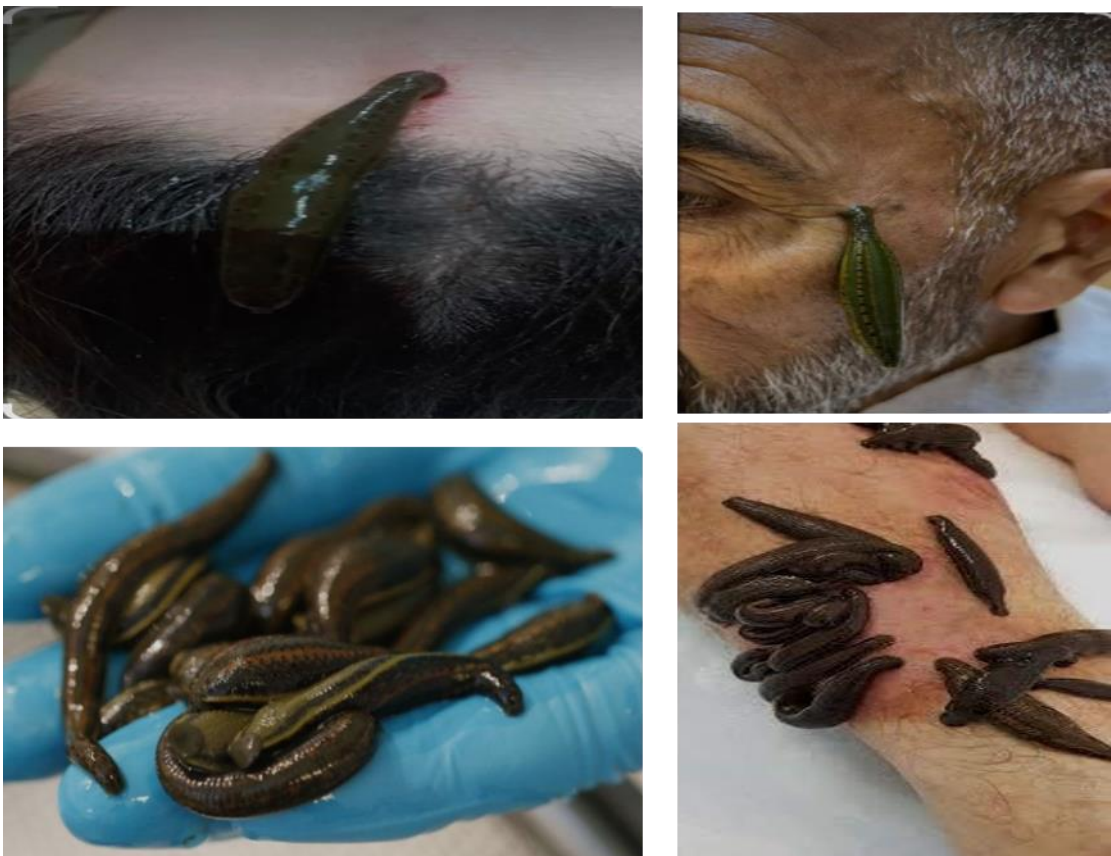


Figure 46: Hirudo medicinalis used in traditional treatment

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Table 03: Inventory of Animal Resources Used in Traditional Zootherapy with Corresponding Used Parts and Therapeutic Indications

