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Medico-ethnozoological studies on homoeothermic vertebrates of devipatan division of Uttar Pradesh, India

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Abstract

Despite the importance of medico-ethnozoological studies on the therapeutic use of animals and their product have been neglected, when compared to plants. This paper discusses some related aspects of the use of homoeothermic vertebrates and their product as medicines, and their implications for public health. During the course of ethnozoological study of Indo-Nepal border of eastern U.P., covering 56 villages of 3 districts, available information with regard to the native use of the medicine derived from 11 birds and 13 mammals by the tharu tribes in the treatment of various diseases has been recorded. The present study has revealed the medicinal uses of different parts or organs or byproducts of several species of birds and mammals in the treatment of various human diseases.

Keywords: Homoeothermic animals, Ethnozoology, Tharu tribes, Devipatan division.

Introduction

Bioresources and humans have intimate relationship since past and depending upon each other for existence. Now days, greater emphasis is being laid on the traditional knowledge regarding application of bioresources in the indigenous healing practices by tribal / ethnic people science ancient time. About 70-80% of world's rural population depends on traditional / indigenous drugs for their primary health care. The percentage of the population using traditional medicines for primary health care in developing countries is 60-90% than that in developed countries (23-80%) (Borah and Prasad, 2017) [3].

Ethnozoology is a branch of science which deals the relationship between economically important animals and socio-cultural aspects of tribal people. The discipline of Ethnozoology also represents and focuses on the ways in which animals influence the life of tribal people (Vohora and Khan, 1978) [19]. It also deals with studies among the tribes and rural people for recording their unique knowledge about animal's wealth and search of new drug of animal origin and conservation of useful and economically important animals. As the importance of drugs of animal origin is being realized throughout the globe including the developed countries, the medico-ethnozoological studies are getting enhanced attention of the researchers. It deals the healing of human ailments by using medicines prepared from different animals and /or animal derived byproducts.

India is rich in faunal diversity and have about 54,600 insects, 2546 fishes, 209 amphibians, 456 reptiles, 1232 birds and 390 mammals (Alfred, 1998) [1]. About 15-20% of the Ayurvedic medicines are based on animal derived substances have been reported and documented in great historical books like Ayurveda and Charak Sanghita in India (Unnikrishnan, 1981). Number of tribal communities inhabiting in different geographical part of India have rich traditional knowledge about medicines of animal origin for their primary health care needs (Mahawar and Jaroli, 2008) [9]. But the healthcare knowledge of these communities is not documented, and has been 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. 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. Therefore, it is utmost important to record the conventional traditional knowledge of tribal communities as the socio-economic culture of these tribal communities are depleting at an alarming rate.

However, inadequate attempts have been made to elucidate medicinal significance of animals and their products in certain tribal communities of India

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(Puri, 1970; Joseph, 1982; Puspagandhan, 1990; Ghosh and Maiti, 1992) [10, 7, 11, 5]. The objective of the present study was to elucidate traditional knowledge of Tharu tribes inhabiting at Indo-Nepal border in 46 villages of Bahraich, Shravasti and Balrampur districts of Devipatan division of Uttar Pradesh for the treatment of various kinds of ailments using animals and their products. Authors emphasized to gather ethno-zoological information of vertebrate animals mainly homoeothermic vertebrates. The latter includes two vertebrates classes namely Aves and Mammals. Thus the observations of the study provide sustainable utilization of bio resources or biodiversity and also protect traditional knowledge for future generation.

Study area

Devipatan division of eastern Uttar Pradesh lies between 26°48' and 29°24' N and 81°30' and 82°40' 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 used many animal and plant species for healthcare practices and have enormous knowledge about their medicinal usage.



Fig 1: Map of U.P. showing the inhabiting area Tharu tribes

Material and Methods

The information regarding medicinal use of animals and their products were collected through personal interviews or face to face interaction from medicine men or local healer (*Guruwa*), village headmen, elderly persons during frequent visits of Tharuat (Tharu area) of Balrampur, Shravasti and Bahraich districts of Devipatan division of U.P. The collected data has been presented giving zoological and common names, part or product of animal body used as medicine, mode of application and the ailment or disease against which it has been used

(Table 1&2).

