



Research Article

MEDICO-ETHNOZOOLOGICAL STUDIES ON ANAMNIOTES FAUNA OF DEVIPATAN DIVISION OF UTTAR PRADESH, INDIA

¹*Sadguru Prakash and ²Dilip Kumar Yadav

¹Department of Zoology, M.L.K. (P.G.) College, Balrampur 271 201, U.P., India

²Department of Zoology, Kisan P.G. College, Bahraich, U.P., India

Article History: Received 24th August 2020; Accepted 22nd September 2020; Published 28th September 2020

ABSTRACT

The medico-ethnozoological survey was carried out in 46 village of Tharu community inhabited at Indo-Nepal border of eastern Uttar Pradesh. Interviews of local healers were conducted to collect the indigenous knowledge recording use of amniotes animals to cure the human diseases. Total of 24 species of anamniotes were identified as medicinal importance. Out of 24 amniotes, 11 are fishes, 4 amphibians and 9 are the reptiles. The low cost and almost no side effects of the ethnozoological preparations made them adaptable for use by the local communities particularly curing various ailments of human being. An attempt has been made to document the ethnozootherapeutics and folk claims

Keywords: Anamniotes animal, Ethnozoology, Tharu tribes, Devipatan division.

INTRODUCTION

Ethnozoology is a branch of anthropology that deals the relationship of animals to mankind. The most important aspect in this context ramifies as traditional mode of treatments of various kinds of ailments using animals and their products in a tribal community. Although inadequate, attempts have been made to elucidate medical significance of animals and their products in certain tribal communities from the Indian sub-continent (Azmi, 1991; Ghosh & Maiti, 1992; Joseph, 1982; Prakash *et al.*, 2017; Puri, 1970; Puspagandhan, 1990; Sharma, 1990; Sharma, 1993). The medico-ethnozoological system makes extensive uses of large number of drugs of animal origin. These remedies are beneficial or claimed to be so, in a variety of human ailments. The contemporary society may benefit much from the tribal experiences in its fight against disease and sufferings. However, this system is likely to suffer from drawbacks pitfalls and ostentations. It is high time to pay more attention to the animal Kingdom and record such animals before these eliminated from the area of their occurrence.

Devipatan division of eastern Uttar Pradesh lies between 26^o48' and 29^o24'N and 81^o30' and 82^o40' E and comprises 14,220.10 Km² (4.83%) area of U.P. Devipatan

division is bounded by territory of Nepal in North. According to 1991 census, the Tharu tribal population in Devipatan division was 24,670, mainly distributed in three districts Bahraich (6,110), Shravasti (3,340) and Balrampur (15,180). They live along Indo-Nepal border in about 46 villages and use many animal and plant species for healthcare practices and have enormous knowledge about their medicinal usage. The knowledge, which is mostly undocumented, is transmitted orally from generation to generation thereby restricted to a particular family, tribe, or section of society, which has led them to the verge of extension. Since due to various reasons, both natural resources and Tharu culture are depleting at an alarming rate, therefore, there is an urgent need to explore and document this unique and indigenous knowledge before it is lost forever. Keeping this in mind, the present study was undertaken for documentation of ethnomedicinal knowledge and folk claims of Tharu tribes.

MATERIAL AND METHODS

The extensive and intensive survey was made in Tharuhat (Tharu areas) of Balrampur, Shravasti and Bahraich districts of Devipatan division covering 46 villages to collect the ethnozoological information. All the

*Corresponding Author: Dr. Sadguru Prakash, Assistant Professor, Department of Zoology, M.L.K. (P.G.) College, Balrampur 271 201, U.P., India, Email: sadguruprakash@gmail.com

ethnozoological information and associated folk claims were collected either by contacting local healers (*Guruwa*), village headmen, elder person having thorough knowledge of animals and animal-based remedies. The knowledgeable persons were interviewed and various medico-ethnozoological aspects i.e. utilization, domestication and conservation practices for each animal were recorded.