Published use reports	Application mode	Preparation method	Ailments treated	Part/product used	English name	Family	Scientific name	Category	No
Horse meat is rich in heme iron that supports blood production.	Oral	Cooked meat (Grilled or steamed and consumed within a balanced diet.)	Anemia	Meat	Horse	Equidae	Equus ferus caballus	Mammalia	01
Camel fat is used traditionally to soothe respiratory irritation.	Topical	Massage (The fat is gently heated and massaged onto the chest before bedtime.)	Chest allergies and asthma	Camel fat	Camel	Camelidae	Camelus dromedarius	Mammalia	02
Traditionally used to improve blood circulation and reduce pain.	Topical	Massage (Slightly heated fat is massaged onto painful joints once or twice daily.)	Joint pain	Camel urine					
Traditional beliefs attribute memory-enhancing properties to camel urine.	Oral	Traditional oral intake (Consumed in very small diluted quantities.)	Alzheimer's disease	Camel urine					
Used traditionally in some communities for blood sugar regulation.	Oral	Traditional oral intake (Taken in limited diluted doses.)	Diabetes	Camel urine					
Traditionally believed to possess antiseptic properties.	Oral	Traditional oral intake (Consumed in small quantities.)	Hepatitis	Camel urine					
Folk medicine suggests its use for facilitating stone elimination.	Oral	Traditional oral intake (Consumed in diluted amounts.)	Kidney stones	Camel fat					

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Published use reports	Application mode	Preparation method	Ailments treated	Part/product used	English name	Family	Scientific name	Category	No
Used traditionally for skin pigmentation disorders.	Topical	Powder (The hoof is heated, ground into powder, and applied to affected skin.)	Vitiligo	Hoof	Fox	Canidae	Vulpes vulpes	Mammalia	03
Goat fat is traditionally used to relieve cough.	Topical	Massage (The fat is slightly heated and massaged onto the chest and back.)	Cough	Goat fat	Goat	Bovidae	Capra hircus	Mammalia	04
Used traditionally for soothing skin irritation.	Topical	Topical application (A thin layer is applied once or twice daily.)	Skin infections	Goat butter					
Folk medicine uses goat butter for skin moisturizing.	Topical	Topical application (Applied to sun-affected skin areas.)	Sunstroke	Goat butter					
Gazelle meat contains iron that supports hemoglobin production.	Oral	Cooked meat (Consumed within a balanced diet rich in vitamin C.)	Anemia	Meat	Gazelle	Bovidae	Gazella dorcas	Mammalia	05
Considered lean meat with low saturated fat content.	Oral	Healthy cooking (Prepared by grilling or steaming.)	Heart health	Meat					

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Published use reports	Application mode	Preparation method	Ailments treated	Part/product used	English name	Family	Scientific name	Category	No
Milk is rich in calcium and vitamin D.	Oral	Oral intake (One to two cups consumed daily.)	Bone strengthening	Cow milk	Cow	Bovidae	Bos taurus	Mammalia	06
Provides proteins and vitamins that improve energy.	Oral	Nutritional consumption (Consumed fresh or pasteurized.)	General weakness	Cow milk					
Contains B vitamins important for nervous system functions.	Oral	Daily dietary inclusion	Nervous system support	Cow milk					
Beef contains iron supporting red blood cell production.	Oral	Cooked meat (Grilled or stewed and consumed moderately.)	Anemia	Beef					
Rich in proteins important for tissue regeneration.	Oral	Balanced meals (Consumed regularly by active individuals.)	Muscle building	Beef					
Helps reduce fatigue because of its iron content.	Oral	Nutritional consumption (Eaten regularly within varied meals.)	Weakness and fatigue	Beef					

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Published use reports	Application mode	Preparation method	Ailments treated	Part/product used	English name	Family	Scientific name	Category	No
Sheep fat is traditionally used to warm painful joints and relieve rheumatism.	Topical	Massage (The fat is slightly heated and massaged onto painful joints daily.)	Joint pain and rheumatism	Sheep fat	Sheep	Bovidae	Ovis aries	Mammalia	07
Folk medicine uses sheep fat to soothe the chest and reduce coughing.	Topical	Chest massage (Applied to the chest and back before sleep.)	Coughs and colds	Sheep fat					
Sheep fat is traditionally used to moisturize skin and support healing.	Topical	Topical application (Applied directly to dry or cracked skin.)	Cuts and skin cracks	Sheep fat					
Ostrich fat is traditionally used to relieve pain and stiffness.	Topical	Massage (The fat is slightly heated and massaged onto painful joints.)	Joint pain	Ostrich fat	Ostrich	Struthionidae	Struthio camelus	Aves	08

