A CRITICAL REVIEW ON ANIMAL PRODUCTS USED IN THE INDIAN TRADITIONAL SYSTEM OF MEDICINE

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ABSTRACT

As per the World Health Organization (WHO) as much as 80% of the world population primarily relies on animal and plant-based medicines. India is considered to be one of the top 12 megadiverse countries of the world with a rich flora and fauna diversity. The Allopathy and Indian traditional system of medicine basically works towards the humans and animals healthcare in which drugs derived from plants, animals and minerals sources are being used abundantly. The comprehensive study of Ayurveda, Siddha and Unani system (ASU) reveals that since ancient time animal products are promisingly used for various ailments. In Ayurveda one can found a detailed description of many domestic and aquatic animal products whereas the Unani system of medicine has described near about 200 drugs of animal origin. They are basically used singly as entire organisms or in the form of compound formulations. Animal products like flesh, fat, bones, excreta, teeth, feathers, hair, horns and shells has been mostly quoted under medicines. This article highlights the role of animals and their products in the therapeutic preparation of Indian traditional system of medicine.

Key words: Animals, Animal products, Ayurveda, Medicine

INTRODUCTION

India is considered to be among the top 12 mega diverse countries of the world as it is endowed with a rich floral and faunal diversity. Since time immortal, this diversity is a part and parcel of food, cloth and medicine resources for human beings.¹ The World Health Organization (WHO) defined that more than 80% of the world's population depends on traditional system of medicine, which is an ancient and culture-bound medical practice existed in human societies before the modern science of health.² However, the modern as well as Indian traditional system of medicine all together works for healthcare measures of humans and animals. In their therapeutic preparation, one can found the amply use of plants, minerals and animal products. The animal products like hooves, skin, bones, feathers and tusks etc. of domestic as well as wild animals are used for the curative, protective and preventive medicine.³ The classical text of Ayurveda like Charaka Samhita⁴, Sushruta Samhita⁵, Ashtanga Hridaya⁶ and Ashtanga Sangraha⁷ has been mentioned many animal products along with their properties and therapeutic application in diseases in
scattered manner throughout the various chapters and parts of *Samhitas*. Thus, systemic study of these animal products mentioned in traditional system is an attempt to provide precise information on their uses and application.

**MATERIAL AND METHODS:**
The classical literature of *Ayurveda, Siddha* and *Unani* system along with published articles related to ethno-medicinal study of traditionally used animals was scrutinized and then data was critically analyzed. The taxonomical classification of 156 animals is mentioned in table 1, whereas 30 most common animal products with zoological and vernacular names and their therapeutic action and medicinal uses are placed at table 2.

| Table 1: Taxonomical classification of animals resources used in Indian traditional system of medicine |
|---|---|---|
| Sr. No. | Classification | No. of animals |
| 1. | Phylum: Chordata | |
| | Class: Mammalia | 54 |
| | Aves | 50 |
| | Reptilia | 12 |
| | Amphibia | 2 |
| | Osteichthyes | 2 |
| | Chondrichthyes | 1 |
| 2. | Phylum: Mollusca | |
| | Class: Gastropoda | 3 |
| | Pelecypoda | 2 |
| | Cephalopoda | 1 |
| 3. | Phylum: Analida | |
| | Class: Hirudinea | 1 |
| | Oligocheata | 1 |
| 4. | Phylum: Porifera | |
| | Class: Demospongiae | 1 |
| 5. | Phylum: Arthropoda | |
| | Class: Insecta | 21 |
| | Diplopoda | 1 |
| | Crustaceae | 3 |
| | Arachnida | 2 |

| Table 2: Use of animal parts in traditional system of Indian medicine |
|---|---|---|---|
| Sr. No. | Zoological Name | Vernacular Name | Animal product |
| A. | Phylum: Chordata | |
| i | Class: Mammalia | |
| 1. | *Bos indicus* | *Gou* (S), *Gai* (H), *Cow* (E) | Milk and its products, urine, dunk, bile and horn. | Anti-epileptic, anthelmintic, antileprotic, antioxidant, anti-hemorrhagic, aphrodisiac, nutritious, antimalarial, antivenom etc. Abdominal stone’s small piece used orally to cure asthma. |
| 2. | *Bubalus bubalis* | *Mahisha* (S), *Bhains* (H), *Buffalo* (E) | Milk, flesh, urine, bile and whole organism | Cardiac stimulant, aphrodisiac, phlegmatic, anti-inflammatory and anti pilatory, anti-spasmodic, antileprotic, carminative and anti- insomnia. |