RESULTS AND DISCUSSION

Fishes, amphibians and reptiles are cold blooded or poikilothermic animals and grouped into anamniotes animals. Tharu (inhabitants of Indo-Nepal border) tribal

peoples of 46 villages of Bahraich, Shravasti and Balrampur districts of Devipatan division of U.P. have belief upon traditional knowledge regarding medicinal use of different amniotes animals and their byproducts for curing different human diseases. This traditional knowledge is generally confined to the local healers known as *Guruwa* and elder person of village. In the present study total 24 amniotes animals were used to treat number of human diseases. Out of 24 amniotes, 11 are fishes, 4 amphibians and 9 are the reptiles. The information regarding medicinal application of amniotes animals and their body parts or byproducts used as drug against the different ailment has been presented in Table 1-3.

Table1. Medicinal use of Some Fishes by Tharu tribes of Devipatan division of U.P.

Name of Fish	Part (s) used	Mode of application	Nature of Ailments/ diseases
Order- Cypriniformes			
Rohu, <i>Labeo rohita</i> (Hamilton)	Liver	Boiled in water, soup drunk and remainder cooked and eaten once daily for 3weeks.	Night-blindness
	Scales/ Teeth/ Bones	Incinerated powdered mixed in honey and applied into the eyes at bed time.	Weak-sight, Eye troubles
	Gall Bladder (Bile)	Ground the gall bladder with water or 8-10 drops bile diluted in one glass of water and drunk in empty stomach once daily for about one month	Gastric enteritis / Gastric ulcer
	Flesh	Cooked with light spices and consumed 2 or 3 times per day, for about one month.	Galactoschesia, Whooping cough, Bronchitis, Loss of sexual vigour.
Mola, <i>Amblypharyngodon mola</i> (Hamilton)	Fat	Warmed, massaged externally thrice daily, for three weeks.	Facial Paralysis
Chilwa, <i>Chela bacaila</i> (Hamilton)	Whole body	Cooked with light spices and consumed once daily, for 2-4 weeks as required.	Chicken & small pox, Pain, Asthma
	Whole body	Boiled, squashed, macerated in water and taken twice daily, for one week	Weal- sight, Night blindness,
Order- Siluriformes			
Mangur, <i>Clarias batrachus</i> (Linnaeus)	Whole body	Cooked with black pepper and take orally twice daily, for two weeks	Body ache, Bronchitis Wound healing
Singhee, <i>Heteropneustes fossilis</i> (Bloch)	Whole body	Incinerated powder mixed with honey and applied on jaws of babies once daily, for two weeks.	Gum-boils, Teething problem
	Whole body	Cooked with black pepper and flesh consumed twice daily, for two weeks	Pain, Wound healing, Impotency
Pardhin,	Flesh	Cooked with light spices, soup taken in the morning and flesh consumed twice daily, for about one week.	Asthma, Breathing problem Tuberculosis
		Warm fat massaged on the lumbo-sacral region at	Loss of erectile power

<i>Wallago attu</i> (Schneider)	Fat	bed time once daily, for 6 weeks, thrice daily, for three weeks. Warmed and applied externally 2-3 times daily for about 3-4 days.	Burn, Wound, Foot cracks
Angler catfish <i>Chaca chaca</i> (Hamilton)	Flesh	Dried fish grinded and take with water once daily, for 4 weeks.	Asthma,
Order- Ophiocephaliformes			
Sal (Girai), <i>Channa punctatus</i> (Bloch)	Whole body	Oil extract applied on the eyes once daily, for one week. Cooked with light spices, soup taken in the morning and flesh consumed twice daily, for about one week.	Eye-ailments General weakness, Tuberculosis
Saure (Girai), <i>Channa striatus</i> (Bloch)	Whole body	Boiled in water and soup taken twice daily, for 6-8 weeks.	Diabetes, Pain, High BP
Girai <i>Channa gachua</i> (Hamilton)	Whole body	Dried powder mixed with honey and consumed once daily, for 4 weeks. Cooked with light spices and consumed twice daily, for 3 weeks.	Asthma, Tuberculosis Diabetes General debility
	Flesh	Boiled with black pepper and soup taken once daily, for one week.	Malaria
	Mucus	Dermal secretions are scrapped, dried and transformed into pills and taken twice daily, for one week.	Menstrual irregularity
Order- Synbranchiformes			
Kuchia (Eel), <i>Amphipnous cuchia</i> (Hamilton)	Flesh & Blood	Cooked with light spices, Drink raw blood	Aneamia, Asthma, General weakness,

Table2. Medicinal use of Some Amphibians by Tharu tribes of Devipatan division of U.P.