Results and Discussion

The information regarding medicinal application of homoeothermic vertebrate's animals (Aves and Mammals) and their body parts or byproducts used as drug against the different ailment has been presented in Table 1-2.

The present investigation reveals that total 11 birds species were used by Tharu tribes of Devipatan division of U.P. to treat number of human diseases had been listed in table 1.

Table 1: Medicinal use of Some Aves by Tharu tribes of Devipatan division of U.P.

Name of Birds (Conservation Status)	Part (s) used	Mode of application	Nature of Ailments/ diseases
Oriental Darter, <i>Anbinga</i> sp. (Near Threatened)	Flesh	Cooked and consumed once daily by lactating women, for 3 weeks.	Golactoschesia
	Bone	Grinded and burn in narrow mouth vessel for inhaling emerging fumes once daily, for 3 weeks.	Fits
	Gizzards	Dried powdered mixed in water and given to the sufferer person once daily in the morning for 3 days,	Dysentery
	Blood	Fresh blood applied externally on the affected skin once daily, for 4 weeks.	Skin diseases, Measles
Duck,	Flesh	Boiled with light salt and black pepper and soup consumed	Asthma, Bronchitis,

<i>Anas indica</i> (Threatened)		twice a week, for 4 weeks.	Tuberculosis
	Liver	Liver oil is applied into eyes once daily, for 4 weeks.	Weak-sight, Night blindness
	Fat	Massaged with Luke warmed fat on chest / joints/ affected sites till the disease is cured.	Pneumonia/ chest pain/ joint pain/ Paralysis
	Egg Yolk	Applied on the chest of infants /babies three times daily, till disease is cured.	Pneumonia
	Blood	Fresh blood applied externally on the affected skin once daily, for 4 weeks.	Skin diseases, Measles
Owl, <i>Bubo bubo</i> (Least concern)	Flesh	Cooled with light spices and eaten once daily for 3 weeks.	Eyes problem
Crow, <i>Corvus sp.</i> (Least concern)	Flesh & Tongue	Cooked with light spices and consumed once daily for 3 weeks.	Asthma, Tonsillitis, Body & joint pains, Improve memory
	Bone	Powder of bone suspended in water and prepare ear drop	Earache
Peacock, <i>Parorist sp.</i> (Least concern)	Flesh	Cooked with light spices and consumed once daily for 3 weeks.	To improve sexual performance
Hornbill, <i>Buceros sp.</i> (Vulnerable)	Fat	Massaged with Luke warmed fat on phallus/ anus/ head/ affected sites till the disease is cured.	Impotency/Piles/ Baldness/ Paralysis/ Sciatica
Small Indian Kite, <i>Milvus migrans</i> (Least concern)	Fat	Massaged with Luke warmed fat on chest of babies / phallus/joints/ anus/affected sites till the disease is cured.	Pneumonia/ Breathing difficulty/Impotency Rheumatic pain/ Piles/ Paralysis
Pigeon, <i>Columbia livia</i> (Least concern)	Flesh	Flesh of young birds is cooked and consumed once daily, for 3 weeks.	General weakness, Paralysis.
		Powder of dried flesh with milk once daily, for 2 weeks.	Menstrual irregularity
	Feathers	Ash of feather with milk / water	lymphatic ailments
Common Quail, <i>Coturnix sp.</i> (Least concern)	Flesh	2-3 birds cooked with green chili and black pepper and consumed once daily, for 3 weeks.	Typhoid
Spotted dove, <i>Streptopelia chinensis</i> (Least concern)	Feather	Incinerated powder with water three times per day, for 3-4 days.	Abdominal pain, Vomiting
Indian vulture, <i>Gyps indicus</i> (Endangered)	Fat	Massaged with Luke warmed fat on affected sites twice daily, till the disease is cured.	Muscular pain, Rheumatism, Paralysis, Fracture