Ghee
3. **Equus caballus**  
*Vaji* (S), *Ghoda* (H), *Horse* (E)  
Urine, milk, flesh, dunk and blood  
is beneficial in bleeding disorders and flesh is used in insomnia and also as a sex tonic.\(^{13}\)

4. **Elephas indicus**  
*Hasti* (S), *Haathi* (H), *Elephant* (E)  
Tooth, tusk, milk, urine, flesh, dunk, nail, bone, bile, skin and excreta.  
Aphrodisiac, nutritious, appetizer, anti-inflammatory, antifebrile, Anthelmintic and skin disease.\(^{14}\) In leukoderma its urine is used for internal and external application.\(^{15}\)

5. **Equus hemionus**  
*Khara/Gardhabha* (S), *Ghorkhar/Gadha* (H), *Donkey* (E)  
Flesh, milk, urine, dunk, fat, liver, lungs, male organs, hooves and bones.  
Anti-asthmatic, appetizer, anthelmintic, calculus, antiepileptic and antimenic and used in general debility and bleeding disorders.\(^{16}\)

6. **Camelus dromodarius**  
*Ushta/ Karabha* (S), *Unt* (H), *Camel* (E)  
Mil, urine, flesh, fat, lungs, Bone marrow, hair.  
It is having anti-inflammatory, depilatory\(^{17}\), laxative, anti-toxic, expectorant\(^{18}\), anti-convergent, cardiac stimulant, wound healing properties. The Camel milk along with powder of *Sonthi* (*Zingiber officinale*), *Pippali* (*Piper longum*) and *Maricha* (*Piper nigrum*); collectively called as *Trikatu* is used in ascites.\(^{19}\)

7. **Capra aegagrus**  
*Aja/ Chhaga* (S), *Bakri* (H), *Goat* (E)  
Flesh, milk, urine, excreta, hair, bile, testis, kidney, lung, horn, hooves, brain, blood, liver, bone and teeth  
Nutritious\(^{20}\), appetizer, anti-inflammatory, carminative, anti-coagulant, mild laxative, anti-emetic, antileprotic, anti-febrile, aphrodisiac, blood disorders, anti diarrheal, Tuberculosis\(^{21}\) etc. Urine is used in asthma, Tuberculosis, paralysis and the milk is used for mouth ulcers.\(^{22}\)

8. **Ovis vignei**  
*Avi/Mesha* (S), *Bhed* (H), *Sheep* (E)  
Mil, flesh, Urine, fat, blood, liver, heart, brain, kidney, bile, excreta, bone  
Anti-inflammatory, analgesic, urinary infections, URTI, brain tonic, intestinal ulcers, gonorrhea. Curd is beneficial in piles and ash of bone used in diarrhea and hemorrhages.\(^{23}\)

9. **Antilope cervicapra**  
*Mriga* (S), *Hirana* (H), *Black Buck* (E)  
Flesh, fat, testicles, milk, excreta and horn  
Anti-leprotic, aphrodisiac, nerve tonic, appetizer, and constipative. Horn ash is nutritive and demulcent used in upper respiratory tract infection (URTI).\(^{24}\)

10. **Moschus moschiferus**  
*Kasturi Mruga* (S), *Kasturi* (H), *Musk Deer* (E)  
Musk pod of matured male musk deer  
Antispasmodic, cardio protective, expectorant, diaphoretic, diuretic, laxative, aphrodisiac. Moreover, *Kasturi* is used as one of the important ingredient in Ayurveda formulations like *Nagavallbha Rasa*, *Brihata Kasturi Bhairava Rasa*, *Vatakulantaka Rasa*, *Kasturyadi Gutika* etc.\(^{25}\)

11. **Mus rattus**  
*Mushaka* (S), *Chunha* (H), *Rat* (E)  
Flesh, fat, urisa (excreta), liver  
Cardiac stimulant, lithotrictic, anti-epileptic, used in alopecia and medicated tail prepared from whole organism called as *Mushakadi Tailam* used in rectal and uterine prolapse.\(^{26}\)

