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REVIEW ON THERAPEUTICALLY USED ANIMALS AMONG DIFFERENT TRIBES AND COMMUNITIES OF NAGALAND

Zoology

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ABSTRACT

Since ancient times, different tribes and ethnic communities of India uses different animals traditionally to treat various ailments and diseases. Since the decades, various documentations on the ethno-botany had been done but compact data on zoo-therapeutically usage of animals is not sufficient. This review aims to view traditional usage of animals and animal-derived products in different tribes and communities in context of Nagaland. Since the ages of Charak Samhita, usage of animal products is common in India. Due to the broad geographical distribution, variation in climatic conditions and historical background of different castes and communities, India is till now considered as the realm of ethno-biology and ethno medicine. Zoo-therapeutic knowledge is centric to domestic animals mostly but some protected species like peacock are sometimes considered as zoo-therapeutic resource.

KEYWORDS

Ethno zoology, Zoo-therapeutic, protected species, Chakhesang tribe , animal products.

INTRODUCTION

Nature had blessed the human beings in every aspect of their life, starting from food, cloth, shelter and medicine. The potential of the human beings to use and explore the natural resources provided by nature has made the human beings the most dominant animal in this earth. Throughout history, human beings have interacted directly or indirectly with their environment in a number of ways. This has led to the development of historical relationship with the natural resources that are extremely important to the human societies. The study of relationship between the human societies and the animal resources around them is known as ethno-zoology(Alves RR,2005). Zoo therapy is an important component of ethno-zoology. Using faunal resource in curing human ailments is regarded as zoo-therapy (Costa-Netur EM.2005). According to the world health organisation, estimates that as many as 80% of the world's population rely primarily on animal and plant based medicine(Alves and Rosa 2010).

India had been a realm of diversity, not only it is rich in natural resources but also it is rich in so many tribes and communities. In India, different tribal and ethnic communities are spread all over the country. Nearly 18.5% of the total tribal populations in India are represented by Indian Himalayan Region (Tripti Negi et.al,2017). Since times immemorial, the uses of plant and animals, their products as a medicine has been carried out by the different ethnic and tribal communities of india. The uses of animals in traditional medicine has also been documented in works like Ayurveda and Charaka Samhita (Tripti Negi et.al,2017). The people belonging to these communities have developed high level of expertise to explore the medicinal value of plants and animals. They are highly dependent on the traditional system of medicine to treat various ailments and diseases. This traditional knowledge on zoo-therapeutic uses of animals are passed into generation to generation. Although, actual science behind such usage remains unexplored yet, ethnic groups mostly rely on such resources. Knowledge variation across and within cultural groups has not yet been given due attention (Sonowal,C.J and Praharas,P, 2007). Nearly 15-20% of the Ayurvedic medicine is based on animal derived products(Holennavar.PS.2015). Research interest and activities in the area of ethno-biology and ethno medicine have increased tremendously since last decade (Holennavar.PS, 2015). Further studies are necessary to determine the presence of bioactive substances in these traditional ethno medicines. Zoo-therapy is an exploring field now a days globally but sustainable uses of animal resources are necessary.