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Published use reports	Application mode	Preparation method	Ailments treated	Part/product used	English name	Family	Scientific name	Category	No
Quail meat supports blood formation because of its iron content.	Oral	Cooked meat (Grilled or stewed and consumed in balanced meals.)	Anemia	Quail meat	Quail	Phasianidae	Coturnix coturnix	Aves	09
Rich in protein that increases strength and vitality.	Oral	Nutritional consumption (Consumed regularly in moderation.)	General weakness	Quail meat					
Quail eggs contain zinc and vitamins supporting immunity.	Oral	Boiled eggs (3–5 eggs consumed daily.)	Immune support	Quail eggs					
Eggs contain nutrients important for growth.	Oral	Moderate dietary use for children	Growth support	Quail eggs					
Helps reduce fatigue and increase vitality.	Oral	Regular nutritional intake	Improve activity	Quail eggs					
Pigeon meat is traditionally considered a strengthening food rich in proteins and iron.	Oral	Nutritious soup (Pigeon meat is cooked or prepared as broth and consumed regularly.)	General weakness	Meat / broth	Pigeon	Columbidae	Columba livia domestica	Aves	10
Pigeon meat contains nutrients that support blood formation.	Oral	Cooked preparation (Consumed within a balanced diet.)	Anemia	Meat / broth					
Pigeon broth is traditionally used during recovery after illness.	Oral	Nutritional consumption	Immune support	Meat / broth					

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Published use reports	Application mode	Preparation method	Ailments treated	Part/product used	English name	Family	Scientific name	Category	No
Chicken gizzards contain iron supporting hemoglobin formation.	Oral	Cooked gizzards (Boiled or stewed and consumed in meals.)	Anemia	Muscle gizzards	Chicken	Phasianidae	Gallus gallus domesticus	Aves	11
Rich protein content helps improve body strength.	Oral	Nutritional consumption (Consumed regularly within meals.)	General weakness	Muscle gizzards					
Contain zinc that contributes to immune system support.	Oral	Balanced diet inclusion	Immune support	Muscle gizzards					
Used in desert folk medicine for rheumatism and joint pain.	Topical	Ointment (Fat is extracted and massaged onto painful areas.)	Joint pain	Fat	Sand fish skink	Scincidae	Scincus scincus	Reptilia	12
Used traditionally for respiratory diseases.	Oral	Powder mixture (The dried body is powdered, mixed with honey, and consumed in small amounts.)	Chest allergies and asthma	Dried body					
Considered a body tonic that improves energy.	Oral	Powdered preparation (Consumed after drying and grinding.)	General weakness	Dried body					

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Published use reports	Application mode	Preparation method	Ailments treated	Part/product used	English name	Family	Scientific name	Category	No
Traditional practices use chameleon preparations for sore throat and tonsillitis.	Oral	Powder with honey (The dried meat is powdered and mixed with honey.)	Tonsillitis	Dried meat	Chameleon	Chamaeleonidae	Chamaeleo chamaeleon	Reptilia	13
Some folk beliefs associate chameleon use with thyroid disorder treatment.	Oral	Powder mixture (Mixed with honey or warm water and consumed in small doses.)	Thyroid disorders	Dried meat					
Traditional medicine attributes skin pigmentation benefits to chameleon preparations.	Topical	Ointment (The powder is mixed with olive oil and applied to affected skin.)	Vitiligo	Dried meat					
Monitor lizard fat is traditionally used for rheumatism and joint pain.	Topical	Massage (The fat is slightly heated and massaged onto painful joints once or twice daily.)	Joint pain	Fat	Desert monitor lizard	Varanidae	Varanus griseus	Reptilia	14
Traditionally used for skin dryness and infections.	Topical	Topical application (Applied directly to affected skin.)	Skin diseases	Fat					
The meat is believed to strengthen the body and increase energy.	Oral	Cooked meat (Consumed as a meal after cooking.)	General weakness	Meat					
Folk medicine attributes soothing properties to monitor lizard fat.	Topical	Topical treatment (Applied to the affected area every night.)	Hemorrhoids	Fat					

