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Ethnopharmacological use of animals in traditional medicine in India

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Abstract

Ethnopharmacology, the study of the medicinal uses of plants, animals and other substances by indigenous cultures, plays a critical role in traditional healing practices worldwide. In India, traditional medicine systems such as Ayurveda, Siddha, Unani and tribal medicine have long utilized animals and animal-derived products for various therapeutic purposes. The use of animals in ethnomedicine encompasses a wide range of species, including mammals, reptiles, birds and insects, each with specific medicinal properties. These animals are often used for their bones, skin, organs and secretions, incorporated into remedies for ailments such as digestive disorders, inflammation and infections. This paper explores the ethnopharmacological use of animals in traditional medicine in India, evaluating the species used, preparation methods, therapeutic applications and the cultural significance of these practices.

Keywords: Ethnopharmacology; Traditional Medicine; Ayurveda; Siddha; Unani; Wildlife Conservation; Animal Derivatives; Indigenous Knowledge; India; Sustainable Practices

1. Introduction

India, with its rich cultural heritage, has long been a hub for traditional healing systems that rely heavily on natural resources. Among the most prominent systems are Ayurveda, Siddha and Unani, which form the foundation of health practices in India, alongside tribal medicine. These systems incorporate a wide range of plant-based and animal-based remedies. Ethnopharmacology - the study of traditional medicinal knowledge, has become an important area of research, especially in understanding how indigenous communities use natural products, including animal derivatives, to treat various ailments.

While plant-based remedies are widely recognized, the use of animals in traditional medicine in India is an equally important yet underexplored field. The role of animals ranges from the use of their body parts - such as bones, organs and skin, to more intricate preparations like secretions, venom and exudates. Despite the advances in modern medicine, many practitioners in rural and urban areas still turn to animal based remedies for chronic and acute health conditions.

The ethnopharmacological use of animals in traditional Indian medicine provides a valuable link to understanding the cultural and ecological relationships between human communities and the animal kingdom. However, this practice also brings forth significant ethical dilemmas. Many species used in traditional remedies are endangered or vulnerable and their exploitation raises concerns about biodiversity loss and species conservation. There is also the question of the sustainability of these practices in the modern world, especially in light of increasing conservation efforts and the ethical implications of using animal products for medicine.

This study aims to critically assess the diverse uses of animals in traditional Indian medicine, documenting the species involved, the therapeutic purposes and the methods of preparation. Furthermore, it explores the ethical and

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environmental challenges related to these practices and the potential for sustainable approaches in ethnopharmacology.

Aim and objectives

- To identify and document the animal species used in traditional medicine across various systems in India (Ayurveda, Siddha, Unani and tribal medicine).
- To examine the therapeutic applications of these animal-based remedies in treating common ailments.
- To investigate the cultural and spiritual significance of animals in traditional healing systems.
- To assess the ethical implications of using animals, particularly endangered species, in these practices.
- To analyze the potential for conservation-friendly and sustainable alternatives in animal-based ethnomedicine.

2. Literature review

India's traditional medicine systems, such as Ayurveda, Siddha and Unani, have a long history that integrates various natural resources, including plants, minerals and animals. These systems are based on the holistic understanding of health, emphasizing balance within the body, mind and environment. Ayurveda, perhaps the most well-known of these systems, incorporates animal products like milk, honey, bones and organs for therapeutic purposes (Patwardhan et al., 2011).

In Ayurveda, the use of animals is particularly prominent in the treatment of diseases related to the immune system, respiratory disorders, digestive issues and wounds. Siddha medicine, prevalent in Tamil Nadu, also incorporates similar animal-based remedies. Unani medicine, which has roots in Persian and Greek traditions, uses various animal parts like gallbladders and bile in its treatments for conditions such as fevers and digestive ailments (Iqbal et al., 2015).

Ethnopharmacology is the scientific study of how indigenous communities use plants, animals and minerals for medicinal purposes (Farnsworth et al., 1985). Various studies have highlighted the rich biodiversity of India and its relevance to traditional healing systems. Many animal species used in these systems are valued not only for their physical attributes but also for their spiritual and symbolic importance.

In Ayurveda, the cow is considered sacred and its urine is used in therapeutic concoctions for detoxification and immune support (Chaudhary et al., 2016). Similarly, the venom of certain snakes has been utilized in treating pain and inflammation (Patwardhan et al., 2010). However, the overharvesting of certain species for medicinal purposes has led to concerns about the sustainability and ethical implications of these practices.

A growing concern is the impact of traditional practices on wildlife conservation. Many species used in traditional medicine, such as tigers, rhinoceroses and various reptiles, are now threatened with extinction due to overexploitation (Jadhav et al., 2016). The international community has placed restrictions on the use of these species, but traditional practices often continue despite legal prohibitions.