Name of Amphibians	Part (s) used	Mode of application	Nature of Ailments/ diseases
Frog, <i>Rana tigrina</i> (Linnaeus)	Flesh	Cooked fleshed is consumed once daily, for 6 weeks.	Asthma' Whooping cough' Improve vigour
	Fat	Warmed and applied externally twice daily, for 2 weeks. Warmed with mixed mustard oil and massaged over joints once daily, till the disease is cured. Applied on forehead twice daily, for 3-4 days.	Piles, Eczema Paralysis, Rheumatism Hyperpyrexia (Very High fever)
	Bile	Applied as eye ointment regularly at bed time, for about 2 weeks. Dilute in water and take orally twice daily, for 2 weeks.	Abscess, Night blindness Liver Problem
	Skin Bile	Fresh skin, skinned and wrapped over affected area 4-5 drops of bile diluted in a glass of water and drink in the empty stomach once daily, for 2 weeks.	Burn wound Jaundice
Toad, <i>Buffo</i> sp. (Linnaeus)	Heart & Blood	Heart and fresh blood mixed with clove, cardamom, black pepper and make a pest and take orally twice	Pneumonia

daily, for 2 weeks.			
Flying Frog, <i>Rhacophorus</i> sp. (Kuhl & Hasselt)	Flesh	Cooked with light spices like clove, cardamom, black pepper and consumed once daily, for once week.	Pneumonia, Asthma, Ribs pain
	Whole body	Chopped and wrapped around affected site 3-4 times for one day only.	Snake-bite
	Bile	Applied on forehead twice daily, for 3-4 days.	Hyperpyrexia (Very High fever)
Tree frog, <i>Hyla</i> sp. (Laurenti)	Whole body	Chopped and wrapped around affected site 3-4 times for one day only.	Scorpion-bite

Table 3. Medicinal use of Some Reptiles by Tharu tribes of Devipatan division of U.P.

Name of Reptiles	Part (s)used	Mode of application	Nature of Ailments/ diseases
	Flesh	Boiled or cooked with light spices and consumed once daily, for 3 weeks.	Asthma, Bronchitis, Tuberculosis
Indian Cobra, <i>Naja naja</i> (Linnaeus)	Fat	Warmed and massaged twice daily on affected area/ joints/ phallus, for about 8 weeks.	Paralysis, Rheumatism/ joint pain, Loss of erectile power
	Gall Bladder	Raw gall bladder/ Bile taken orally once daily, for 3 days.	Tonsil
Viper, (Not specific)	Flesh	Cooked with light spices and given to the lactating women once daily, for 2 weeks	Golactoschesia
	Fat	Warmed and massaged twice daily on affected area/ phallus, for about 8 weeks.	Paralysis, Joint Pain, Impotency
	Flesh	Cooked with light spices and eaten once daily	Pain or Body ache
Rat snake, <i>Ptyas mucosus</i> (Linnaeus)	Scale	Incinerated powder with honey once daily, for 4 weeks.	Loss of sexual vigour, Menstrual irregularity
	Fat	Warmed and massaged twice daily on affected area/ phallus, for about 8 weeks.	Paralysis, Sciatica, Impotency
	Flesh	Boiled with salt and soup taken once a week, till the disease is cured.	Rheumatism, Asthma
Python, <i>Python malurius</i> (Linnaeus)	Flesh	Cooked with light spices and given to the lactating women once daily, for 2 weeks.	Galactoschesia
	Liver	Dried powder with water taken orally once daily, till the disease is cured.	Night blindness, Conjunctivities
	Fat	Warmed fat applied externally once daily, till the disease is cured.	Vitiligo, Wound, Abscess
Indian Mabuya, <i>Eutropis carinata</i> (Schneider)	Flesh	Boiled with salt and soup taken orally	Snake bite and pain
	Whole body	Cooked and consumed once a week, for 4 weeks.	Loss of erectile power Tachycardia
Indian wall lizard, <i>Hemidactylus</i> sp. (Ruppell)	Flesh	Flesh is inserted in banana and eats orally twice daily.	Act as Pain killer
	Whole body	Fried in mustard oil, extract is applied over affected sites twice daily, till the disease is cured.	Alopecia, wound
		Warmed and applied on head once daily, for 1-4 weeks.	Dandruff, Baldness, Eczema, Ringworm,
Indian spiny-tailed lizards, <i>Uromastix</i> sp.,	Fat	Warmed and massaged on chest twice daily, for one week.	Pneumonia
		Rubbed the oil extract on lumbo-sacral region once daily, for 5 weeks.	Impotency