The information collected during interview revealed that tharu tribes of Davipatan division were used flesh, liver, gizzards, bone, feather, blood, fat and egg of 11 birds species to treat various human ailments viz. asthma, pneumonia, bronchitis, tuberculosis, gastric problem, eyes and ear problems, sexual problem, paralysis, muscular and joint pains, typhoid, skin diseases and general weakness etc. Azmi (1991) [2] reported that flesh and different byproducts of 6 species of birds (Crow, hen, House sparrow, pigeon, pond heron and white stork) were used by certain tribes of eastern U.P. to treat

various human ailments. Jamir and Lal (2005) [6] reported that flesh and bones of 3 species of birds (Crow, Peacock and Pigeon) were used to treat number of human diseases by Naga tribes. Dixit *et al.* (2010) [4] reported that flesh, fat and eggs of 5 species of birds (Duck, Crow, Owl, Blue pigeon and peacock) were used by tribal people of South India to treat various human diseases. As per the conservation status of these 11 bird species, 1 comes under EN(Endangered), 1 under NT (Near threatened), 1 under TH (Threatened), 1 under VU (Vulnerable), and 7 under LC (least concern).

Table 2: Medicinal use of mammals by Tharu tribes of Devipatan division of U.P.

Name of Mammals (Conservation Status)	Part (s) used	Mode of application	Nature of Ailments/ diseases
Bat, <i>Pteropus sp.</i>	Fat	Luke warmed fat applied on phallus and infected area / massaged externally on joints twice daily till the disease cured	Male impotency and Eczema / Rheumatism,
	Flesh	Cooked thoroughly and consumed twice daily, for about 4 weeks.	Asthma, Tuberculosis, Night blindness
Cat, <i>Felis libia</i>	Placenta	Squashed, dissolved in water and given to the patient twice daily, for 2 weeks	Asthma, Bronchitis, Tuberculosis
	Fat	Applied / Massaged with Luke warm fat twice daily, for one week.	Piles, Ribs pain, waist pain, paralysis, Fracture, Rheumatism
Fox, <i>Vulpes sp.</i>	Flesh	Cooked/ roasted and consumed twice daily by ladies after delivery, for 1-2 weeks.	Swelling of body, general weakness, Poor lactation
		Massaged with Luke warmed fat once daily till the disease cured.	Paralysis, Rheumatism
	Fat	Applied externally till the disease is cured	Skin disease, Eczema
Squirrel, <i>Funambulus sp.</i>	Flesh	Cooked with light spices and salt and eaten twice daily, for 3 weeks.	Epilepsy