The Indian government has enacted laws to protect endangered species, such as the Wildlife Protection Act (1972), which restricts the use of animal products derived from endangered species. However, there remains a gap in enforcement and traditional medicine systems continue to rely on these animals despite the ecological risks involved.

3. Research methodology

- **Research Design:** This research employs a mixed-methods approach, combining qualitative and quantitative data collection techniques. The study is primarily exploratory, aiming to gather in-depth insights into the use of animals in traditional medicine in India.
- **Field Surveys:** Ethnobotanical surveys are conducted in various regions of India, with a focus on rural areas where traditional medicine is still practiced. Interviews are conducted with practitioners of Ayurveda, Siddha, Unani and tribal healers.
- **Literature Review:** Comprehensive reviews of both primary and secondary sources were undertaken, including scholarly articles, books, government reports and ethnopharmacological databases.
- **Interviews:** Semi-structured interviews with traditional healers and conservation experts, provided qualitative data regarding the use of animals in medicinal practices.

- **Ethnopharmacological Surveys:** The surveys gathered information on animal species used, preparation methods and specific therapeutic applications. Traditional healers provided first-hand accounts of the role of animals in their healing practices, including challenges and ethical considerations.
- **Secondary Data:** A review of existing literature on ethnopharmacology, conservation policies and cultural studies complemented the primary data.
- **Data Analysis:** Data was analysed using thematic analysis for qualitative data and statistical methods for quantitative data. Species identification, therapeutic uses and preparation methods were categorized to identify patterns across different traditional practices.

4. Discussion

The research finds that animal products, including honey, milk, venom and organs, are still heavily utilized in traditional medicine. While some species are sustainably used, the demand for rare and endangered animals remains a challenge. Species such as tigers, rhinos and certain reptiles are at risk due to overharvesting. The overuse of certain species for medicinal purposes raises ethical concerns. The traditional reliance on animals such as rhinoceroses and tigers for their parts is problematic, particularly in the context of biodiversity conservation. The use of these animals is not only illegal but also detrimental to the ecosystem.

The increasing use of animals in traditional medicine has raised ethical and sustainability concerns. The demand for rare and endangered species, coupled with the lack of regulation, has led to concerns regarding the illegal trade of animal products. Conservationists have expressed concerns about the ecological impact of extracting animals from their natural habitats, particularly those species classified as endangered or vulnerable. Additionally, some practices, such as the collection of bile from live bears or the use of live animals in certain rituals, have led to ethical debates about animal welfare. The growing awareness of these issues has prompted a shift toward sustainable practices and the need for conservation efforts.

While traditional knowledge of animal-based medicines has been handed down through generations, modern scientific research has increasingly been directed toward validating and understanding the medicinal properties of these animal-derived substances. Studies have shown that many animal products do contain active compounds that have pharmaceutical potential. Conservation measures, including the use of synthetic or alternative substitutes, can offer a sustainable path forward. Encouraging the use of plant-based alternatives or lab-synthesized compounds could help reduce the pressure on endangered species. Additionally, educating communities about sustainable practices can promote a balance between traditional knowledge and ecological preservation.

One of the key challenges facing the integration of animal-based traditional medicine into mainstream healthcare is the loss of biodiversity. Many of the animals used in these practices are either endangered or face the threat of extinction due to overexploitation. It is crucial to develop strategies that balance the need for medicinal use with the conservation of wildlife. Furthermore, the commercialization of traditional medicine poses risks to the authenticity of these practices, as the mass production of animal-based remedies can lead to the exploitation of animal populations. Collaborative efforts between ethnopharmacologists, conservationists and regulatory bodies are necessary to ensure that animal-based traditional remedies are sourced sustainably and ethically.

5. Conclusion

The ethnopharmacological use of animals in traditional medicine in India is a fascinating and complex subject, deeply intertwined with the country's cultural, spiritual and ecological contexts. Animal-derived substances have played a significant role in treating various ailments and maintaining health in Indian traditional medicinal systems, such as Ayurveda, Siddha and tribal healing practices. Despite the broad scope of animal products used in these systems, there is a growing need to address the ethical, conservation and sustainability issues surrounding their use. Ethnopharmacology offers valuable insights into the pharmacological potential of animal products, but it also necessitates careful scrutiny to ensure that these practices do not harm the very species they rely on. The role of animals in traditional medicine is undeniably important, but it is imperative to approach the subject with an understanding of the need for conservation, ethical treatment of animals and scientific validation. The future of ethnopharmacology lies in the sustainable and ethical use of animal products, coupled with scientific research to unlock their potential. Collaborative efforts to preserve biodiversity and protect endangered species, while ensuring that traditional knowledge systems are respected and preserved, will contribute to a more balanced and harmonious approach to healthcare in India and beyond. The challenge now is to integrate these ancient practices with modern scientific principles in a way that respects both human health and the environment.

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