Monitor lizard, <i>Varanus</i> sp. (Merrem)	Flesh	Boiled the flesh with salt and take orally once daily, for one week.	Skin diseases (Ring worm)
Tortoise & Turtles (Not specific)	Flesh	Cooked without spices and consumed once daily, for 2 weeks.	Ricketts, Asthma, Tuberculosis.
	Fat	Warmed and applied / massaged daily, till the disease is cured.	Piles/Paralysis, Rheumatism

The information collected during interview revealed that Tharu tribes of Davipatan division were used whole body/ flesh/ liver/ gall bladder/ fat/ teeth/ scales/ mucus of 11 fish species to treat various human diseases viz. asthma, Whooping cough, Bronchitis, tuberculosis, diabetes, gastric problem, impotency, eyes problems, high blood pressure, malaria, anemia and general weakness etc. The use of whole body or body's parts and their byproduct of number of fishes were used as drugs to treat different diseases by different ethnic communities of different geographical regions in India (Borah & Prasad, 2017; Gupta & Kyparisis, 1987; Jamir & Lal, 2005; Joseph, 1982) reported that otoliths, hard calcium carbonate bodies present in the internal ear of fish, *Pseudosciaena coitor* (Hamilton) belongs to family Scianidae and order Perciformes was used by tribe of Banda district of U.P. for the curing the rickets among children and stone trouble and blockages in urinary passage. In the present study, out of two 11 species 2 species are very rare and comes under the endangered category. This finding demonstrates the importance of local faunal diversity in furnishing folk medicine as suggested by Alves & Rosa, (2007) who observed that faunal composition, accessibility and availability directly influence the type of zootherapeutic resources used in any given region.

The information from tharu tribes of Davipatan division revealed that they were used whole body, flesh, skin, heart, blood, bile and fat of 4 species of amphibians for the treatment of asthma, Whooping cough, pneumonia, hyperpyrexia, jaundice, rheumatic-joint pain, piles and skin diseases etc. The use of whole body and their body parts of amphibians were used as drugs to treat different diseases by different ethnic communities of different geographical regions in India (Borah & Prasad, 2017; Dixit *et al.*, 2010; Jamir & Lal, 2005). The information from tharu tribes of Davipatan division revealed that they were used whole body, flesh, liver and fat of 9 species of reptiles for the treatment of asthma, Bronchitis, Tuberculosis, pneumonia, rheumatic-joint pain, piles and skin diseases etc. The use of whole body and their body parts of reptiles were used as drugs to treat different diseases by different ethnic communities of different geographical regions in India (Borah & Prasad, 2017; Dixit *et al.*, 2010; Jamir & Lal, 2005). The medico-ethnozoological data collected during survey from tharu tribes of the Davipatan division of Uttar Pradesh revealed fascinating information regarding the medical applications of different parts of amniotes animals

and their byproducts might serve as potential sources in curing a wide spectrum of ailments. It is pertinent that tharu tribe is not alone that uses the various species of animals as potential sources of drug that heals various kinds of ailments. Similar practice has also been reported in many other tribal communities from the Indian subcontinent and abroad (Jamir & Lal, 2005). On the basis of information collected during interview it is come to know that tharu tribes believes in sustainable use of natural resources but with the interference of modern man in consumption of animal origin drugs has led to large scale killing of some rare and endangered wild life species threatening their extension.