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Published use reports	Application mode	Preparation method	Ailments treated	Part/product used	English name	Family	Scientific name	Category	No
Traditionally used to stimulate hair regrowth.	Topical	Powder mixture (Dried snake skin is powdered, mixed with olive oil, and applied to scalp.)	Alopecia areata	Snake skin	Snake	Squamata	Serpentes spp.	Reptilia	15
Garra rufa fish are widely used in spa therapy for psoriasis and skin scaling.	Topical	Fish therapy (Affected skin is immersed in warm water tanks containing live fish.)	Psoriasis	Live fish	Doctor fish	Cyprinidae	Garra rufa	Actinopterygii	16
Doctor fish therapy is used to reduce skin irritation and inflammation.	Topical	Fish therapy (The fish gently remove dead skin cells.)	Eczema	Live fish					
The treatment helps exfoliate and soften dry skin.	Topical	Fish therapy	Dry skin	Live fish					
Fish therapy may improve blood circulation and skin appearance.	Topical	Fish therapy	Skin irritation and scaling	Live fish					

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Published use reports	Application mode	Preparation method	Ailments treated	Part/product used	English name	Family	Scientific name	Category	No
Snail mucus is widely used in cosmetic products for moisturizing and skin rejuvenation.	Topical	Cosmetic preparation (Creams or lotions containing snail mucus extract are applied regularly.)	Skin care and wrinkles	Snail mucus	Snail	Helicidae	Helix aspersa	Mollusca	17
Snail mucus may accelerate wound healing and skin regeneration.	Topical	Medical cream (Applied topically after cleansing the affected area.)	Wound treatment	Snail mucus					
Modern medicine uses antivenom serum to neutralize poisoning.	Injection	Antivenom injection (Purified venom is used in antiserum preparation.)	Scorpion stings	Scorpion venom	Scorpion	Buthidae	Androctonus australis	Arachnida	18
Leech therapy is used to improve blood circulation and reduce venous congestion.	Topical	Hirudotherapy (Medicinal leeches are placed directly on affected skin.)	Venous congestion	Live leech	Medicinal leech	Hirudinidae	Hirudo medicinalis	Clitellata	19
Leech saliva contains hirudin with anticoagulant and anti-inflammatory properties.	Topical	Hirudotherapy	Inflammation	Live leech					
Medicinal leeches are used traditionally and medically to stimulate circulation.	Topical	Hirudotherapy	Blood circulation disorders	Live leech					
Leech therapy may help relieve swelling and pain after surgery.	Topical	Hirudotherapy	Post-surgical pain and swelling	Live leech					

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Published use reports	Application mode	Preparation method	Ailments treated	Part/product used	English name	Family	Scientific name	Category	No
Honey is traditionally used for throat infections and tonsillitis.	Oral	Oral intake (Honey is mixed with warm water or herbal tea and consumed two to three times daily.)	Tonsillitis	Honey	Honey bee	Apidae	Apis mellifera	Insecta	20
Honey is widely used in folk medicine for wound healing.	Topical	Topical application (A thin layer of honey is applied directly to the wound after cleaning.)	Wounds	Honey					
Used traditionally to relieve cough and respiratory irritation.	Oral	Oral intake (Honey is mixed with warm milk or lemon and consumed daily.)	Chest allergy	Honey					
Honey possesses antimicrobial and anti-inflammatory properties.	Topical	Topical mask (Applied directly to affected skin for 15–20 minutes.)	Acne	Honey					
Honey is considered a natural tonic for reproductive health.	Oral	Oral consumption (One to two tablespoons daily mixed with nigella seeds or nuts.)	Infertility	Honey					

III.3. Discussion

The survey was conducted across 13 Algerian wilayas and included 200 participants from different age groups and socio-cultural backgrounds. The distribution of respondents showed that most participants originated from El Oued, followed by Touggourt, M'ghaier, and other southern and northern regions. This geographical pattern reflects the persistence of zootherapeutic practices, particularly in Saharan and steppe areas, where traditional medicine remains strongly linked to cultural heritage, pastoral lifestyles, and local environmental resources.