GLOBAL TREND OF ANIMAL USE IN DIFFERENT TRIBES AND COMMUNITIES FOR THERAPEUTIC PURPOSE

Globally in most of the countries, especially those countries which harbour ancient civilizations, there therapeutic usage of animals is commonly seen. It includes head louse to leech to sometimes protected species like peacock. It is found that China uses around 1500species of animals for therapeutic purpose. It is found that nearly 350 animal species (including 176 terrestrial vertebrates) are involved in traditional Brazilian medicine (SouzaJB, Alves.RRN, 2014).Starting from amphibian (Bufonidae family) to mammals (Myrmecophagidae) are used for treating rheumatism to allergy in various cases. In latin America, 584 medicinal animal species have been recorded (Alves and Rosa,2005; Alves and Alves.2011). In Mexico over 100 animal species have been recorded for medicinal purposes (Jacobo-Salcedo et al.2011). In Pakistan, a study was conducted in 2014-2015 in the vicinity of river Chenab ,reported usage of 28 bird species and 30 animal species to treat various disease including skin infection , sexual weakness etc among the inhabitants .In mammals 23% recipes were used to treat skin infection followed by sexual problems and rheumatic disorders(20 and 14 respectively), whereas for birds , highest percentage recipes were used to treat body weakness (Altaf et al.2017). Scales of Indian Pangolin, milk of goat is used as sexual tonic. Some species were found to be used in treating piles, Blood pressure, Head ache, Asthma (Altaf et al, 2017).It was found that Chinese use earthworms to treat diseases nearly 4000 years ago (Altaf et al., 2018). More than 500 species of invertebrates are used to cure both common and complx illness in India. Chitosan, derived from exoskeleton of insects are globally used as anticoagulant (Goodman.WG, 1989). Potential anticancer drugs have been derived from Asian Sulphur Butterfly and Taiwanese slag beetles (Kunin.W.E,1996).A FIELD SURVEY IN Santa Cruz do Capibaribe , Brazil suggests a total of 37 species including 29 families are found to be used to treat 51 different ailments (Alves et al.,2008). A ethno-biological study of Kala Chitta hills of Pakistan reports traditional usage of 65 animal species (Arshad et al,2014). A survey on Awajun community of Peru reports usage of at least 12 insect species including Rhynchophorus palmarum, Atta cepholotes being the most important(Lukus Pawera et al,2018). A survey on Burkina Faso of the Sudanian zone reveals usage of 7 edible insect species among the inhabitants(Aminata Sere et al,2018).Common Opposum is used as medicine for the people living in the Amazon (Flavio Bezerra,2014). Among the indigenous people of Metema Woreda, North Western Ethiopia , usage of 51 species of animals to treat 36 different ailment were noted. Among them, 27 are mammals, 9 species of birds, 7 species of arthropods, 6 species of reptiles and 1 species each of fish and annelids as reported (Fasil Adugna kendie et al,2018). Among the mestizo communities of San Juan, Argentina, it was found that total seven species of animals including lama, puma, lepus and their several body parts are used to treat 22 ailments (Jorge Harnandez et al.2015). Traditional usage of 18 invertebrate species to treat diseases of skin

and subcutaneous tissue and infectious livestock disease ,disorders of eye and adnexa found in Spanish ethno-veterinary medicine (Jose Antonio Gonzalez,2016).A survey reveals a total of 31animal species are used medicinally in Crato and Juazerio do Norte, Ceara, Brazil. It includes 8 species of insects, 7 species of mammals, 5 species of fish, 5 species of reptile and 4 species of birds to treat a total 24 ailments including rheumatism, asthma etc(Felipe S Ferreira et al, 2009). In the Mediterranean island of Sardinia,14 animal products are noted as ethno-medicine (Simonetta Bullitta et al,2018). So the global trend shows that animals are considered as integral part in ethno-medicine irrespective of different tribes, communities or their origin globally.

METHODOLOGY

In different parts of the north east India, ethno-zoological studies were conducted by different investigators involving different tribes and communities of that area. Most of the cases it includes a large sample size of local tribes and communities and they are interviewed with same set of questionnaire. Their answers are noted and compared with other collected data. Most of the cases ethno-zoological study is done community or tribe-wise separately. During such sampling large sample size is needed to avoid error in sampling process.

ETHNO-MEDICINAL USAGE OF ANIMALS AMONG DIFFERNT NORTH-EAST INDIAN TRIBES AND COMMUNITIES

1. USAGE OF ANIMALS AMONG DIFFERENT TRIBES AND COMMUNITIES OF NAGALAND:

(a) Chakhesang tribe of phek district :

Chakhesang tribe resides on the eastern most part of Nagaland mainly confined to the phek district. The study on the zoo therapeutic usage of animals to treat various malady among chakhesang people revealed usage of total 24 animal species and their products (L.N Kakati and V.Doulo, 2002). Out of 23 animal species 12 species of mammals (constituting 50% of the animal use), 4 species of arthropda, 2 species of amphibian, 1 species of reptiles,fish,mollusc,annelids each have been noted. The usage of animals among chakhesang tribe of Nagaland is discussed with the help of following table: (after L.N Kakati and V. Doulo, 2002) –