12. **Fel bovies**  
*Vrishabha* (S), *Bail* (H), *Ox* (E)  
Ox gall, penis, testicles, excreta, fat, bile  
Aphrodisiac, laxative, stomachic, antiseptic, anti-epileptic, antipyretic. In Unani system soup of testicles and penis recommended for enhancement of vigor.\(^{27}\)

13. **Cervus dama**  
*Mriga Shringa* (S), *Horn*  
It is having Anti-inflammatory, analgesic, anti-
| Class: Aves | Gallus domesticus | Tamrachuda (S), Murga (H), Hen/cock (E) | Flesh, egg, eggshell, liver, brain, testis, gizzard, bile, excreta, hairs | Aphrodisiac\cite{29}, diaphoretic, nutritious, hematnic, expectorant, anti-tussive, astringent used in wound and burns. Cock’s flesh soup is used to boost up the sex stamina.\cite{30} |
| Class: Reptilia | Naia tripudians | Naga (S), Saanp (H), Snake (E) | Poison, scale, flesh fat bile egg whole organism | Hepatic stimulant and antiepileptic; snake venom is an ingredient in Suchika Bharana Rasa which is used for fever with cerebral complications and tendency to cardiac failure. It is also used in diagnosis of cancer (formachidis test).\cite{34} |
| Class: Pelecyopoda | Xanchus pyrum | Shankha (S), Shankha (H), Conch (E) | Conch shell | It is used in the treatment of indigestion, hyper acidity, diarrhea, splenomegaly, URTI, Ear –Nose-Throat (ENT) diseases, gonorrhea, and Jaundice. Tablet made up of Shankha Bhasma (Ash) called as Shankha Vati is used in decreased appetite, dyspepsia and other Gastro intestinal disorders.\cite{37} |
| Class: Pelecyopoda | Ostrea edulis | Shukti/ | Whole part | It is well known and mostly used in abdominal tu-
<table>
<thead>
<tr>
<th>No.</th>
<th>Animal Product</th>
<th>Sanskrit Name</th>
<th>Hindi Name</th>
<th>English Name</th>
<th>Diseases/Traits</th>
</tr>
</thead>
<tbody>
<tr>
<td>23.</td>
<td>Pinctada margaritifera</td>
<td>Mautikam (S), Moti (H), Pearl (E)</td>
<td>Pearl/ shell</td>
<td>Same as per above, it is used as a carminative, aphrodisiac, cardio tonic, nutritious, as an antidote etc in Ayurveda.</td>
<td></td>
</tr>
<tr>
<td>24.</td>
<td>Sepia officinalis</td>
<td>Samudraphen (S), Dariya Ka Kaf (H), Cuttle fish bone (E)</td>
<td>Fish bone Sepia succus inscription from ink sac</td>
<td>Astringent, carminative, local sedative, good source of calcium It is used for qualitative and quantitative enhancement of semen.</td>
<td></td>
</tr>
<tr>
<td>25.</td>
<td>Corallium rubrum</td>
<td>Praval (S), Munga (H), Coral (E)</td>
<td>The calcareous shell (skeleton)</td>
<td>Antacid, astringent, nerve tonic, laxative and diuretic. Coral ash is used in abdominal tumors, tuberculosis (Rajayakshma), and hyperacidity (Amlapitta) etc.</td>
<td></td>
</tr>
<tr>
<td>26.</td>
<td>Pheretima posthuma</td>
<td>Bhu nega (S), Kachua (H), Earth worm (E)</td>
<td>Whole organism</td>
<td>Diuretic, analgesic, aphrodisiac, lithotriptic, anti-inflammatory, anti-venom, general tonic. Bhu negadi Lepa is an Ayurvedic preparation used for fistula in ano.</td>
<td></td>
</tr>
<tr>
<td>27.</td>
<td>Apis mellifica</td>
<td>Madhumakshika (S), Madhumakkhi (H), Honey bee (E)</td>
<td>Wax, honey, whole organism</td>
<td>Astringent, demulcent, laxative, anti-pyretic, hematemesis, leukoderma, gonorrhea, carminative, ENT diseases Honey is used as medicine as well as vehicle in the treatment of many diseases like URTI, wound, obesity, Prameha (diabetes) etc.</td>
<td></td>
</tr>
<tr>
<td>28.</td>
<td>Chlamydolycus tribeatus</td>
<td>Khadyota/ Jyotirlinga (S), Juganu (H), Fire fly (E)</td>
<td>whole organism</td>
<td>Analgesic, depilatory, good for eye diseases. Firefly taken with Hingu (asfaoetida) in renal calculi and night blindness.</td>
<td></td>
</tr>
<tr>
<td>29.</td>
<td>Hedrurus hirsutus</td>
<td>Vrishchika (S), Bicchu (H), Scorpion (E)</td>
<td>Whole organism</td>
<td>It is having Anti-poisoning, stimulant, anti-tussive, antileprotic properties. Vinegar added with dried scorpion’s powder in used for external application in vitiligo and alopecia.</td>
<td></td>
</tr>
<tr>
<td>30.</td>
<td>Scylla serrate</td>
<td>Karkataka (S), Kekda (H), Crab (E)</td>
<td>Bone and flesh</td>
<td>Carminative, laxative, hematinic, diuretic, cardiac stimulant, tonic and aphrodisiac. Karkataka bone ash is used in constipation, tuberculosis and neurological disorders.</td>
<td></td>
</tr>
</tbody>
</table>