The predominance of respondents under 30 years old (77.2%) can be explained by the wide use of electronic questionnaires and the accessibility of younger populations through universities and social media platforms. Women represented the majority of participants (86.7%), suggesting that females play a central role in preserving and transmitting traditional therapeutic knowledge within families and communities.

The educational level of respondents was mainly university-based (86%), indicating a growing academic and social interest in traditional medicine and ethnobiological studies. Despite the modernization of healthcare systems, the results show that zotherapy remains an important component of Algerian society, with continued use especially among older generations, reflecting the persistence of inherited traditional knowledge.

The study revealed that mammals are the most frequently used animal group in zootherapeutic practices, followed by birds, reptiles, insects, and mollusks. Meat was the most commonly used animal product (29.9%), followed by honey (24.3%), horse meat (17.4%), milk (13.9%), animal fat (13.2%), camel urine (8.3%), and bee venom (9%). These findings suggest that animal-derived remedies are mainly associated with nutritional and restorative purposes, particularly for treating weakness, anemia, respiratory diseases, and joint pain.

Several animal species were reported to have important therapeutic value according to traditional beliefs. Honey was widely used for tonsillitis, wound healing, respiratory allergies, acne, and infertility due to its antimicrobial and soothing properties. Camel and goat fats were commonly applied topically for joint pain, cough, and rheumatism, while camel urine was traditionally used for diabetes, hepatitis, kidney stones, and thyroid disorders, despite the lack of sufficient scientific evidence supporting these claims. Similarly, reptiles such as chameleon, desert monitor, and sandfish were used for respiratory diseases, skin disorders, joint pain, and general weakness, which may be linked to symbolic beliefs and long-standing cultural traditions in desert communities.

Chapter III: RESULTS AND DISCUSSION

The questionnaire results showed that most respondents perceived animal-based remedies as effective, with about 91% reporting positive effects and 96.5% considering them moderately or highly effective. This high level of confidence may be explained by cultural inheritance, repeated empirical experiences, and limited access to modern healthcare in remote regions. However, perceived effectiveness does not necessarily confirm scientific efficacy, as psychological factors, personal beliefs, and subjective experiences may strongly influence users' perceptions.

Preparation and administration methods varied according to the animal type and treated disease, including drying, grinding, boiling, cooking, and extraction of fats or secretions. Topical use was mainly applied for skin diseases, wounds, and joint pain, whereas oral administration was preferred for respiratory disorders, anemia, weakness, and digestive problems. Drying was particularly important in preserving animal products and reducing microbial contamination under arid Saharan conditions.

The study also highlighted important socio-cultural dimensions of zootherapy. Most participants reported that their knowledge was inherited from parents, grandparents, or traditional healers, while only a small proportion relied on written or scientific sources. This confirms that zootherapeutic knowledge in Algeria remains largely oral and intergenerational. Many respondents also expressed interest in documenting this heritage to prevent its loss.

Despite the widespread acceptance of zootherapy, participants showed awareness of potential health and environmental risks. More than half believed that animal products could transmit diseases, and many supported regulating or banning the use of endangered species in traditional medicine. This reflects a growing awareness of biodiversity conservation and public health issues related to uncontrolled wildlife use.

From a biological and medical perspective, some animal-derived products contain bioactive compounds such as proteins, fatty acids, minerals, peptides, and other biologically active molecules. Honey, for example, has well-documented antimicrobial and antioxidant properties, while snail mucus has shown beneficial effects in skin regeneration and wound healing. However, many traditional uses remain scientifically under-investigated and may involve health risks such as microbial contamination, toxicity, zoonotic transmission, or lack of standardized dosing.

Exploitation and hunting of wild animals for medicinal purposes may also threaten biodiversity and ecological balance, especially in fragile desert ecosystems where species such as gazelles, foxes, reptiles, and some birds are increasingly under pressure. Therefore,

documenting these practices is essential not only for cultural preservation but also for promoting sustainable and ethical wildlife management.