SL	ANIMAL GROUP	SCIENTIFIC NAME	COMMON NAME	PART USED	DISEASE TREATED	PRESCRIPTION	STATUS
1.	Mammal	*Selenarctos sp*	Bear	Gall bladder, penis, hair, fat	Wound,thorns in flesh,gestation/child, skin burn	Applied over the wounds,With the help of penis it is easy to remove the thorns, Hair is roasted, dissolved in water and orally administered.	Endangered
2.	Mammal	*Maschus sp.*	Deer (musk deer)	Urine, blood, blood	Ear swelling pain, stomach pain, anaemia	Urine is used as ear drops till the disease is cure, blood is orally administered, blood is orally administered.	Endangered
3.	Mammal	*Hystrix sp*	porcupine	Spine, small intestine, stomach	Pain during bone fracture, gastritis, fever.	Spine is roasted and orally administered to reduce the pain, intestine is boiled with water and orally administered, fried and powdered the stomach, boiled and orally administered.	Rare
4.	Mammal	*Pteromys sp*	Flying squirrel	Urine, flesh, hair	Urethritis, constipation, cough, gestation, skin burn	urine is orally administered or mix with rice for preservation, powdered, and dissolved in water and taken	Commonly available
5.	Mammal	*Funambulas*	Squirrel	Flesh	Cough	Flesh is cooked and consumed	Commonly available
6.	Mammal	*Entomias sp (chipmunk)*	Squirrel	Flesh	Cough	Flesh is cooked and consumed	Commonly available
7.	Mammal	*Felix sp*	Wild cat	Flesh	Swelling of body, fever/malaria	Flesh is cooked and consumed	Endangered
8.	Mammal		Wild rat	Flesh	Cough, asthma, stomach pain (during child birth)	Flesh is cooked and consumed	
9.	Mammal	*Sus crisatus*	Wild boar	Flesh	Stomach pain	Flesh is cooked and consumed	Rare
10.	Mammal	*Manis tricuspis*	Ant eater	Scale	Skin burn/scars	Scale is roasted and locally applied over the burn skin	Endangered
11.	Mammal	*Cervulus sp*	Deer (barking deer)	Bone marrow	Bone	With marrow it is massage over the affected area	Endangered
12.	Mammal	*Macaca sp*	Monkey	Flesh	Cough	Flesh is cooked and consumed	
13.	Arthropoda	*Cancer pararus*	Crab	Whole body, whole body, flesh	Urethritis, malaria/cough, earache, stomach pain	Crashed, dissolved in water and orally administered, cooked, extract the soup and orally administered, crashed, extract the liquid and 2-3 drops administered into the ear, Flesh is cooked and consumed	Commonly available
14.	Arthropoda	*Apis indica*	Bee	Honey	Deep wound, cough	Honey is locally applied over the wound, honey is orally administered	Commonly available
15.	Arthropoda	*Myrmeleonim maculatus*	Ant lion	Whole body	Wart	Body is crashed and locally applied over the infected area.	Commonly available
16.	Arthropoda	*Podisus sp*	Plant bug	Whole body	Cough	Body is roasted and consumed	Commonly available
17.	Aves	*Aquila sp*	Eagle	Feather	Wound	Feather is locally applied over the wound	Rare
18.	Reptile	*Hydrophis sp*	Snake	Liver, flesh, fat	Diarrhoea,dysentery, malaria typhoid Swelling of body, back pain, wound	Little portion of liver is mixed with water and orally administered, Flesh is cooked and consumed, Locally applied over the wound	Rare
19	Amphibia	*Limnonecties limnocharis*	Frog	Skin, flesh ,flesh	Skin burn, gastritis, tongue blisters	Flesh is cooked and consumed	Commonly available

20	Amphibia	*Bufo melanostictus*	Toad	Gall bladder	Thorns in the flesh	Gall bladder is locally applied over the affected area which make ease to take out the thorn	Commonly available
21	Pisces	*Barbus sp*	Fish	Slimy mucus	Chicken pox	Mucus is rubbed on the body to let the rash of the blisters comes out	Commonly available
22	Mollusc	*Pila sp*	Snail	Flesh, shell	Bone fractured, injuries gastritis, tongue blisters Skin burn	Flesh is crashed, boiled and drink. Also locally applied over the affected part, Flesh is cooked and consumed, Flesh is consumed raw, cooked and consumed, Shell is roasted, crashed and locally applied over the wound	Commonly available
23	Annelids	*Pheritima sp*	Earthworm	Whole body	Eye	Crashed and locally applied	Commonly available

b) AO TRIBE :

AO tribe generally inhabits the mokokchung district at the middle part of the Nagaland. A study was conducted on the zoo therapeutic usage of animals among AO tribe that documents the usage of total 25 animal species (L.N. Kakati et.al, 2006). Out of 25 animal species, the usage of mammals is the highest of about 14 species followed by 7 birds,2 reptiles and 1 species of amphibians and fish each have been documented. The usage of animals among AO tribe of Nagaland is discussed with the help of following table: (after L.N Kakati et.al, 2006) –