Ass, <i>Equus sp.</i>	Milk	Taken once daily in the morning till the disease is cured.	Asthma, Tuberculosis
	Fat	Warmed and massaged on the chest of infants and young also 3 times daily, for one week.	Pneumonia, Chest Pain, Bronchitis, Whooping cough,
Buffalo, <i>Bubalus bubalis</i>	Dung	Fresh dung applied externally on head twice daily, for one week	Head-boils
	Butter	Massaged or applied on joints twice daily, for 2 weeks.	Rheumatism, Wound
Cow, <i>Bos indicus</i>	Dung	Fresh dung applied externally on head twice daily, for one week	Head-boils
	Urine	Filtered and orally taken with 3-4 'Basil' leaves and black pepper once daily.	Swollen of body, Age stabilizer
Dog, <i>Canis familiaris</i>	Saliva	Applied externally over the affected sites twice daily, for 2 weeks.	Syphilis, Gonorrhoea
	Urine	Filtered and applied in ear and forehead	Earache, Headache
Elephant, <i>Elaphus maximus</i>	Dung	Mixed with water and applied externally Till the disease is cured.	Skin diseases.
	Tusk	Powered, mixed with mustard oil and applied externally thrice daily, for 4 weeks.	Leucoderma, Eczema, Ringworm
Goat, <i>Capra sp.</i>	Blood	Dried and cooked with flesh and taken once daily, for 3 weeks.	Anemia, General weakness
	Milk	Taken orally in the morning till the disease is cured	Tuberculosis, Dengue fever
		Dropped in the eyes 3 times daily, for one week.	Eye trouble
	Brain	Boiled in water with salt & Black pepper and soup taken orally once daily, for 4 weeks.	Weak memory, Night blindness
	Excreta	Burned and fumes taken by patient once daily, for one week.	Breathing problem, Tuberculosis
	Urine	Filtered and taken orally twice daily, for 1-3 weeks.	Paralysis, Asthma, Tuberculosis, Stomachache.
Jackal, <i>Canis aureus</i>	Liver	Cooked with light spices and taken twice daily, for 2 weeks.	Jaundice, Night-blindness
	Flesh	Cooked with light spices and salt and eaten twice daily, for 3 weeks.	Rheumatism
	Fat	Warmed and applied/ massaged externally twice daily, till the disease is cured.	Skin diseases, Piles, Cracked foot, Bone fracture
Monkey, <i>Macaca sp.</i>	Blood	Applied over the affected sites once daily, for 3 weeks.	Eczema, Skin diseases.
	Flesh	Cooked with light spices and salt and consumed twice daily, for 4 weeks.	Asthma, Anemia, Tuberculosis, Stomach disorders
Pig, <i>Sus scrofa</i>	Blood	Taken fresh or dried form once daily, for 4 weeks.	Breathing Problems,
	Fat	Slightly warmed and massaged regularly once daily till the disease is cured.	Rheumatism, Paralysis
		Warmed and applied externally once daily, for 3 weeks.	Piles, Skin diseases, Cracked-foot.
Urine	Filtered and taken daily in the morning, for 4 weeks.	Epilepsy / Fits	
Panther, <i>Panthera pardus</i>	Fat	Warmed and massaged once daily, till the disease is cured.	Muscular pain, Rheumatism
Wild boar, <i>Sus scrofa cristatus</i>	Bile	Applied on forehead once daily, for about 21 days.	Hypertension
	Fat	Warmed and massaged twice daily, for 3 weeks.	Rheumatism, Bone fracture, Chest pain, Paralysis,
Indian wolf, <i>Canis lupus</i>	Fat	Slightly warmed and applied / massaged externally till the disease is cured.	Skin diseases, Eczema, Paralysis
Antelope: Neelgai, <i>Boselaphus sp.</i> & Dear, <i>Cervus sp.</i>	Fat	Mixed with mustard oil and massaged twice daily for one week. Applied externally on twice daily for one week.	Muscular & Chest pain, Rheumatism. Burn wound & Piles.
Bear, <i>Melursus sp.</i>	Fat	Slightly warmed and massaged on lumbo-sacral region once daily at night for one month.	Loss of erectile power, Sciatica
	Gall Bladder & Duct extracts	Take with water for 3 days	Stomach disorder

The study revealed that flesh, liver, brain, fat, milk, butter, gall bladder, tusk, brain, Eczema, blood of 18 species of mammals used by tharu tribes of Davipatan division to treat various human ailments viz. asthma, pneumonia, bronchitis, tuberculosis, paralysis, Eczema or skin diseases, chest, muscular and joint pains, sexual, gastric, eyes and ear problems, typhoid, sciatica and general weakness etc., had been listed as endangered and threatened species. Azmi (1991) [2] reported that flesh and different byproducts of 9 species of mammals were used by certain tribes of eastern U.P. to treat various human ailments. Jamir and Lal (2005) [6] reported that flesh, fat, milk, liver and bones of 13 species of mammals were used to treat number of human diseases by Naga tribes. Dixit *et al.*, (2010) [4] reported that flesh, fat and byproducts of 10 species of mammals were used by tribal

people of South India to treat various human diseases.

Tharu tribes believes in sustainable use of bioresources 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. There is a delicate interrelationship between the forest ecosystems, its inherent biodiversity and the traditions and culture of tribes. Biodiversity deterioration adversely affects this property because it has different levels and values (Verma, 2015, 2016) [13, 14]. The genetic diversity acts as a buffer for biodiversity (Verma, 2017a) [15]. The biodiversity helps in maintaining the ecological balance, which is required for widespread biodiversity (Verma, 2017b) [16] and its loss has ecological impact (Kumar and Verma, 2017) [8]. Biodiversity conservation is more or less related with

agriculture, environmental ethics and sustainability (Verma, 2017c, 2017d) ^[17, 18].

Disruption of forest ecosystem and biodiversity results in the degeneration of the natural habitat of indigenous people and their culture. Tribes should recognize their identity, culture and interests and enable their effective participation in the achievement of sustainable development. The traditional knowledge and bioresource management practices of the indigenous people should be applied in modern development strategies.

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