The findings show that the use of animal products in traditional medicine in Algeria remains a living and widely practiced phenomenon. This is consistent with previous ethnobiological literature. The work of Efraim Lev (2003) demonstrated that zootherapy is not a disappearing historical practice but a continuous system extending from medieval times to the present, based on the use of animal-derived materials such as honey, fats, and animal parts. Similarly, Francisco Souto (2012) highlighted that knowledge of animal-based remedies in rural communities is mainly transmitted orally, while written and scientific sources remain secondary.

The diversity of animal materials reported in this study is consistent with classical ethnomedical patterns, where honey and animal fats are among the most consistently used substances due to their perceived therapeutic and symbolic importance. This suggests that zootherapy represents a relatively stable traditional knowledge system rather than random practices.

The findings also align with previous studies reporting increased awareness of health risks such as infections, allergies, and toxicity associated with improper use of animal products, as well as ecological concerns linked to wildlife exploitation. This is in line with Souto et al. (2012), who emphasized the environmental pressure caused by medicinal use of wild animals in vulnerable ecosystems.

Furthermore, the results support the current ethnopharmacological trend advocating the integration of traditional knowledge with scientific validation to ensure safety and efficacy. The study reveals a dual reality: the persistence of traditional zootherapeutic knowledge alongside a growing scientific and regulatory awareness, placing these practices at the intersection of tradition and modern medicine.

Recent scientific studies have also shown that certain animal products, particularly honey and camel milk, possess potent biological and therapeutic properties. Honey is known for its antimicrobial and anti-inflammatory effects and its contribution to wound healing, while camel milk contains insulin-like proteins and antioxidants that may help regulate blood sugar levels and reduce the complications of diabetes. Some studies have also indicated potential anticancer and antiviral effects of these products.

General Conclusion

General Conclusion

This study aimed to explore the zootherapeutic heritage in Algeria. The results of the field survey confirmed that these practices remain alive and deeply rooted, with 60.4% of respondents affirming their continued widespread use and 96.5% expressing conviction in their effectiveness.

The study revealed fundamental paradoxes: on one hand, this heritage represents a rich knowledge repository encompassing 20 animal species used to treat various ailments. On the other hand, these practices suffer from structural issues, most notably: the predominance of oral transmission of knowledge (51.7% inherited from ancestors versus only 10.3% from written sources), the widening gap with modern medicine, and the increasing pressure on endangered species.

In light of these findings, the study recommends the urgent implementation of an integrated national strategy built on three main pillars: documenting and preserving traditional knowledge, conducting rigorous scientific research to distinguish pharmacologically sound practices from others and ensure their safety, and establishing legal frameworks to regulate the sustainable use of these animal resources. Achieving a thoughtful integration of traditional medicine and scientific research, as endorsed by 85.4% of participants, is the most effective path toward transforming this folk heritage into a genuine contributor to public health, while safeguarding the biodiversity that constitutes its essential foundation.

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Annex

استبيان حول الإثنوغرافيا الخاصة بالعلاجات الحيوانية (العلاج الحيواني) في الجزائر

التعليمات:

يرجى وضع علامة (✓) في الخانة المناسبة أو كتابة الإجابة في المكان المخصص لذلك.

1- الولاية / المنطقة السكنية:

.....

2- الجنس:

☐ أنثى

☐ ذكر

3- الفئة العمرية:

☐ من 46 إلى 60 سنة

☐ من 30 إلى 45 سنة

☐ أقل من 30 سنة

☐ أكثر من 60 سنة

4 - المستوى التعليمي:

☐ متوسط (إعدادي)

☐ ابتدائي

☐ بدون تعليم رسمي

☐ جامعي أو أعلى

☐ ثانوي (ثانوية)

5- اسم الحيوان المستخدم في العلاج:

الاسم المحلي / الشائع:

6- الجزء المستخدم من الحيوان:

☐ اللحم ☐ الدهن / الشحم ☐ العظام ☐ القرون / الحوافر ☐ عسل ☐ سم النحل

☐ الحليب ☐ الدم ☐ لحم الحصان ☐ بول الناقة ☐ شمع النحل ☐ قشور البيض

الأعضاء الداخلية (يرجى التحديد):