CONCLUSION

Use of different body parts of anamniotes animals and their byproducts for indigenous medicinal purposes in the study site is the main primary health care system. This study is the first effort to document the traditional zootherapeutic knowledge common among the indigenous inhabitants of Indo-Nepal border of eastern Uttar Pradesh. Traditional knowledge is not only significant for its pharmacological value, but also related with different cultural beliefs and sentiments of the indigenous people. This study provides the base for further scientific validation of the therapeutic efficacy of various zootherapeutic traditional uses by these people and finding novel biological compound(s) towards discovery of new drugs. This may also help in better understanding of traditional zootherapeutic medicine, its interrelationship with the socioeconomic and ecological values of the region, biodiversity conservation and management strategies of animal resources for sustainable use.

ACKNOWLEDGEMENT

The authors are thankful to the local healers (Guruwa) and village headmen of different villages of Tharu tribes whose cooperation during information collection could make the preparation of this manuscript possible.

REFERENCES

- Alves, R. R., & Rosa, I. L. (2007). Zootherapeutic practices among fishing communities in North and Northeast Brazil: A comparison. *Journal of Ethnopharmacology*, 111(1), 82-103.

- Azmi, H. (1991). Use of homoeothermic animals as traditional drugs in certain tribes of eastern (Purvanchal) Uttar Pradesh. *Uttar Pradesh Journal of Zoology*, 36-42.
- Borah, M. P., & Prasad, S. B. (2017). Ethnozoological study of animals based medicine used by traditional healers and indigenous inhabitants in the adjoining areas of Gibbon Wildlife Sanctuary, Assam, India. *Journal of Ethnobiology and Ethnomedicine*, 13(1), 39.
- Dixit, A., Kadavul, K., Rajalakshmi, S., & Shekhawat, M. (2010). Ethno-medico-biological studies of South India. *Indian Journal of Traditional Knowledge*, 9(1), 116-118.
- Ghosh, A., & Maiti, P. (1992). A brief report on ethnozoological research in India. *Proceeding of 2nd International Congress Ethnobiology, Mexico City*. 1-189.
- Gupta, S. K., & Kyparisis, J. (1987). Single machine scheduling research. *Omega*, 15(3), 207-227.
- Jamir, N., & Lal, P. (2005). Ethanozoological practice among Naga tribes. *Indian Journal of Traditional Knowledge*, 1, 100-104.
- Joseph, A. (1982). Use of animals as drugs in certain tribals of Madhya Pradesh. *Journal of Pharmacology*, 2, 229.
- Prakash, S., Borreguero, L. J., Sylva, M., Flores Ruiz, L., Rezai, F., Gunst, Q. D., van den Hoff, M. J. (2017). Deletion of Fstl1 (Follistatin-like 1) From the endocardial/endothelial lineage causes mitral valve disease. *Arteriosclerosis, Thrombosis, and Vascular Biology*, 37(9), e116-e130.
- Puri, H. (1970). Drugs of animal origin used in Indian Systems of Medicine. *Nagarjun*, 13, 21.
- Puspagandhan, P. (1990). Animals and animal products used in local health traditions of India: *Nagarjun*. 33, 1-89.
- Sharma, V. (1990). The relevance of ethnomedico-zoological drugs of insect origin used by aborigines of Rajasthan State, India. *Annals of Entomology*, 8(2), 43-45.
- Sharma, V. P. (1990). Ethnomedicozoological studies on the invertebrates of Rajasthan. *Uttar Pradesh Journal of Zoology*, 10(2), 133-136.