S. NO	ANIMAL GROUP	SCIENTIFIC NAME	COMMON NAME	PART USE	DISEASE TREATED	PRESCRIPTION
1	Mammal	Bubalus arnee	Buffalo	Fat	Body pain sprain, rheumatism	Applied externally as embrocating massager
2	Mammal	Felis sp	Wild cat	Flesh Bile	Asthma Liver cirrhosis	Flesh is cooked and eaten Boiled in water and taken.
3	Mammal	Elephas maximus	Elephant	Tooth	Leucoderma, itching eczema, ringworm	Crushed into powder and applied on skin, Crushed into powder and drink with water
4	Mammal	Petaurista petaurista	Flying squirrel	Intestine	Anti poison	Cooked and eaten
5	Mammal	Capra sibirica	Goat	Urine Liver Legs Milk	Asthma ,tuberculosis, paralysis,skin disease,stomach disorder. Jaundice, night blindness. Sprain, bone fracture General weakness	Drunk directly Cooked and eaten Lower portion of the legs cooked properly and eaten Drunk directly
6	Mammal	Bos frontalis	Mithun	Penis	Breast pain of lactating mother, skin disease	Properly cooked and eaten
7	Mammal	Herpestes sp	Mongoose	Penis	Male impotency	Properly cooked and orally taken
8	Mammal	Sus scrofa domestica	Domesticated pig	Fat	Body pain, rheumatism, burn, snake bite	Apply locally as embrocation/ massager Used as antidote
9	Mammal	Rhinolophus sp	Bat	Flesh	Asthma	Boiled in water and drunk
10	Mammal	Selenarctos sp	Bear	Bile	Malaria	Boiled in water and drunk
11	Mammal	Hystrix sp	Porcupine	Bile	Dysentery	Soaked in rice, dried and taken
12	Mammal	Macaca sp	Monkey	Blood	Tuberculosis	Fresh blood taken
13	Mammal	Pteropus sp	Flying fox	Urine	Kidney stones	Soaked in rice, dried and taken
14	Mammal	Talpa sp	Mole	Flesh	Asthma	Boiled in water and taken
15	Aves	Gallus sonnerati	Jungle fowl	Flesh	Asthma, breathing problem	Properly cooked and taken
16	Aves	Pavo cristatus	Peacock	Bone	Earache	Powdered, mixed with water and put drop wise in the ear
17	Aves	Columba livia	Pigeon	Flesh	General weakness	Flesh of young birds is cooked and eaten for early recovery
18	Aves	Gallus domesticus	Domestic fowl	Fat	Burn	Raw fat warmed and applied locally
19	Aves	Passer domestica	House sparrow	Flesh	Stammering	Boiled in water and taken
20	Aves	Corrus splendens	Crow	Flesh Bones	Rheumatism, paralysis Earache	Cooked and eaten Crushed into powder, mixed with water and applied in ear drop by drop
21	Aves	Aquila rapax	Eagle	Fat	Sprain, bone fracture, burn	Applied locally
22	Reptiles	Varanus bengalensis	Monitor	Skin Fat Bile duct	Piles Rheumatism body pain, piles, burn Spider and snake bite	Cooked and eaten Applied locally Taken orally as antidote
23	Reptiles	Testudo sp	Tortoise	Flesh	Skin disease, piles	Cooked and eaten
24	Amphibian	Rana sp	Frog	Skin	Wounds	Skin washed in water and applied
25	Pisces	Amphipnous cuchia	Eel	Blood	Asthma,general weakness	Fresh blood is drunk

DISCUSSION

From the tables above it is evident that those above mentioned tribes in Nagaland use different animals in therapeutic purpose based on their traditional knowledge. Bear, Musk deer ,wild cat, ant eater(*Manis sp*) are used among Chakhesang people for the treatment of various ailments even though they are endangered. In most of the cases it is found that these tribes use one particular animal in healing different ailments. As for example Chakhesang tribe uses wild cat in treating malaria whereas Ao tribe uses same animal to treat diseases like liver cirrhosis and Asthma. As literatures opines, honey is used in treating some common ailments like cough among Chakhesang people , so such usage is supported by knowledge of science rather than their traditional knowledge only as honey contains some biologically active substances that aid in healing ailments like cough. Likewise, feather of rare animal like Eagle are used in treating wound among Chakhesang people whereas Fat is used among Ao people to treat ailments like sprain, bone fracture, burn. Porcupine spine, intestine, stomach, Bile are widely used in ethno-medicine among both Chakhesang and Ao tribes for treating Gastritis and Dysentery respectively but no biologically active substance have been extracted yet to support such usage .Such usage of animals is not supported by science always. In some cases, usage of protected species like peacock is seen among Ao tribes which are against the rules of conservation biology although it is immense valuable in terms of traditional knowledge and ethno-medicine. Further research works are needed to determine the actual science behind such ethno-therapeutic usage of animals by investigating biologically active substances present.

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