المنتجات الثانوية (يرجى التحديد):

7- المرض أو المشكلة الصحية المعالجة:

اسم المرض باللغة العامية:

8- طريقة التحضير والاستخدام:

كيف يُحضّر العلاج؟

طريقة الاستخدام:

9- الجرعة:

ما هي الجرعة؟

10- مدة العلاج؟ أسبوع ☐ أسبوعين ☐ شهر ☐ شهرين ☐

11- هل لاحظت تأثيرا إيجابيا بعد استخدام علاج حيواني؟

نعم ☐ لا ☐ ربما ☐

12- هل تستشير الطبيب قبل أو بعد استخدام العلاجات الحيوانية؟

نعم ☐ لا ☐

13- هل تؤيد تنظيم أو منع استخدام الأنواع المهددة بالانقراض في الطب التقليدي؟

نعم ☐ لا ☐

14- هل سبق أن تعرضت لأعراض جانبية (حساسية، عدوى، تسمم)

نعم ☐ لا ☐

وضح ذلك؟

15- هل تعتقد أن استخدام منتجات حيوانية قد ينقل أمراضا؟

نعم ☐ لا ☐

16- مصدر هذه المعرفة:

معالج تقليدي آخر ☐ كتب أو مخطوطات قديمة ☐

موروث من الأجداد (التقاليد) ☐ خبرة شخصية ☐

أخرى:

17- هل تعتقد أن هذا العلاج فعال؟

نعم، فعال جدا ☐ نعم، فعال إلى حد ما ☐ لا أعلم ☐ لا، غير فعال ☐

18- هل توجد تحذيرات أو آثار جانبية معروفة لهذا العلاج؟

نعم ☐ (يرجى ذكرها):

.....
☐ لا ☐ ربما

19- هل يرتبط استخدام هذا الحيوان بمعتقدات أو طقوس خاصة؟

نعم ☐ (يرجى وصفها):

.....
☐ لا، إنه علاج مادي بحت

20- هل تعتقد أن فعالية العلاج ترتبط بـ:

الخصائص الطبيعية للمادة الحيوانية فقط ☐

قوة الإيمان والمعتقد في العلاج (الجانب الروحي) ☐

كليهما معاً ☐

21- هل يُستخدم هذا العلاج في منطقتك اليوم؟

نعم، يُستخدم بشكل واسع ☐

نعم، ولكن فقط من قبل كبار السن ☐

نادر الاستخدام ☐

لم يعد يُستخدم مطلقاً ☐

22- هل تعتقد أن الطلب على المواد الحيوانية يؤثر على الحياة البرية أو يهدد بعض الأنواع؟

نعم ☐ لا ☐ لا أعلم ☐

23- هل تشتري المواد الحيوانية من السوق / العطارين، أم تحصل عليها بنفسك من الحيوانات الأليفة / البرية؟ (يمكن اختيار أكثر من خيار):

السوق ☐ معالج تقليدي ☐ حيوانات أليفة ☐ الصيد في البرية ☐

مصادر أخرى:

24- هل تعتقد أنه من المهم توثيق هذا النوع من المعارف؟

نعم ☐ لا ☐

لماذا؟

25- هل سبق لك أن سمعت عن أبحاث ودراسات علمية تؤكد فعالية بعض العلاجات الحيوانية ؟

☐ لا

☐ نعم

26- إذا كانت الإجابة نعم فما هو مصدر هذه الدراسات ؟

أطباء/ باحثون ☐ جامعات/ مراكز بحث ☐ وسائل الإعلام ☐ الإنترنت

27- هل ترى أن دمج الطب التقليدي مع البحث العلمي يمكن أن يساهم في تطوير العلاجات آمنة ؟

☐ ربما

☐ لا

☐ نعم

28- هل تعتقد أن غياب الدراسات العلمية قد يشكل خطرا على صحة الإنسان؟

☐ أحيانا

☐ لا

☐ نعم