(S- Sanskrit name, H- Hindi name, E- English name, OBSERVATIONS AND RESULTS: This study was conducted through the review focused on animal products used in ASU system. It was observed that, as much as 156 animal species have been reported in classical literature and in traditional practices as therapeutic measures to treat numerous dis-
eases. Animals from the phylum Chordata were mostly utilized in traditional healthcare practices. The whole organism or its distinct body parts like urine, excreta, blood, and flesh has been commonly used in treatment.

**DISCUSSION**

Since centuries, in Indian traditional system of healthcare practices plants are used abundantly but animal products are used very less. However, intake of milk and milk products and their important role in the restoration of health is having inseparable relation is our traditional heritage. And the medicinal properties of milk, milk products and other animal products like blood, urine and excreta of domestic and wild animals has been well known to our Ayurvedic scholars and they are used in many therapeutic preparations and also recommended for wholesomeness and unwholesomeness (*Pathya-Apathya*) for specific diseases. Even, many animal products are simply used as a main ingredient in the preparation of ASU drugs (few examples are quoted in table 2). On the other hand, it is known fact that, many research articles has been published on therapeutic uses of animal products in ethnic groups belonging to different regions of our country. It is mentioned that, in local traditional healthcare practices of India near around 109 animals were used for about 270 different conditions/aliments and maximum numbers of animal species were recorded for the treatment of respiratory system related problems followed by musculo-skeletal system problems like rheumatic pain. The mammals were reported as the highest number of animals used for medicinal purpose followed by invertebrates and birds. Moreover, a book published by the Central Council for Research in Ayurvedic Sciences in 2008 provides in depth info on all around 160 animal species.47,48

It is fact that, a major portion of existing non-synthetic or semi-synthetic drugs are derived from plants, animal, microbial, and mineral products. However, phyto-chemistry and phyto-pharmacology of many plant remedies has been systematically explored but, actual bio-scientific evaluations of animal origin remedies are relatively rare.49-51 Moreover, the conditions like rapid human population growth, deforestation and urbanization and others are responsible for declining of natural resources and ultimately leading to drastic reduction in animal’s population. Thus, more or less therapeutically important species such as Musk deer, Dolphins, Indian Flap Shell, Turtle and Coral etc. have been enlisted under vulnerable category by Red Data Book of Indian Animals which ultimately indicates need for their conservation and sustainable utilization.52 There is need for prioritization of the therapeutically important animal products so that they can be utilized judicially.

**CONCLUSION**

A systemic review of classical text of Ayurveda provides unique database of around 160 animal species in the Indian traditional system of medicine. Among them around 30 animal species and their products are most commonly used in traditional practices. But, it seems to be impossible to utilize animal product based practices due their vulnerability. However, without disturbing the eco-system and judicial exploration of animal products through clinical research to find out their therapeutic efficacy in incurable diseases followed by their utilization may lead genuine cause for betterment of human life.

**ACKNOWLEDGEMENT**

The author(s) are grateful to the Director General and the Deputy Director General, Central Council for Research in Ayurvedic Sciences (CCRAS), Ministry of AYUSH, Govt. of India for their constant support. We are also thankful to the Director of Research and Head of the department of Veterinary Pharmacology and Toxicology, Guru Angad Dev Veterinary and Animal Sciences University (GADVASU), Ludhiana, Punjab for their support and encouragement.

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Source of Support: Nil
Conflict Of Interest: None Declared